

# 10 Trade in Services Telecommunications

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This chapter focuses on trade arrangements for international telecommunications and information services. It is organized in four parts. After a brief preview of the key messages, the first part provides background on the major changes that have transformed and globalized communications and information technology during the past two decades. The second part reviews the agreements that have altered the governance mechanism that manage international telecommunications that came out of the Uruguay Round (1994), the Basic Telecommunications Agreement (BTA) (1997), and other international agreements. It also examines the regulatory choices tied to competition and trade in telecommunications services. Finally, the third part provides an overview of the international telecommunications/IT issues that are under consideration in the Doha Round negotiations. It seeks to explain what the industrial countries are seeking, why they argue that these additional reforms are desirable, and whether and under what circumstances these arguments might make sense to developing countries and their negotiators. Costa Rica's telecommunications services commitments in the U.S.–Central American–Dominican Republic Free Trade Agreement are described in Annex 1 of this chapter. In Annex 2 to the chapter, the experiences of Ghana and South Korea are considered as they adapted their national systems to the post-1997 telecommunications reality.

## **Introduction: A Preview of the Key Messages**

There are ten key, interrelated messages that might be drawn from what follows.

1. Robust and inexpensive telecommunications and information technology is a key to growth: Global markets are important for long-term economic success. Even the most basic engagement with export markets requires increasingly sophisticated communications links. For example, Wal-Mart buys in large volume from China, but only from suppliers that they interact with by modern data communications. Similarly, the tourist, convention, and entertainment industries are a steadily growing share of the world economy, but they all require a sophisticated communications infrastructure.

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2. **Benefits of Competition:** Countries need competition, not because it is perfect, but because everything else is even worse. Telecom monopolists always used to claim that their industry was special and that monopoly was the only possible approach to allocate scarce resources efficiently. The last 20 years have decisively demonstrated that telecommunications is in fact an ordinary industry and that, like other industries, efficiency benefits if effective competition is introduced.
3. **The Path to Competition:** Many countries believe that they can stage a gradual ascent to competition. They begin by partially privatizing the traditional monopolist, with a strategic foreign investor. They next create a duopoly for cellular services. More competitors, if ever permitted, are phased in slowly over time, but still with an eye to limiting the number of entrants in order to make investment more attractive. Meanwhile, they permit competition in value added services, subject to various restrictions designed to force newcomers to use the infrastructure of the traditional carriers and restrict new applications such as Voice over the Internet (VoIP). This strategy has already proven less productive than a more rapid movement to competition. Just as importantly, it is probably not sustainable in a world of rapidly changing technology.
4. **Benefits of Trade Negotiations:** Trade negotiations are curious when it comes to winners and losers. You win on a point when the other country allows your products into their markets so their consumers and businesses get to pay less money for them. You lose (make a concession) by letting others sell into your market or invest in your market so that your consumers pay less money for goods and services than otherwise. When you make a concession you are redistributing benefits from a few, large concentrated interests to consumers. So, this is hardly “losing” in the traditional sense. You do need to allow for adjustment costs, however, to those who lose while creating a more efficient market.
5. **Trade negotiations should reinforce a strategy for domestic market reform:** A country should make commitments on telecommunications services in trade deals at the WTO (or any other bilateral or regional level) because they advance a plan for reform of the regulation of the telecommunications market. Some specific decisions required for a successful trade negotiation may be politically uncomfortable, but a good trade bargain will allow a developing country to strengthen its reform plan and gain added economic benefits from the reforms.
6. **Need for Transparency and Predictability:** Developing countries that are seen by foreign countries and investors as stable, predictable, transparent, and with low levels of corruption will be more likely to attract significant amounts of foreign investment. The regulatory principles advanced in trade agreements can anchor a strategy to enhance transparent predictable regulation.
7. **Creation of regulatory authorities:** Most countries now recognize that telephone companies (or PTT ministries) should not be in charge of their own oversight. But

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they are slow to invest in creating competent, independent regulators who have necessary enforcement powers and the ability to collect and analyze market information.

8. Trade commitments as a way of reinforcing the credibility of anti-corruption plans: The perspective in many developed countries is that corruption is pervasive in developing countries and that the cost of doing business is therefore higher than in industrial countries. Investors will only invest if they adjust the risk/reward ratio so that they earn more profits quicker than they otherwise might be willing to accept. To the extent that a country is viewed as having laws and institutions that are reasonably honest and reliable, they are more likely to be able to attract outside funds. Botswana is an example of a country that is viewed as well run despite its small size and low levels of development. It has been quite successful in dealing with international financial markets. Trade commitments on telecommunications services can enhance the credibility of measures designed to combat corruption.
9. Restrictions on Foreign Investment: It is common in developing countries to limit foreign investment to minority ownership shares. However, the most successful economies have steadily moved to remove these restrictions on telecommunications. Retaining investment limits means that foreign suppliers worry that they cannot exercise effective management control. This raises the risks of investment and requires a higher return on investment. Many countries increase this rate of return for foreign investors by limiting competition, a policy with its own negative impact on market efficiency.
10. Trade commitments cannot substitute for political will: Pro-competitive regulation to enforce trade commitments is essential because the transition to competition always faces significant political resistance. Unless political leadership believes that basic goals of economic and social development require a robust communications and information technology infrastructure supplied by competitive market forces, regulators will fail.

Trade negotiators are not telecom experts, nor should they have to be. But it is almost impossible to negotiate on this complex market without understanding a few fundamentals about the basic technology—which is changing dramatically—and the economics of the different segments of the market. This chapter is built on key trends that are transforming the telecom/information technology landscape. We begin with the baseline for the market—the design and economics of the traditional wired network—and then look at the changes.

In an annex to the chapter, Roberto Echandi discusses the specific commitments of Costa Rica with regard to telecommunication services in the context of the North American Free Trade Agreement (NAFTA) with the United States.

## Traditional Network Architectures and Economics

The WTO's Basic Telecommunications Agreement (BTA) of 1997 primarily focused on wireline networks, and many of the regulatory concepts that were translated into the BTA flowed from these traditional networks. So, a brief understanding of these networks is desirable as a starting point.

The architecture of the traditional phone network was hierarchical and analog circuit-switched. Complex and extremely expensive large central-office switches oversaw traffic routed by smaller, more local switches over a carefully planned pattern designed to conserve scarce transmission bandwidth and switching capacity. The key role of central-office-switching systems meant that they performed numerous specialized functions that were vital for operation of traditional phone systems, including billing. It is often not practical for competitors to duplicate these capabilities in a timely, cost effective manner.

Box 10.1 reviews the economics of wired networks more closely. There are three points of importance. First, there are large economies of scale and scope (size and complementarity of functions) in networks. For a long time engineers and economists thought that these justified monopolies. Later, they realized that the inefficiencies of monopoly probably offset all of the theoretical gains from larger economies of scale and scope. More rapid technological innovation further reinforced this conclusion. Second, it is possible to share network capabilities efficiently among multiple operators, but this usually requires regulatory intervention for some period of time. Third, there are significant network externalities in communications—the network is more valuable to everyone as more people are connected. This justifies policies to subsidize universal service so long as they are designed efficiently.

### Box 10.1. Economic Principles of Telecommunications

Economists note that telecommunications networks have special cost characteristics: A correct analysis of telecommunications networks has to begin by recognizing that, *in theory*, there is a potential for natural monopoly, especially for the local wired network. Network operators may incur large sunk costs that cannot be redeployed, suggesting that these firms may have declining long-run average cost schedules. These cost schedules can result in natural monopoly in those segments of the industries where the minimum optimal scale of production is large relative to the market demand. However, the case for natural monopoly is much weaker for long-distance (including data) and mobile-wireless networks.

For all forms of communications the regulation of monopoly is imperfect and costly: Even a high-minimum, efficient scale of operation for major network facilities does not necessarily justify monopoly on a national scale. Potential market failures in unregulated industries based on technologies exhibiting scale economies have to be compared with potential regulatory failure when the government tries to regulate natural monopoly. Although regulating imperfectly competitive industries is not entirely without costs, these costs are lower when regulators can deal with several competitors in an oligopolistic market rather than with a monopolist. For one thing, oligopolistic competition yields important economic information for regulators. For another, the presence of some competitive

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constraints means regulators have options other than the micromanagement of carrier costs and revenues. Moreover, competition between two local network operators with declining long-run average cost curves may result in a downward shift of these curves, generating efficiency gains that outweigh the loss of scale economies caused by the moves up along the cost curves. Frequently, competition will induce major reductions in transaction costs that more than offset any losses on scale economies. Finally, in markets characterized by pricing that is only vaguely associated with efficient costing, it may not matter whether new entrants can match the lowest theoretical costs of incumbents. There may still be substantial welfare gains from pricing and service innovations by new entrants.

Network externality effects are also extremely important: Networks are more valuable if there are more people utilizing them. (Shapiro and Varian, 1998) This externality is especially important to interconnection and universal service policies. In developing and transition economies where teledensities (communications lines per 100 people) are rather low, the network externality effect may be pronounced. In this case the marginal social welfare benefit of adding new subscribers to the relatively small network may be large, justifying subsidies that will allow additional users to access the network.

In developing countries the spatial distribution of potential subscribers also is an especially important factor in telecommunications infrastructure deployment. High spatial concentration of users is particularly favorable because it allows the utilization of the economies of density and scope, resulting in lower operating costs for telecommunications networks in concentrated urban areas. Telecommunications services in low-density areas have also traditionally been cross-subsidized by more profitable telecommunications services in concentrated urban areas. Therefore, a relatively uneven demographic landscape with large population concentration in a few select areas could also facilitate the penetration of telecommunications networks in sparsely populated rural areas. The challenge is to subsidize low concentration regions in a way that is efficient and not harmful to competition.

Three giant changes have transformed the structure of telecom services since 1980. The traditional services on the telephone network were local phone, long distance and international long distance services. Later, fax services became prominent as telegraphs and telex shrank to a tiny piece of the market. The telephone network technology also was relatively inflexible so there were separate specialized networks for broadcasting.

The changes in the size of market segments reflect these trends. When the BTA talks seriously recommenced in 1994, the world telecom services market of \$517 billion was about 16 per cent data and 10 per cent mobile. In 2001 the world telecom services market was \$968 billion even though competition had caused prices to plunge in many of the world's largest markets. Just as strikingly, data revenues were about 18.5 per cent even though data were, by volume, now equal in size to voice traffic. In the meantime, mobile had grown to about 33 per cent of world telecom revenues. International traffic had slipped from more than 8 per cent of the total revenue to less than 8 per cent. The equipment market declined in its size relative to services during this period as it grew from \$158 to \$264 billion. This meant it went from roughly 23 per cent of the services market to less than 21 per cent.<sup>1</sup>

These changes overlapped but there was a rough sequence. First, during the 1980s traditional fixed-wired services became segmented between consumer and business

<sup>1</sup> ITU -D, Key GlobalTelecom Indicators.

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services. This was associated with the rise of private corporate networks. Second, computing networks evolved into the Internet architecture, which provided a totally new way for organizing all forms of communications networking. In parallel, the total data transmission capacity (measured by the amount of data that could be transmitted per second) exploded. Today, the internet architecture and broadband capacity are erasing traditional distinctions between services (e.g., broadcast versus voice telephone service). Third, wireless and especially mobile networks have supplanted wired networks as the predominant form of connectivity in developing countries and, to a lesser extent, developed countries.

## **The Rise of Corporate Networks Leads to Competition in Basic Services**

As computer data networking grew in the 1970s and major companies became more communications intensive in their operations, two major adaptations took place in the regulation and business of phone networks. The policy of the United States, where most of these changes began, set a direction eventually mimicked by most major markets. The U.S. decision makers believed that computing offered a major new opportunity for creating revolutions in business models. They also recognized that then existing monopolies had inefficient pricing and supply structures. Their goal was to free the new computer companies from the inefficiencies of the old telephone system without breaking up the monopoly.

So, the Federal Communications Commission required the telephone companies to lease simple transmission capacity (without telephone switching) on a cost-oriented basis to companies wanting to run their own internal telephone and computer networks. This was the origin of the “private leased circuit” segment of the telecommunications market that appears in the BTA schedules. The United States also authorized independent service providers to lease transmission capacity from phone companies, install their own phone switches and computer equipment, and to provide private telephone and data transmission capacity to corporations. This spawned a new wholesale market comprised of new operators who leased capacity in bulk from phone companies and then engaged in “resale” to individual companies. It also greatly enhanced the ability of computer-systems designers to create architectures for data networks that were independent of the architecture of phone networks. Different software and transmission protocols could be devised. This eventually permitted the rise of the Internet.

As a business proposition, traditional phone companies focused on the market for private business networks featuring wholesalers who leased lines and resold them to

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private businesses for internal communications with special value added features such as customized billing systems and reliability guarantees. The data market, even in the mid-1990s, was still much smaller than voice or fax, but it was critical for selling a combined bundle of services to companies. Businesses were the largest single consumers of long-distance services in every country. As a rule of thumb, about five percent of the telephone customers, larger firms and government, accounted for close to fifty percent of the long-distance market in any industrial country. As a result, the ability of businesses to lower their costs of voice and improve the effectiveness of computer networking was a key driver of innovation in firms. To a significant extent the Value added telecom services and BTA negotiations were driven by firms seeking competition globally in the provision of these business service segments.

Creating a competitive market in business services soon lent itself to creating competition in long-distance services. It is important to recognize that the transmission capacity in a phone network has, to simplify greatly, two components - local transmission capacity (such as the connection to family residences or small businesses) and the larger scale transport circuits often called the backbone network (transmission capacity, typically fiber optic today, that links together the large office buildings in Tokyo or the long distance traffic between cities). For reasons of engineering and economics it is much easier for a new entrant to build its own backbone wired network than to duplicate local transmission capacity of a wired network (often called "the last mile") in a timely way. Thus, the operator who controls local wired transmission has significant strategic advantages that may allow the operator to restrict competition by other companies for some services. Since the introduction of competition in business services and (later) long-distance services, government regulators had to intervene extensively to make sure that transmission capacity, especially local capacity, was available to new entrants on cost effective and timely terms. Large users began to support competitive provision of the underlying telephone infrastructures, not just the ability to lease transmission from monopolies, in the hope that it would allow for more innovative and cheaper underlying network transmission systems.

Competition evolved still further to include the competitive provision of local telephone services, networks to support Internet Service Providers (ISPs) and provision of broadband connections to residences and small businesses through Asymmetric Digital Subscriber Line systems (ADSLs use special electronics to boost data capacity on the local transmission system). The problem for government regulators became even more complex. In addition to making transmission capacity available, they had to open up access to a number of other technological capabilities for "rental" by new entrants. These "network elements" ranged from billing systems to operations-support systems. Along with transmission and switching, regulators pledge to make them available on a cost effective and timely manner through "interconnection" regulations to new entrants. So long as the incumbent phone company has the ability and incentive to cut off competition by new

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entrants through denying effective access to these network elements, interconnection regulation is necessary. Over time, as in long distance transmission facilities in the United States, the incumbent can lose this power and regulation can be removed.

By the mid-1990s the business service and research users' computer networks evolved into the Internet. The difference between the architecture of the telephone and Internet systems explains some of the key stakes in the negotiations over communications services in the Doha Round.

### THE RISE OF THE INTERNET

Data are replacing voice as the dominant use of major communication networks, thanks to the Internet, the Web, and the continuing sharp declines in computing costs. In addition, phones are becoming interchangeable with computers as witnessed by the latest cell phones (which have powerful micro-processors).<sup>2</sup> As a result every network of an effective economy will have to support data applications reliably. A modern economy requires a network that can carry vast amounts of information. This has two fundamental implications. First, the cost of data traffic needs to be inexpensive. Internet use, for instance, responds to pricing. Second, inexpensive and reliable data networking means an even more rapid acceleration of the collapse of much of the pricing structure for traditional phone services. Countries will need to depend on elasticities of demand to generate large amounts of flows of information at affordable prices instead of soaking a few well-healed users, many of them foreign, with exorbitant prices. Pricing policies that will attract flows therefore are necessary.

Altogether, Internet architectures are cheaper and more powerful than traditional phone networks.<sup>3</sup> It also means that, as transmission capacity expands and becomes cheaper (e.g., for leading edge users of broadband) the distinctions among broadcast,

<sup>2</sup> For example, the next generation of cell phones will have the capability of playing complete songs downloaded from the network. The trick will be to download songs and then store them in memory on the phone. High end phones will be like an I-Pod.

<sup>3</sup> A phone call, for example, took place because a central-office switch created a single dedicated circuit between the two telephones for the duration of the call. These circuits were analog (a technology not congenial to computing traffic) and wasted transmission bandwidth because most conversations only used a fraction of the dedicated circuit's capacity. The architecture of the Internet is the exact opposite of the phone network because it relies on digital computing logic. (All telecom traffic is organized into signals consisting of the binary 1s and 0s of computing systems.) It also uses a relatively flat architecture to transmit and receive packets. Put simply, phone calls, email, and movies are all organized into packets of binary digital information that include an address for where each packet should go, an error correction code, and some other basic features. Smart computers (routers) use a shared table of Internet addresses to figure out the most efficient way to route the packet traffic to its destination. There is no dedicated circuit; each packet could theoretically follow a different route, so bandwidth is used much more efficiently. There is no hierarchy of highly specialized phone switches; each router has software capable of making its own routing decisions. This decentralization of network intelligence on what are essentially powerful personal computers allows more flexibility in traffic management at lower costs, and it allows for much faster technology upgrades and innovation.



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computing, and telephone networks start to dissolve. In networks serving large users, such as big banks, speed and bandwidth capacity already are high and constantly escalate. (A special concern for developing countries is that the level of high-end bandwidth available to their economies remains relatively low and expensive by global standards.) Generally, for households and small and medium sized enterprises, the distinction is made between narrow band (speeds roughly up to 64k) and broadband (speeds of anywhere from 500 kb/s upwards). On wired networks these broadband capabilities for smaller customers usually arrive by means of either ADSL or cable-modem networks (delivering data over a cable television system with upgraded electronics and reliability). Both ADSL and cable-modem systems deliver Internet services.

The difference in architectures between the phone and Internet models of a network implies differences about risk-taking and innovation that will often show up in discussions about the risks and benefits of competition in trade negotiations. Traditional telephone-network engineering emphasizes careful conservative engineering to assure reliability and quality. Innovation is a process of elaborate international planning on standards. Questions are asked, and answered, exhaustively before heading off in a new direction. By contrast, the Internet approach emphasizes the application of the logic of Moore's law to networking. (Moore's law states that the power of computer chips doubles every eighteen months while cost remains constant.) The implications—rapid innovation to more powerful capabilities with plunging real prices for performance—fuel Internet architecture. Its designers have bet successfully that they can begin service innovations without complete solutions because they can ride the curve of the logic of Moore's law. Throwing ever increasing computing power at lower costs at a problem allows for flexible problem-solving. Moreover, it is not just computing. For example, the performance of both network-data storage and fiber-optic-network speed and capacity has grown more rapidly than the rates for computing in recent years.

The impact of the Internet is becoming ubiquitous. The Internet changes how a network is organized, the services it can provide, and its cost structure. These differences have significant implications for both telecom regulation and BTA commitments. The BTA was negotiated without full absorption of the implications of the Internet. Now, services specialists need to understand its impact. The Internet is a descendant of computer networking and, under many regulatory definitions, including perhaps the BTA definitions, it is therefore not a basic telecommunications service (e.g., a phone call) but a value added computing service. As just noted, regulators in most countries exempted computer networking from many of the rules for phone networks, including the funding of subsidies for universal service. (Broadcasting had a separate regulatory system for its specialized networks.) Thus, as the Internet becomes more ubiquitous and has greater bandwidth, it poses huge challenges because it is capable of incrementally upgrading to cover voice phone and video-style services. These are exempt from many regulations on traditional phone networks. Many phone companies already use Internet

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telephony (Voice over the Internet Protocol, or VoIP) to send some of their phone calls to other countries because, as computer messages under the regulations, they are exempt from more expensive interconnection charges for voice calls.<sup>4</sup>

Thus, when looking at the scheduling of commitments on market access, the following considerations are important:

1. At a minimum, countries with large corporate centers will be looking for ways to allow competition in the provision of private corporate networks for voice and data. They will also want competition in the wholesale/resale business that supports such corporate networking.
2. If a country schedules a commitment to competition in local or long-distance basic services, or competition in the provision of networking for ISPs or the provision of broadband networking for data, it also has to embrace a framework for interconnection regulation.
3. Countries have to make careful choices between commitments on competition in the provision of services and competition in the provision of network infrastructure that underlies these services. The overwhelming trend is to permitting competition in both. But many developing countries reserve the right to limit the total number of competitors providing infrastructure either temporarily or permanently.
4. The Internet and greater bandwidth mean that scheduling commitments for different market segments interact in new ways. For example, scheduling commitments for competition in value added computing networks and voice services may mean that a country has committed itself to permitting the provision of voice services as VoIP services exempt from local pricing and subsidy rules for traditional voice services. This can be avoided by special scheduling restrictions if a country so desires.

<sup>4</sup> The business model for communication carriers may change dramatically in the future. In the late 1990s, new competitors in the marketplace closely resembled traditional telecom companies except that they had leaner staffing and corporate cultures more attuned to marketing. This was much like the introduction of more competition in the main-frame computer industry in the 1950s when the rivals to IBM looked much like mini-IBMs. The impact of the new technologies may lead to completely new business models that reflect new cost structures and service opportunities. The goal of regulation should be to permit, not restrict, experiments with these business models. For example, the largest costs for a traditional telephone company include extensive marketing, billing, and general management systems. Wireless technology in low population markets, by contrast, could permit much smaller companies with much less expensive approaches to billing and marketing. Yet, policies restricting the number of entrants and requiring large networks by new entrants into a marketplace drive companies to replicate the old models of telephone companies. For example, Voice over Internet providers look much like Dell Computers in their staffing and production models. Like Dell, they use business models that are vastly different from those of traditional phone companies. The model for rural service in the future may be more like McDonalds than NTT. Technology may make local franchising systems more appropriate than large telephone companies. Vendors can supply the technology package and management practices on an expedited, low-cost basis. Entry regulations are the enemy of spontaneous experimentation.

## THE RISE OF WIRELESS NETWORKING

If the rise of private business networks and the associated businesses of leased lines and resale define one great change and the emergence of the Internet is a second, then the third key change is the emergence of a genuine alternative to wired infrastructure for all but the highest bandwidth. Wireless networks now connect more users than do wired networks.

The divisions with wireless can be roughly represented as in Table 10.1.

Satellite was the first major fixed wireless system of the modern era. It was a substitute for conventional phone-transmission cables and made possible voice and data links for many poor countries with little or no connectivity to international phone cables. It also provided broadcast television on a global basis. Satellite services were originally provided almost exclusively through monopoly systems, mainly through the Intelsat system. The introduction of competition in satellite systems was a hotspot for the BTA negotiations, but this is not a major focus currently.

Terrestrial fixed-wireless systems can be broken down into licensed and unlicensed components. This classification depends on whether or not the system relies on spectrum that is licensed to one or a small number of suppliers (in theory, to control congestion and interference) or is on unlicensed spectrum open to all. Most licensed systems are descendants of microwave-relay systems that have been radically upgraded and serve as alternatives to wired cables. Experiments with broadband-data delivery over these systems in the booming marketplace of the late 1990s mostly failed. There is now a new generation of systems being examined for deployment. Many countries have set aside certain radio bands for unlicensed systems (i.e., wireless systems that require no license to provide services). Unlicensed systems—such as WiFi (or 802.11 b, for example)—use extremely low power so that they can deliver large bandwidth for short distances. They may have a large impact because they allow several users to cheaply and easily share a single broadband connection within an area. Rural applications of this technology may be especially attractive.

Wireless-mobile systems all use licensed spectrum. They pose major issues in controlling congestion and interference in highly complicated systems because they are designed to provide seamless connections to moving customers. First-generation services were primarily analog telephone services. Second-generation services were still predominantly voice oriented, but provided limited data capabilities and improved quality because they were digital. The two dominant technologies of the second generation

**Table 10.1.** Wireless Technology Systems

Fixed	Terrestrial (licensed and unlicensed)	Satellite (geosynchronous)
Mobile	Terrestrial (2 <sup>nd</sup> and 3 <sup>rd</sup> generation)	Satellite (low earth orbit systems)

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were GSM and CDMA systems. The third-generation services, now being deployed after much financial speculation and subsequent delay in commercial application, are different versions of high-speed CDMA architectures. These are designed to provide voice and data up to 2.5 mb/s, although the actual speed is usually less than that. Thus, they are roughly equivalent to having a mobile wireless ADSL or cable modem link for data. As data speeds increase and prices decrease, new classes of applications, especially multimedia, are emerging.

The significance of wireless for society and regulation is huge. Wireless has opened the way to a vast increase in connectivity among countries. It is cheaper and faster to deploy than wired networks. However, communications regulators in many developing countries have so far treated it as if it were a luxury premium service for the better-off and business. As a result, they allowed mobile operators to price higher and flexibly and began competition in these services earlier than for wired networks. The result was better cash flow to build out the networks and more efficiency in their operation, plus greater attention to customer service through innovative marketing schemes. Pre-paid phone cards were particularly important for making the service practical for lower income customers.

Competition and trade challenges raised by wireless are discussed below. For now, note that 3G systems in particular (and their successor technologies) may force changes in the way that countries regulate competition of fixed wired networks.

## **Background on Previous Telecommunication Service Negotiations**

While this chapter will focus on the WTO negotiations, bilateral and regional trade negotiations all will occur within the baseline of trade practices created in the Uruguay Round (1986–93). So, it is vital to think through the WTO picture to understand any negotiation.

### **TELECOM IN THE URUGUAY ROUND**

The WTO agreement has a significance that goes beyond the specific commitments and the impressive number of signatories: 67 of 69 governments made significant liberalization commitments. One way to capture the extent of the agreement's impact is to look at its effect on markets. The U.S. government has calculated that approximately 85 per cent of the world market, measured by revenues, is covered by strong market-access commitments in the negotiations. With a few specific exceptions on particular issues or market segments,

**396 PETER F. COWHEY AND JONATHAN D. ARONSON****Table 10.2.** Participant Commitments

Participant commitments	Total governments, including other (77)
Voice telephone	63a 61b 64c 48d
Data transmission	70
Private leased circuit services	61
Terrestrial mobile telephone	67
Other terrestrial mobile services	67
Mobile satellite services/ capacity	58
Fixed satellite services/ capacity	57
Trunked radio services	21
Additional commitments Ref. Ppr.	–
Additional commitments (other)	64

Notes: a. Local telephone. b. Long distance telephone. c. International telephone. d. Resale.

Source: Adapted from WTO (some explanatory notes are excluded).

all the OECD nations essentially were bound to unconditional market access on January 1, 1998. And as noted in Table 10.2, a review of the major industrializing countries shows significant commitments on market access that increased rapidly over a period of a few years (typically after transition periods ranging from two to five years).

There remains a divide between the more advanced and less advanced developing countries. In the 1997 round of the telecom negotiation, most of the more advanced developing countries made offers on telecom services, and the chief concern of industrial countries in this round was to expand those offers to make them virtually identical to the industrial countries' offers. The market reforms and trade commitments in the larger developing economies make it more difficult for the less advanced economies to attract quality international investors. For the less advanced economies, the goal of industrial countries is to get them committed to the process. But there is no driving urgency for huge progress because the amounts of international traffic and payments are still quite small. U.S. bilateral trade agreements with Chile, Singapore, and Central America advance the BTA provisions incrementally by making implicit expectations of the BTA into explicit obligations, but they do not radically modify the BTA.<sup>5</sup>

## The Annex on Telecommunications in the GATS

The General Agreement on Trade in Services (GATS) contains principles to situate the GATS within the WTO framework of principles and then deal with some of the special characteristics of services. The BTA is nested within these principles. The Annex on Telecommunications then applies these principles to telecommunications. Most of the

<sup>5</sup> See Sherman (2004) for an excellent overview of more recent agreements.

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text addresses data networking and closed user groups. Given the importance of corporate and data services, a brief review of key characteristics is useful.

- The text on access and use of the Public Network (a network required by its license to be generally available to the public) spells out the rights of users to interconnect their private networks to the public network. While a country has a right to take measures to protect its network's technical integrity and achieve other reasonable goals (such as protecting data protection) the measures must be reasonably related to these carefully defined objectives. We discuss below the issues of setting standards and choice of telecommunications equipment by users.
- The Annex reaffirms the principles of national treatment and MFN for national offers and market conduct. National treatment (Article 17 of the GATS) and MFN (Article 2) provisions are at the heart of the WTO framework. The former means that foreign firms cannot be treated less favorably under domestic rules and regulations than local firms if a country has granted market access to foreign firms. Any plans to treat them less favorably must be taken as an exception in a country's schedule on market access. MFN means that a country cannot grant market access to one WTO country's firms without granting access on identical terms to all other WTO members' firms. MFN also means that countries cannot look at the national origins of a foreign firm to see if they will be regulated differently from other firms except on narrow grounds of WTO exemptions like national security. In the 1997 BTA, a major stumbling block to agreement on international services for two years in the negotiations was a disagreement over how to apply MFN obligations to national regulatory arrangements for services like international phone calls where countries had different rates for terminating calls from different WTO countries.

### Schedule of Specific Commitments

**Scheduling Market Access.** One of the major challenges of trade in services is determining how to schedule market-access commitments. There are three principal modes for telecommunications. The two dominant are cross-border (mode 1 in scheduling parlance) and commercial presence (mode 3) that correspond roughly to delivering services through networks crossing national boundaries and the creation of a local business to provide the service, including scheduling of foreign investment liberalization commitments. Mode 3 is fairly meaningless without a right to foreign ownership and investment and, therefore, a central feature of the BTA is commitments on rights of foreign investment (in regard to which services and how much foreign ownership is permitted). (Trade pacts since the BTA have expanded on mode 1 entry by frequently stipulating that a

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company need not establish a commercial office in the country where a service is provided.) Consumption abroad is another mode of scheduling (mode 2), but this primarily relates to the rights of commercial users to have access to the local national network on terms and conditions conducive to the users being able to lease and reuse network facilities. Mode 4, presence and movement of natural persons, has clear theoretical salience because it allows suppliers and users to move necessary experts in and out of a country. But, given the larger controversy at the GATS over this mode, it is relatively little used in the BTA.

The negotiators of the Annex and BTA spent considerable effort on figuring out how to define the services. The Annex largely covers value added services for data and corporate use, including email. It does not cover the underlying network facilities that enable the services. The BTA covers both the underlying network infrastructure and the services provided on it, including leased transmission circuits and such end services as telephone and fax services. Box 10.2 contains the list of services.

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**Box 10.2. Basic and Value Added Telecommunications**


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Basic telecommunications include all telecommunication services, both public and private that involve end-to-end transmission of customer supplier information.

Basic telecommunication services are provided:

- through cross-border supply
- and through the establishment of foreign firms or commercial presence, including the ability to own and operate independent telecom network infrastructure

Examples of basic telecommunication services:

- (a) Voice telephone services
  - (b) Packet-switched data transmission services
  - (c) Circuit-switched data transmission services
  - (d) Telex services
  - (e) Telegraph services
  - (f) Facsimile services
  - (g) Private leased circuit services
  - (h) Other
- Analog/digital cellular/mobile telephone services
  - Mobile data services
  - Paging
  - Personal communications services
  - Satellite-based mobile services (incl. e.g. telephony, data, paging, and/or PCS)
  - Fixed satellite services
  - VSAT services

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- Gateway earthstation services
- Teleconferencing
- Video transport
- Trunked radio system services

Categories covered by basic telecommunication commitments, unless otherwise specified:

- Local
- Long distance
- International
- Wire-based (including, e.g. all types of cables and, usually, radio portions of fixed infrastructure)
- Radio-based (all forms of wireless, including satellite)
- On a resale basis (non-facilities based supply)
- Facilities-based supply
- For public use (i.e., services that must be made available to the public generally)
- For non-public use (e.g. services provided for sale to closed user groups)

Value added telecommunication services:

Value added telecommunication services are telecommunications for which suppliers “add value” to the customer’s information by enhancing its form or content or by providing for its storage and retrieval.

Examples:

- On-line data processing
- On-line data base storage and retrieval
- Electronic data interchange
- Email
- Voice mail

*Source:* These materials are taken directly from the WTO website.

A key provision on scheduling is that it is “technology neutral.” Unless a country takes an explicit exception, for example, a commitment to allow competitive provision of data services applies to both satellite and fiber-optic delivered data. Scheduling a basic telecom service, like packet-switched data transmission or fax services, implies coverage of local, long distance, and international service unless a country takes a specific exception.

## RESTRICTIONS ON MARKET ACCESS

Many countries are willing to offer market access with some significant exceptions. They must state those exceptions in their schedule of market-access commitments. Box 10.3 provides an example for Korea. If a country wishes to restrict the total number of licenses for basic telecommunications carriers, it must note that. Many countries have a restriction based on availability of spectrum for commitments on wireless-mobile services. Some countries have restrictions on how international networks may connect



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to the national network in order to make it easier to monitor and control this traffic exchange. (We discuss the economic incentives for this choice in our discussion of settlement rates.)

**Box 10.3. Korea's Final Schedule of Commitments on Telecom at the WTO**

- As of 1998, liberalizes and permits foreign investment in wireline-based telephone services never before opened to full competition. Limits direct foreign equity ownership of facilities-based operators set to 33% (20% limit for Korea Telecom). Full competition permitted in non-facilities based provision (resale) of all telecom services as of 1998, except voice which will be permitted in 2001. (source: TIA online)
- Reference: Status of Liberalization and Deregulation of the Facilities-based Service Market (KISDI White Paper 2002).

**Korea's final schedule of commitment in WTO agreement (source: KISDI, Dec. 2002)**

	Before final request	WTO final request (February, 1997)
Limitation on foreign ownership	Wireline: prohibited / Wireless: 33% (Ownership of a person) Wireline: 10% / Wireless: 33%, KT: 1%)	From 1999, both Wireline and Wireless: 33% / KT: 20% From 2001, both Wireline and Wireless: 49% / KT: 33% *(Ownership of a person) Wireline: 10% / Wireless: 33% / KT: 3%
Largest foreign shareholder	Prohibited Representative: prohibited	Permitted from 1999 (except KT)
Foreign representative/board of directors	Board of directors: no more than 1/3	No limitation from 1998
Voice resale services interconnected to PTTN	Prohibited	Permitted from 1999 (foreign ownership restricted to 49%)
Resale	No limitation	
Others		Permitted to 100% from 1998
Number of service suppliers	RFP (Request for proposal)—a priori limitation	Restriction allowed only in case of frequency limitation
Cross-border service supply	Restriction possible	Permitted subject to the commercial arrangement with domestic licensed service suppliers Voice resale service interconnected to PTTN: until Dec. 31, 2000, permitted only by establishment of a company (legal person) within Korea
Regulatory principles	Application of domestic regulatory principles	Application of regulatory principles in Reference paper
One-way satellite transmission of DTH and DBS television services and of digital audio services	Restriction possible	No commitments

Source: WTO Agreement Korea, February 2004.

## “PHASE IN” PERIODS

Countries may also decide that they are willing to make changes in the market, but refuse to do so all at once. They can schedule “phase-in” periods. As long as this takes place during a reasonable period, trade partners accept them. Moreover, by setting a binding future date for competition, a country encourages current local suppliers to begin improving their efficiency at once.

Some service commitments are ambiguous. Inevitably, technology and new business models challenge some of the categories in any scheduling system. For example, did the BTA commitment on voice services cover the Internet-based voice services? China, for example, specifically agreed upon accession to the WTO that voice-service commitments included Internet-based voice. But it phased in competition on all international voice services over a several-year period.

## The WTO Reference Paper: A Major Achievement

A major achievement of the 1997 Agreement was the creation of the “Reference Paper” on pro-competitive regulatory principles, which was accepted by 67 countries making binding offers on market access (Arena, 1997). (The “Reference Paper” was scheduled as an “additional commitment” in national offers under Article 18 of the GATS.)<sup>6</sup> (See Box 10.4)

Countries created the Reference Paper for two reasons. First, the negotiations were an opportunity to create a firm set of common understandings of how competition, or a transition to competition, must be governed. The principles are sufficiently broad to allow for diverse rules and practices but sufficiently specific to hold governments accountable for the fundamentals of market-oriented regulation. Second, countries distrusted any market-access commitment that was not backed up by enforceable rights in regard to the “invisible” barriers to competition and market access. In the telecommunications sector, a government’s commitments to free trade may not be strong enough to guarantee real market access for foreign suppliers of services because of the high levels of market power. Monopolistic suppliers could frustrate competition from new foreign entrants despite trade liberalization commitments. The obligations of governments to create effective interconnection rules separate the regulator from the operator, and create a transparent decision process with rules that were least burdensome for competition are at the core of the principles.

<sup>6</sup> Arguably, countries bound themselves to competition principles in the general GATS framework. But what they meant for telecoms in practice could have become the basis for endless debate (as they already were in practice in industrial countries with competitive markets). The BTA negotiators agreed that there needed to be a specific translation of the GATS framework into more specific guidelines for telecoms.

**402 PETER F. COWHEY AND JONATHAN D. ARONSON****Box 10.4. The WTO Reference Paper**

The WTO Reference Paper has the following features. This summary reflects the major intent of the Reference Paper. It may also be noted that every country with market-access obligations also has further obligations under the GATS because the telecommunications agreement operates as an industry-specific code under this framework.

1. The regulatory body is separate from the operators and must employ procedures that assure impartiality in regard to all market participants. This obligation does not specify the form of the regulator—it can be an independent commission or a cabinet ministry—but it must be totally separate from the operators and must have transparent and objective procedures for creating and applying its licensing and regulatory policies. The criteria for licensing must be made available by the regulator. The regulator also must act on certain regulatory obligations, such as interconnection, in a reasonable period of time. Inadequate staffing and enforcement problems have frustrated some regulators in meeting these obligations.
2. It creates obligations for governments concerning their regulation of “major suppliers” of telecommunications services who have market power. A major supplier controls “essential facilities” for the public network that “cannot feasibly be economically or technically substituted in order to provide a service.” Thus, the Paper is focusing on regulatory treatment of the dominant incumbent carrier. (As competition unfolds, most regulators define a threshold for defining when a dominant incumbent loses market power. One threshold is loss of 50 per cent of the defined market, such as domestic long distance service to households.) It does not demand, and implicitly discourages, symmetric treatment under regulation of the former monopolist and new entrants. In most cases new entrants do not have the power in the marketplace to restrict competition that would qualify a firm as a “major supplier.”<sup>1</sup> However, at the insistence of the E.U., the regulatory principles recognize that suppliers may act collectively to exercise market power.
3. Governments must take measures to assure that major suppliers do not engage in anti-competitive practices, such as anti-competitive cross-subsidies, use of information obtained from competitors, or withholding timely technical information needed by competitors.
4. Governments will assure interconnection with a major supplier for competitors at any technically feasible point in the networks. The terms, conditions, and quality must be non-discriminatory (no less favorable to the competitor than the operating company of the major supplier). Interconnection must be timely and done at “cost-oriented rates that are transparent, reasonable, having regard to economic feasibility, and sufficiently unbundled so that the supplier need not pay for network components or facilities that it does not require for the service to be provided.” The terms for interconnection must be publicly available and enforceable on a timely basis.
5. Governments may maintain policy measures designed to achieve universal service. However, they must be administered in ways that are transparent, non-discriminatory and competitively neutral. They should not be more burdensome than necessary to achieve the specific goal for universal service.
6. Governments will use procedures for the allocation and use of scarce resources, including radio frequencies (plus telephone numbers and rights of way), that are timely, objective, transparent and non-discriminatory. This provision recognizes that spectrum allocation and assignment are difficult and controversial regulatory tasks. Therefore, the primary obligations are non-discrimination and transparency in a timely licensing system. Transparency includes making public how the spectrum is currently allocated and licensed.

*Note:* <sup>1</sup> There are cases when new entrants may have market power. The U.K. has ruled, for example, that all mobile-network operators have market power in regard to calls terminating into customers on their own networks. There are no substitutable sources of supply. In a calling-party pay system (used in most countries for mobile), the receiving party is indifferent to the cost charged for terminating a call. So, there is no countervailing market power to that exercised by the network operator. The United States has similarly ruled that competitors to incumbent local phone operators cannot abuse their control over termination of calls to their customers.

*Source:* Adapted from Cowhey and Klimenko (2002). Also see Sherman (1998).

## The Interconnection Consensus in the Reference Paper

- Interconnection policy is the bedrock for regulating the transition to competition. The incumbent controlling the “essential” facility may try to deny access to customers to its rivals. The interconnection policy requires incumbents with essential facilities to share network economies with new entrants on economically efficient terms. (Noam, 2001; Laffont and Tirole, 1998) In addition to setting pricing rules, the policy ensures that non-price discrimination does not hamper entry. For example, new entrants need reasonable flexibility in choosing among the dominant carrier’s network features. In addition, interconnection policies must address all the major barriers to entry. For example, customers do not want to change phone numbers in order to switch carrier services. A lack of local number portability will result in customer inertia.
- Interconnection policies are a transitional measure to deal with the market power of the traditional incumbent. As a complex form of regulatory micro-management of the market, this policy inevitably has costs. Some believe that it discourages investment by the dominant carrier (often called a “major supplier” in trade pacts), especially in new technologies (such as broadband service for residences). Others believe that it induces “too much” market entry (i.e., by setting the price of interconnection too low, it induces entry in the market that is not economically efficient). Yet it is equally clear that dominant carriers do have significant market power and often have an incentive to employ that power to discourage new entrants. Their position as a significant factor in the national stock market of transitional economies and as large national employers further bolsters their political influence.
- Disputes over interconnection. Requirements for interconnection go to the heart of competition, so vigorous disputes over its precise terms are to be expected. These regulatory and judicial disputes (especially in the United States) have created the impression in developing countries that there is no consensus on the correct principles and terms for the policy. But in fact a fundamental consensus exists in policies in industrial countries. Interconnection policy sets pricing for interconnection based on some version of long-run incremental costs. It requires the timely provision of leased-transmission circuit capacity, significant unbundling of the network elements available for interconnection, nondiscriminatory access to rights of way, and portability for telephone numbers when subscribers decide to switch carriers. And this policy uses a process featuring direct negotiations among commercial parties and a timely dispute-resolution mechanism that allows the regulator, relying on existing guidelines (such as the reference interconnection offer required in the E.U.) to settle matters that cannot be resolved during the commercial negotiations (Cowhey and Klimenko, 2002). Some trade agreements are including phrasing that gives support to this approach.

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Disputes over interconnection pricing in industrial countries, for example, may focus on whether the basic form of interconnection between two local networks should cost \$0.01 or \$0.05 per call. However, the fury generated by these disputes has created the mistaken impression in many developing countries that estimates of costs in industrial countries vary wildly. Similarly, disputes arise over the precise range of elements of the network's functions that must be unbundled and available to new entrants, even though a consensus exists that several elements do in fact require unbundling.

- Setting costs for interconnection. Determining the costs of incumbents reliably is difficult, especially if we pay some attention to historic costs. The necessary data are simply missing in most countries. But there is no reason not to use some form of international benchmarking to help determine interconnection costs. A big enough pool of countries now exists to provide an appropriate reference group that can then be adjusted.
- Phasing out the obligation. As competition unfolds, specific market segments may no longer require interconnection rules. Local phone services still require interconnection but in some industrial countries broadband services to the home may no longer require interconnection rules.<sup>7</sup> This ability to phase out is clearly implicit in the BTA, but subsequent trade agreements have made the point explicit. (Sherman, 2004)
- Interconnecting wired and wireless networks. The BTA negotiators focused their attention on wired to wired network connections when discussing obligations for interconnection. The growing magnitude of mobile and wireless networks has begun to concentrate attention on the interconnection of wired to wireless networks. Bilateral and regional trade agreements since the BTA more clearly state the interconnection obligations between the two types of networks. (Sherman, 2004)

For a variety of reasons, most countries have treated these connections asymmetrically in favor of wireless operators. The wired network pays a high charge to terminate on the wireless network, but not vice versa. As the British regulator, Ofcom, has noted, the mobile wireless operators individually and collectively may be able to exercise market power to keep mobile termination charges high. And, as mobile becomes a significant share of all traffic, this means that wired networks have to terminate onto the mobile networks. Ofcom has now declared that this arrangement in Great Britain constitutes anti-competitive behavior. The U.S. is also examining the impact of high mobile termination charges in other countries on U.S. consumers, and the European Union is

<sup>7</sup> Regulators rightly pay attention to the costs of regulation. Interconnection rules are cumbersome and never perfect. At some point, there may be enough competition in network infrastructure to support broadband that, even if less than perfect, may justify reducing requirements for interconnection for broadband services. In this case the logic is that the costs of the regulation outweigh the remaining benefits of overcoming limited weaknesses in competition.

examining the problem within the E.U.<sup>8</sup> A variation on this problem is the use of high termination charges for roaming internationally over mobile networks. We discuss this in the context of international charging arrangements.

## WIRELESS RESALE OPERATORS

Countries may be reluctant to encourage the build-out of more than three or four mobile-network infrastructures for various reasons (either based on estimates of the viability of large numbers of competitors with major infrastructure costs or concerns about the availability of adequate spectrum). In these countries there are still benefits for consumers from more suppliers. Thus, it may be desirable to allow the creation of operators who resell the services of infrastructure networks (often called mobile virtual network operators, or MVNOs). This should be seen as the mobile equivalent to resale and value added service networks. In the Doha Round, negotiators have to clarify if mobile services are understood to be subject to interconnection principles and if they are covered by market access commitments on resale.

## Universal Service as a Key Challenge under the Reference Paper

The network build out challenge. Universal service is one of the most sensitive questions on telecoms for any trade negotiator. A brief review of fundamentals about universal service helps clarify the meaning of BTA commitments.

The demand for more network capacity is huge in transitional and developing economies. The traditional indicators of unfilled demand, such as waiting lists for phone service, vastly underestimate the actual pent-up demand. These indicators do not capture the large numbers of people who do not bother registering for telephone service and the even larger numbers who utilize capacity fully because of counter-productive pricing. When demand is unfilled, consumers lose.

<sup>8</sup> The European Commission has also declared that mobile-network operators have significant market power in regard to call termination on their networks. In the U.S. the “receiving party pays” system for charging means that consumers may exit if the networks charges a high fee for termination. Under the “calling party pays” system outside of the U.S., there is no incentive for the party receiving a call to care about high termination rates. A variation on this problem is the use of high termination charges for roaming internationally over mobile networks. Sherman (2004) points out that the US FTAs in recent years have explicitly exempted mobile operators from regulation of termination charges. See Cowhey (2004), Ofcom (2003 decision), and EU decision (2003).

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Inefficient subsidies and pricing. There are widespread concerns about the effect of trade liberalization on universal service. However, irrespective of the degree of competition, the usual mechanisms for providing universal service can become the enemy of greater economic efficiency and faster build-out. For example, the common practice of keeping local rates below costs to encourage universal service simply discourages investment in building out the local network.<sup>9</sup> This type of protection for consumers treats the wrong problem and also discourages investment in adequate network infrastructure. Low prices do no good if there is no network to provide the service.

Other rate distortions created in the name of equity significantly hinder the efficient provision of communications services and create political disincentives for competition. For example, relying on subsidies from urban to rural areas (a byproduct of geographic price averaging) can mean that poor urban workers subsidize phone services for the country estates of business leaders. Meanwhile, incumbent operators have a powerful political weapon to use against introducing competition: the argument that new entrants are likely to serve only urban areas (thus “skimming the cream” from the market).<sup>10</sup>

Keeping local rates artificially low also creates incentives to inflate the prices of domestic and international long-distance services (including data services). Inflated prices for these services constitute a significant tax on business. The extremely high cost of international calling is a barrier to small firms interested in export-oriented growth. All countries suffer from inflated rates for international services, including the United States. But the situation in virtually every developing country is far worse than it is in industrial countries. Rates for international services to and from most developing countries are so high that they are equivalent to a tariff of 100 to 500 percent on communications and data services. These escalated prices act as strong disincentives in the creation of an information-based economy.

The challenge is to move to cost-based rates for all services. Such rates will make investment in providing services economically viable. Coupled with competition among networks (wired and wireless) cost-oriented pricing will do much to extend the geographic coverage of networks. Changes in the global market for cross-border communications services will surely speed changes in the communications market domestically. Rate rebalancing will have to occur. Rebalancing often leads to short-term discomfort because of such effects as increases in the cost of local phone services. But rebalancing also makes it easier to manage the other economic fundamentals of this market transition, such as building out local networks that adopt new technologies more quickly (and thus enabling better and less expensive services). Rebalancing means that the cost of local service prices may rise (at least in some regions of a country), but many other prices will decline and tap significant

<sup>9</sup> Using revenues from long distance services to subsidize universal service (as is done in the United States) is also a bad idea because it distorts pricing and economic incentives for network development.

<sup>10</sup> A geographically averaged rate, which inflates prices for urban areas, makes entry into urban areas quite profitable. See Laffont and Tirole (1998).

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demand elasticity.<sup>11</sup> One reason why mobile networks have been superseding wired ones in poor countries is because regulators treated them as premium services that did not require detailed price controls. For example, mobile pre-paid services are more cost effective for the poor and are a logical complement to rebalancing the rates for local wired services in order to make financing wired networks more feasible.<sup>12</sup> Vodacom of South Africa has discovered, for example, that demand for services outside of major cities in sub-Saharan Africa is much greater than predicted and capable of sustaining wider network build-out. (See Cowhey and Klimenko, 2002) for a longer discussion of rate rebalancing and universal service.)

### HOW DO TRADE COMMITMENTS INFLUENCE THESE POLICY CHALLENGES?

Under the BTA regulatory principles, governments may maintain policy measures designed to achieve universal service. However, they must be administered in ways that are transparent, non-discriminatory and competitively neutral. They should not be more burdensome than necessary to achieve the specific goal for universal service.

The good news is that the BTA is consistent with a vigorous improvement in universal service policies that is sensitive to market-transition challenges in a particular country. Consider the implication of the Reference Paper principles for the challenge of reform of the subsidy system. Regulatory reform can advance universal service by making any system of subsidies more efficient, and therefore getting more output for the expenditure. For example, regulators have learned that making subsidies transparent, cost-oriented and less distorting of competition (as required in the Reference Paper) often forces financial reform. Some have gone further. Chile, for example, auctions subsidies off to the phone carrier offering the most build-out of the network in a rural region.

One frequently discussed challenge involves controversies over the pricing of new services made possible by technological innovation. Regulators can become mired in arguments about the cost of special services such as Internet video-conferencing. There is no perfect solution to such issues, but they are manageable under BTA commitments to competition. The Reference Paper does not forbid adapting universal service rules to new circumstances as long as the methods are competitively neutral, least burdensome, and transparent. All of these provisions induce the regulator to seek the most cost

<sup>11</sup> A corollary policy measure is greater flexibility for operators in setting prices. Price caps for broader baskets of services are one way of achieving this goal. As competition is introduced it is especially desirable to allow more flexibility in pricing plans for local services.

<sup>12</sup> This is a complex subject. Increasing prices for local wired line calls may cause subscribers to drop off the network but permit build-out because total revenues increase (Hodge, 2003). Mobile pre-paid services substitute for the wired ones for the poor. Such a subsidy, bundled into the calling party pay system, needs to be made transparent, cost-oriented, and competitively neutral.



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efficient measures to promote universal service. In practice, voice over the Internet, VoIP, is the most prominent issue. Recall that it is arguably a value added computer service exempt from restrictions and pricing for traditional voice services (whose pricing is usually manipulated for universal service goals). Even if treated as a value added service, a country can still impose a requirement to finance universal service as long as it meets the criteria of the Reference Paper (e.g., transparent and least burdensome).<sup>13</sup> Whether or not a country should schedule a specific exemption on this matter in order to clarify its freedom to act is a matter of debate. In general, the wording of such restrictions is likely to be more of a source of misunderstanding than added protection.

## **Benefits of BTA for Dealing with World Capital Markets and Foreign Investors**

A major problem for developing countries is that they often pay a premium for foreign capital investment due to “risk premiums” assessed by investors doubting the reliability of the national rules governing investment and market conduct. (Levy and Spiller, 1996). When countries make major changes in regard to these rules, it often drives up the premium even if there may be merit to the specific choice.

The BTA Regulatory Principles can help establish flexible regulation that is credible. There are advantages of a phase-in road map, but it is not disastrous if initial decisions are wrong because, like privatizations with overly long monopoly periods, the disciplines of the WTO and the dispute system mean that changes in policy are transparent (including publicly available criteria for licensing), not random, usually tempered by some compensation, and explainable to the marketplace as not a signal that policy will be lightly reversed.

## **International Settlement Rates: A Particular Challenge to Interpreting Market Access and the Reference Paper**

Why was this such a large issue? The traditional international regime for telecommunications services had created a system for international-switched telephone services that were fundamentally anti-competitive. For decades, rules backed by the International

<sup>13</sup> Many countries have created, at least temporarily, a “safe harbor” for the prices of new services over the Internet because of pricing inefficiencies in traditional communications services. Why visit the sins of the past on emerging technology? However, if regulators wish to impose universal service obligations on Internet telephony, for example, they may do so.

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Telecommunications Union (ITU) sanctioned the “joint supply” of international phone services using accounting rates. An accounting rate is the negotiated transfer price for end-to-end international services jointly supplied by two national carriers. (Carriers conduct these negotiations and conclude a commercial contract to establish this accounting rate.)<sup>14</sup> Each carrier theoretically contributes half of the international switched (phone or fax) service (for example, taking the international call from a hypothetical mid-point in the ocean for out-bound traffic, and terminating the call to a local household in its country for in-bound traffic). For contributing this service, the national carrier is entitled to a fee usually equivalent to half of the accounting rate. This is the settlement rate. (We shall refer only to the settlement rate because it is the economically relevant concept.) Given that carriers negotiated the settlement rate on a bilateral basis, it is no surprise that these revenues created large economic profits.<sup>15</sup> A carrier more interested in making money from terminating international calls than originating them could use its monopoly control over termination to press carriers and press for large profits because networks are more valuable to all users if the network serves additional users.<sup>16</sup> In addition, the high profits gave countries an incentive to restrict competition, thus slowing innovation and build-out of global networks. This situation was particularly worrisome for U.S. carriers because the U.S. was at the hub of global multinational business networks and it had a population with strong immigrant roots. So, U.S. carriers had customers who especially prized global connectivity and the traditional system both increased prices and slowed innovation.<sup>17</sup>

<sup>14</sup> As an inter-carrier transfer price, the accounting rate is not the end price to consumers. Consumer prices traditionally had an additional large mark-up. On the traditional system, see Cowhey and Richards (1999) and Zacher and Sutton (1996).

<sup>15</sup> For example, global networking by AT&T required the use of a complementary asset in a foreign country that was controlled by a local monopolist. That created market power for foreign partners. Carriers controlling infrastructure essential to the provision of services have the incentive and variety of means to exercise market power. During the time of the development of the global-network infrastructure, some countries could threaten not to build out their network infrastructure (e.g., phone switches). Even after developing infrastructure, countries could threaten to disrupt service for a variety of reasons (ranging from poor maintenance to claims of protection of national sovereignty).

<sup>16</sup> On the value of the network to other users, see Shapiro and Varian (1998) and Noam (2001).

<sup>17</sup> Even though the settlement rate is not the end price to consumers, it influences consumer prices because of the net-settlement payment. For example, suppose the U.S. sent ten minutes of calls to Mexico at a settlement rate of fifty cents per minute and Mexico sent the U.S. a total of five minutes of calls at this rate. Then, the net-settlement payment from the U.S. to Mexico in this period was \$2.50. The U.S. carrier had to recover this payment of \$2.50 from its own customers, a significant cost element in its pricing decision (i.e., it significantly increased the cost for international services). In 1995, U.S. carriers made \$5.4 billion in net-settlement payments to other countries, and this total was about \$6 billion in 1997. Besides driving up rates for U.S. consumers, the FCC calculated that roughly 70% of the total net settlement payments represented a subsidy paid by U.S. consumers to foreign carriers. The average settlement rate paid by U.S. carriers in 1996 was 39 cents per minute; outside the OECD area and Mexico the average cost for U.S. carriers was well over 60 cents per minute in 1996 (Lande and Blake, 1997). To illustrate the problem with market performance from the viewpoint of consumer welfare, in August 1997 (after over a dozen years of competition) the FCC estimated that the average price of an international phone call from the U.S. was 88 cents per minute, compared to 13 cents for domestic long distance (Cowhey, 1999). These price differences existed despite

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The BTA agreement opened the way to allowing competition in the provision of services across national borders, thus breaking the monopoly on termination of incoming foreign calls, and correcting this problem. However, during a transition to competition globally, it was possible that WTO members who retained monopolies on international services could manipulate the newly open markets in OECD nations' international services to increase the profits that they collected off international services. (This was called the "one way bypass problem in trade circles.) For this reason the United States took a unilateral regulatory measure after the BTA to impose price caps (called benchmarks) on what U.S. carriers could pay to foreign carriers for termination. (See Cowhey and Richards, 1999) This was intended to reduce profit levels on foreign termination very substantially, thereby reducing the incentives to manipulate international traffic flows in and out of the United States. This reduced the profitability of international traffic substantially, much to the displeasure of developing countries.

To the surprise of many analysts, the FCC price caps did not draw a WTO challenge. There were two reasons. Most countries had different settlement rates for different countries. The non-discrimination and MFN rules of the GATS might make different rates for the same termination service illegal. Therefore, the BTA negotiators agreed to a standstill where no country would make a WTO challenge on any settlement rate issue for two years. By this time the U.S. had already changed the market. In addition, the U.S. framed its regulation in such a manner that it likely would have withstood a WTO challenge because it was designed to stop anti-competitive behavior in a manner consistent with most favored nation and national treatment criteria.

New challenges on international services. Although trade negotiators might hear about the Benchmarks of the U.S., this has become largely a dispute at the margin of trade negotiations. Three new issues are of concern for current negotiations.

First, the interaction of market-access commitments and the Reference Paper for the delivery of international service is significant. Even if the FCC Benchmarks capped the level of settlement rates, these rates remained substantially profitable and many countries are reluctant to eliminate these profits immediately through full-scale competition. Thus, they seek some of the benefits of greater competition (more infrastructure build-out and consumer choices on quality and terms of service) while limiting erosion of settlement rates. To do so, Mexico, for example, allowed competition in both domestic and international long-distance services in its WTO offer both through leasing transmission capacity and building own network. But it put restrictions on its offer that it believed would give Telmex, the former monopolist, exclusive power to negotiate the settlement rates for Mexico. And it also restricted delivery of end-to-end international

negligible differences in the costs of transmission between the two types of calls. U.S. rates for international service were generally the lowest in the world, but they were still grossly inflated. The FCC believed that the efficient cost of termination for a minute of switched service (the function paid for by a settlement rate) was no higher than five to ten cents. In fact, it was probably closer to two to three cents.

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services by international simple resale (which, by definition, was a service outside of the settlement-rate system) with a reservation on its market commitment. The United States, which paid nearly \$700 million in settlement costs to Mexico, took Mexico to dispute resolution. Pending resolution of the Appeals process, the WTO has ruled against Mexico's efforts to restrict the bypass of settlement rates (by allowing U.S. carriers to lease circuits to carry their own traffic) and to give Telmex, the dominant carrier, sole authority to negotiate the settlement rates on behalf of all carriers, which violated Mexico's commitments on market access. The Reference Paper was read to require non-discrimination in the provision of interconnection to the domestic long-distance market and to forbid the handing of such power over settlement rates to the dominant supplier.

Second, carriers outside the United States have complained that U.S. carriers have exercised market power in regard to Internet traffic in and out of the United States. To simplify greatly, many users in Australia (for example) want access to U.S. websites. Far fewer users in the U.S. wanted access to websites in Australia. So, U.S. carriers through 2001 took the view that they would deliver traffic to and from U.S. websites for an Australian carrier at no charge if the Australian carrier agreed to transport the web traffic to and from the U.S. for both their users and for American users wanting to visit Australian websites. This is a rough description, but it gets to the heart of the two issues that have made Internet traffic exchange (ITE) at the global level both sensitive and hard to grasp. First, unlike settlement rates, the international exchange described above did not require the United States to share the cost of international transport. The foreign carrier provided all of the international transport capacity. The U.S. carrier only provided transport around the United States, a service that used to be bundled with provision of half of the international transport capacity under the settlement-rate system. This revision took place just as the United States was undermining the traditional settlement rate and jointly supplied service system that required carriers to share international transport costs. Many countries concluded that the United States intended to use its market power to force foreign carriers to shoulder a disproportionate share of international network costs. Protests over this commercial arrangement led to diplomatic disputes about what came to be called International Charging Arrangements for Internet Services (ICAIS). As explained in Annex 1 to this chapter, in terms of WTO diplomacy, these disputes would fall under the competition obligations of each country in regard to international transport. However, market changes since 2001 are causing this issue to ebb as commercial contracts change rapidly, the cost of transport continues to plummet, and less and less traffic requires transport to the United States (in part because services like Yahoo now put their web servers in each major geographic region).

Third, many industrial countries are now examining the merits of claims that mobile operators have significant market power in regard to terminating incoming calls. Under a "calling party pays" system the recipient of a call is indifferent to such charges. U.S.

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international carriers estimate that around 22 per cent of their traffic to other countries now terminates on a mobile network. If the fees for termination are substantially above competitive levels, then some U.S. carriers are urging “benchmarks” for mobile termination fees in other countries.<sup>18</sup> There are complicated issues involved in assessing these claims and remedies. However, the initial positions of several major regulatory authorities indicate that this will be a major issue. Developing countries will have to assess their commitments on access for international services and interconnection in light of this growing controversy.

## **Standard Setting and Equipment Certification**

Standard setting and equipment certification for compliance with codes on safety, reliability, and compatibility with the network remain critical for governments’ retention of power over markets. These activities are largely covered by other WTO codes. But, two examples show how services intersect with these powers.

First, standard setting usually is undertaken by government or the private sector within a framework stipulated or recognized by government. A key turning point in the provision of communications services is the decision to liberalize competition in the equipment that enables the services, especially customer equipment such as mobile handsets or modems. Countries embracing competition rely on the approach called “no harm to the network” in certifying equipment for usage in their country. There are well established international practices to guide implementing this approach, which basically sets the onus on equipment makers to avoid harming the network rather than micro-managing the vendors. A somewhat more complicated, but again well established, set of practices guide certification of equipment using radio frequencies for compliance with non-interference guidelines. The satellite-service providers are extremely sensitive to the risk that they could hold a license to provide service in a country but not have the necessary approvals needed to certify, and thus sell, their equipment.

Second, a larger question is how to set standards for the network. The common phrase for emphasizing the private sector’s role is that “standards should be voluntary, transparent, and industry led.” However, sometimes governments will stipulate a mandatory standard for a service that implicitly or explicitly limits the range of service competition options. One prominent example in second generation mobile services is that the European Union made GSM into a mandatory standard for Europe while the United States allowed any technology meeting non-interference specifications, opening

<sup>18</sup> Typically the foreign wired operator imposes a surcharge on the U.S. carrier for passing the call on to the mobile network.

the way to CDMA systems. In general, the trend is away from mandatory standards in competitive service markets except in well defined exceptions.

## **Spectrum Allocation and Licensing**

The WTO formula is to embrace a transparent, least burdensome and competitively neutral approach to spectrum licensing but let prior licensing decisions stand. Negotiators shied away from anything that would restrict national options from allocating spectrum as long as decisions were taken transparently. That said, there are at least four issues about spectrum licensing that need to be examined by developing countries and will be subject to inquiry in the bilateral negotiations that form the heart of WTO negotiations.

First, has the country established a national spectrum plan that is transparent? Are the processes that establish the plan transparent? Second, does the country embrace spectrum licenses that are service and technology neutral? Industrial countries are moving to the view that economic efficiency suggests, and technology now permits, that spectrum licenses should have fewer major conditions. For example, whether a spectrum band should be used for voice or data ought to be up to the licensee as long as it meets non-interference rules. The same applies to technology. While many countries still require a mandatory technology standard for a particular service, that approach is beginning to decline. Technology is too complex and fast moving to have governments try to micro-manage such matters if not absolutely necessary. Third, can spectrum licenses be transferred on a commercial basis among private actors? A resale market in spectrum is an additional commitment that a country could schedule in the BTA. Fourth, will more of the spectrum be set aside for unlicensed purposes, subject only to restrictions on power use or the design of receiving equipment or to avoid interference? There is no way to schedule such a policy in terms of a BTA commitment easily, but major trading partners will still want to know about the policy. They may also probe the policy concerning the interconnection of services provided on unlicensed bands and those on licensed bands.

## **Cross-country Evidence from Developing Country Case Studies**

Today, there is a powerful need for countries to be plugged into cheap and powerful global data networking and communications. To be part of a global firm's global supply chain that supplies goods and services on demand, countries and companies must be

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connected and interconnected. From Benetton to Wal-Mart, firms that do not have instantaneous links to their production processes, warehouses, and distribution networks are out of the loop. For example, Wal-Mart, a giant buyer of Chinese goods, insists that all of their suppliers can interact with it via modern data communications.

Similarly, unless countries keep up with technological innovation, a niche advantage today can be gone tomorrow. One early innovator, Barbados, made important inroads by persuading American Airlines to locate their data entry operations there. American Airlines hired and trained entry-level workers, some of whom went on to establish their own enterprises. Further, to transport the daily receipts to Barbados, the airline flew on non-stop flight from New York, which boosted tourism. As technology proceeded, the data entry business vanished, but Barbados had a leg up for further progress. A more striking example is India that is currently benefiting from its investment in high technology education. Bangalore has emerged as a global software leader and the advent of affordable global communications and networks has boosted India as a global technology power, customer service center and as a prime destination for outsourcing.

The Internet has further propelled the importance of communications and information technology because it enables small businesses, rural villages, and residences to use information to improve their economic and social options. There is considerable case study evidence of the benefits of information kiosks for farmers trying to get better terms of trade through more accurate information on market prices and demand. More significantly, perhaps, there is evidence that web hosting is a powerful tool for boosting the export performance of less developed countries because information significantly shapes patterns of trade (Freund and Weinhold, 2000).

More generally, experience from around the world is quite clear that greater competition in the provision of telecommunications services results in better performance than monopoly provision of the same services. Competition generally leads to lower prices, improved service, more widespread access, and more rapid expansion of capacity, including Internet penetration. (Petrazzini and Guerrero, 2000) The BTA accelerated, but did not guarantee the introduction of competition in various segments of the telecommunications market in developing countries. Ultimately countries embrace competition not because they are urged to do so by outsiders, but because it is perceived to be in their own best interest. The BTA and other treaties provide a justification for developing countries to act to limit the power of incumbent monopolists and an outside commitment to blame for doing what they want and need to do anyway, but without internal desire nothing will happen. Trade commitments also enhance the credibility of market reforms, and thus they earn higher rewards for countries in the global markets for investment capital and talented people. In Annex 2, two country cases from different regions - Ghana and South Korea - illustrate the opportunities and pitfalls of competition.

## The Lay of the Land for the Doha Telecom Negotiations and Beyond

Much of the substance of telecommunications negotiation is technical and bilateral. These bilateral exchanges generally take the form of asking and answering detailed questions about the regulations of each others' market. Trade negotiators therefore need a keen understanding of what the rules in their own countries actually are. To be able to negotiate successfully, a delegation must have a detailed grasp of the key issues, be well-versed in the intricacies of their own rules, and a clear position. To be a player in multilateral negotiations, a nation and its negotiators must really understand the subtleties of what is taking place. Delegations that play it by ear will not be taken seriously and are likely to be written off as wasting everyone's time.

In most negotiations, the United States and E.U. take the role of the "demandeur." They ask for concessions and are usually quite open about what they might be willing to give in return. They are relatively transparent. In the realm of telecommunications in the Doha negotiating round, the United States and E.U. have emphasized their desire to achieve global, low cost connectivity. As in the past, the United States and E.U. also seek the removal of remaining national restrictions on foreign investment in the telecommunications and other sectors. The United States presumably would like to use details of regulatory policy to help achieve these goals. Conceivably, the United States also may consider using WTO negotiations to remove restrictions on wireless markets. The E.U. and the U.S. will presumably seek to use discussions of the Reference Paper and other trade agreements to advance an understanding of regulation close to their approach in order to make obligations of the Reference Paper more explicit and the mechanisms for assuring transparent effective regulation clearer.

A more intriguing question is whether or not the more prosperous of the non-OECD industrial nations will become leaders in seeking market opening through trade negotiations. Some developing countries wish to gain access to the markets of other developing countries in the process of the negotiation, mostly to extend their regional position. These factors are likely to be especially prominent in regional trade negotiations.

In the end, the most important task for the negotiator from a developing country is to work with those regulating the domestic market in order to have a coherent reform strategy. The goal is to use the trade negotiation to take on the politically hard choices of market change while getting higher return from international markets for these choices. This added return will occur by using a template of global reform to simplify some choices and using the binding nature of trade commitments to convince global markets that reforms are credible and domestic skeptics that future choices are now being formulated around new policy equilibrium.



## Annex 1

### THE ICAIS (INTERNATIONAL CHARGES FOR ACCESS TO INTERNET SERVICES) CONTROVERSY

The ICAIS controversy largely involves how U.S. carriers charge for international traffic to U.S. websites although it could apply to other countries. This Box briefly explains the issue and how the existing market-access commitments under the BTA would apply.

Internet web traffic between countries requires networks taking traffic from one country to the other. In mid-1996, for example, it was common that a user in one country would want something from a web-hosting server in another country and then (after getting information from the server) need the information to be sent back to its home computer. Given the early U.S. dominance of the web and its content, far more traffic seeking access to websites came into the United States than went out to the rest of the world. Reinforcing the balance of demand for U.S. content was the pricing and capacity structure for data transport internationally. Earlier competition and higher capacity demands led the United States to become the hub of international data networking. Internet traffic between two points within Europe or within Asia frequently transited through the United States in order to move at higher speed and lower costs.<sup>19</sup> The traffic flow of the Internet was the opposite of switched international services (that is, the United States received more traffic than it sent out), especially through the end of the 1990s.

A few major backbone data networks, called Tier I carriers, dominated long-haul Internet traffic in the mid-1990s. They agreed to “peer,” or exchange traffic, with other Tier I carriers without charge. Typically, these networks charged smaller, regional and local networks for long-haul traffic transport. When U.S. carriers signed contracts with many foreign networks, they treated them as something more than a regional network but less than a true peer. For example, a U.S. backbone carrier might insist that an Asian carrier agree to be responsible for transporting all of the traffic of the U.S. carrier and the Asian carrier between the two countries. In return, the U.S. carrier would agree that once the Asian carrier’s traffic arrived in Los Angeles, the U.S. carrier would transport it anywhere in the continental United States and bring the reply back to Los Angeles, where the Asian carrier would transport it back to its home country.

This is a rough description but it gets to the heart of the two issues that have made Internet traffic exchange (ITE) at the global level both sensitive and hard to grasp. First, unlike settlement rates, the international exchange described above did not require the United States to share the cost of international transport. The foreign carrier provided all of the international transport capacity. The U.S. carrier only provided transport around the

<sup>19</sup> TeleGeography, *Hubs and Spokes: A Telegeography Internet Reader* (Washington, D.C.: TeleGeography, 2000), 15–26.

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United States, a service that used to be bundled with provision of half of the international transport capacity under the settlement rate system. This revision took place just as the United States was undermining the traditional settlement rate and jointly supplied service system that required carriers to share international transport costs. Many countries concluded that the United States intended to use its market power to force foreign carriers to shoulder a disproportionate share of international network costs.<sup>20</sup> Discontent was so strong that the ITU's 2000 World Telecommunications Standardization Assembly passed a resolution that endorsed governments making bilateral arrangements for Internet traffic exchange to ensure fair cost-sharing. The United States dissented from this resolution.<sup>21</sup>

Second, the primary alternative to the settlement rate system is to assemble networks through complex "make or buy" decisions. For example, a carrier can build its own dedicated network to all the major world websites and pay no one else for transport (assuming that all the markets are open to competition and foreign entry), or it can rent transport from another carrier (ISR is one example of renting capacity). If it rents, it can use a variety of methods. Backbone capacity is exploding internationally and domestically for long-haul traffic, and control of that capacity is finally diversifying significantly. This means that a more competitive market is emerging. It may require some time to reach an efficient equilibrium but the ingredients are there.<sup>22</sup> In some regions of the world, government policy may hinder this development but certainly not in the United States or the North Atlantic region. At least in major traffic markets, including the United States (where most of the complaints about ITE have focused), the long-haul transport market is becoming efficient.<sup>23</sup> Further reducing the magnitude of the problem

<sup>20</sup> The early peering agreements did not distinguish between incoming and outgoing traffic. That is, once a Japanese request for a reply from a U.S. web server in Chicago arrived in the United States, the U.S. backbone carrier agreed to take the Japanese traffic to the server in Chicago and take the server's response back to Los Angeles to be handed back to the Japanese carrier. Thus, in this model there was no true international traffic balancing, and even local termination (going to Chicago) and origination (returning from Chicago) services were co-mingled. Whether this worked in favor or against the interests of the Japanese carrier financially is arguable. But, in the late 1990s, it was a less transparent market where U.S. carriers had the trump card (transport access to U.S. web servers and their content).

<sup>21</sup> "U.S. Plays Role of Dissenter at ITU's World Standards Meeting," Telecommunications Reports International, October 13, 2000, 116–17. Compliance with such resolutions is voluntary under international law.

<sup>22</sup> Many other developments, such as the practice of mirroring for websites (whereby U.S. websites are set up in Asia to reduce service-time delays) and the decline of the dominance of U.S. content and the English language on the Web have also changed the original contracting problem. See Report on OECD Workshop "Internet Traffic Exchange," June 7–8, 2001 (Available at OECD website at <<http://oecd.org/EN/home>>). On this issue also see TeleGeography 2001, 58–9. As the Internet continues to grow and become more sophisticated, the peering/settlement system will also confront questions about how to manage pricing while dealing with quality of service issues. See Richard Cawley, "Policies to support the scaling and extensibility of the Internet: Principles to Guide Settlements Policy Consistent with Technical and Pricing Development of Internet," available at: <http://www.ksg.harvard.edu/iip/cai/cawley.htm>

<sup>23</sup> Another problem is the possibility of a backbone-carrier market where the major carrier(s) have the ability and incentive to maintain prices over efficient competitive levels. The U.S. Department of Justice and the European Commission competition authorities worried about this risk if they permitted a merger of WorldCom and Sprint (who, at the time of the proposed merger, controlled 53 per cent of the U.S.

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is the growing diversification of web content and web servers globally. More web content and traffic is now created outside the United States than was created in the late 1990s. Major websites (such as Yahoo) now set up “mirror servers” around the world to deliver even U.S. content more efficiently and quickly. Traffic to mirror servers never enters the United States.

The favorable competitive trend on long haul does not fully clear up the issue. The control of the last mile (or kilometer) of transport for terminating or originating services to websites is very similar to two familiar issues concerning local interconnection arrangements. First, do the companies that control local networks have the ability and incentive to discriminate against other carriers in a way that harms consumers? Inter-exchange carriers (such as Internet backbone providers) constitute a significant share of the data traffic revenues of such U.S. Bell operating companies like Bell South. Arguably, discouraging this profitable wholesale market is not in the local carrier’s interest. However, this is one area where regulation has been reasonably effective (as opposed to detailed unbundling of the local network), especially for well-entrenched data networks that have established long-term contracts for capacity supplemented by direct ownership of facilities to the largest customer sites. There have been complaints that newer entrants do less well in obtaining this access. Second, if there is any question of market power, have regulators taken measures to improve the transparency of the market? Some complaints have focused more on the need to improve information about peering arrangements for market participants than on demands for specific regulation of financial arrangements.<sup>24</sup> If there was a problem in regard to these issues a country could bring a complaint under the market access commitments of OECD countries in the BTA.

## **Annex 2**

### **CASE STUDIES OF TELECOMMUNICATIONS COMPETITION**

#### **Ghana**

Ghana made a significant market access commitment in the BTA, but the results have been disappointing. Weak government institutions have made it more difficult to introduce competition. In signing on to the BTA, Ghana placed two significant limitations on

backbone network). Eventually they required a divestiture of MCI’s transmission capacity to Cable & Wireless. The risk was one well understood in competition policy. The explosive growth of the backbone network in the United States and Europe reduces the likelihood of risk, but the question is subject to empirical investigation using the tools of competition analysis.

<sup>24</sup> TeleGeography 2000, 28.

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market access. First, across-the-board joint ventures with Ghanaian nationals were required. Second, except in underserved population centers, a duopoly was mandated and bypass of the duopoly providers was not permitted. These limitations applied to fixed-network infrastructure and for local, domestic-long distance, and international service. Terrestrial and satellite-based mobile services were required to make commercial arrangements with duopoly providers for voice services and were not allowed to bypass the network facilities of the duopoly providers for non-voice services.

In December 1996 Ghana created the National Communications Authority to serve as an independent regulator. Unfortunately, its independence was constrained politically because: (1) all of its members were appointed by and could be removed by the President, at any time; (2) many of its high officials were former Ghana Telecom professionals; and (3) the NCA remained in many ways subservient to the Minister of Communications. The NCA has never functioned as envisioned, in part because implementing legislation has never been passed by Parliament. Its independence has decreased to the point that the Minister of Communications was serving as chair of its Board in 2003.

Also in December 1996, Ghana partially privatized its inefficient incumbent telecommunications monopoly, Ghana Telecom, by selling a minority share and ceding management control to Telekom Malaysia for a period of five years. At the same time a license was sold to Westel to build and operate a competing telecom network. Westel never established a foothold. Although it invested about \$26 million in its network between 1997 and 2002, by March 2002 it had only 2,621 subscribers. In the absence of pro-competitive regulation, Westel had few incentives to compete aggressively and Ghana Telecom had fewer incentives to reform.<sup>25</sup> As a result, Ghana Telecom also underperformed its promises, reaching only 241,000 lines by 2002. By 2001 Malaysia Telekom was disenchanted in its investment and was seeking a buyer for its share of Ghana Telecom. In February 2002 the new Kufuor government, distrustful of the agreements of its predecessors, abrogated Telekom Malaysia's management agreement, although it honored their 30 per cent ownership share. Ultimately, the Norwegian firm, Telenor, was hired to provide management services for Ghana Telecom.

Cellular entry into the market was first allowed in 1992. By 1996 three mobile cellular firms had entered the market. Mobitel began operations in 1992–93; Celltel began in 1995; Spacefon, the most aggressive of the three entered the market in 1996. All three providers interconnected through Ghana Telecom. But, Ghana Telecom was not content to be kept out of the mobile market and launched its own service, OneTouch, in 2000. Although OneTouch is supposed to operate as a separate business unit from the rest of Ghana Telecom, the extent to which this separation is real is not clear. Given the weakness of the regulator, Ghana Telecom has frequently been charged with manipulating

<sup>25</sup> The Westel case also illustrates another hard-earned lesson from competitive markets—not every competitor competes well. Markets routinely see most entrants fail. Freedom to enter allows experimentation until competitors with better strategies and mixes of assets emerge.

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interconnection to the detriment of its competitors and providing unfair cross-subsidies and unequal treatment.

Still, mobile use is expanding rapidly, and has recently overtaken fixed-line telephony in terms of the number of subscribers. As of September 2003, there were approximately 702,000 subscribers, about 93 per cent of whom were digital subscribers. Scancom had 367,000 subscribers and Ghana Telecom had 210,500.

According to ITU Telecommunications indicators, relative to other African countries, between 1996 and 2002 Ghana has improved more rapidly on fixed line telephony penetration (0.44 in 1996 to 1.16 in 2001) than some others (Kenya: 1.02 in 1996 to 1.03 in 2002 or Cameroon: 0.52 in 1996 to 0.66 in 2001), but it has not done as well as Cote d'Ivoire (0.95 in 1996 to 2.04 in 2002) or Senegal (1.11 in 1996 to 2.29 in 2002). Although its mobile penetration has increased, Ghana (0.07 in 1996 to 0.93 in 2001) has significantly lagged other African nations like Kenya (0.01 in 1996 to 4.15 in 2002), Cameroon (0.03 in 1996 to 3.57 in 2002), Senegal (0.03 in 1996 to 5.65 in 2002), and Cote d'Ivoire (0.10 in 1996 to 6.23 in 2002). Further, competition and privatization as practiced in Ghana have so far had minimal impact on underserved rural areas. Most of the growth has occurred around Accra and other larger cities. A particularly striking scene in Accra is the growth of large sophisticated Internet cafes and entrepreneurial Internet Service Providers geared to small businesses. Providers of these services all complain of inadequate and over-priced communications infrastructure. They report that a vigorous "grey market" exists for network connectivity to overcome the weaknesses of the official prices and sources of supply.<sup>26</sup>

### South Korea

By contrast, in the early 1990s South Korea became persuaded that it was in its own interest to embrace greater competition. In 1991 it licensed a second business operator for international services. Mobile competition was introduced in 1994 and long-distance competition a year later. In 1996 South Korea established a more competitive market structure by approving 27 new service providers in seven areas, including international telephone service, PCS, and wireless data communications. After the signing of the BTA, opportunities for domestic service providers and equipment manufacturers to compete outside of Korea improved significantly.<sup>27</sup>

The Ministry of Information and Communication succeeded the Ministry of Communications in December 1994 to unify IT functions under one ministry and to nurture information technology as an engine of economic growth for South Korea. The MIC's goals are to accelerate the deepening of the use of IT in government and the whole

<sup>26</sup> Based on author interviews in Ghana in 2003.

<sup>27</sup> Lee et al. (1997, 2001). Author interviews, 2002.

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economy, promote the IT industry as a research and production driver for growth, and deregulate and liberalize markets. The MIC is supplemented by the Korea Communications Commission, established in 1992, to regulate the telecommunications and IT industry and to ensure fair competition. The KCC arbitrates disputes involving carriers, oversees interconnection arrangements between carriers, and investigates complaints of unfair competitive actions. KCC's independence was further ensured through amendments to the Telecommunications Act passed in November 2002.

During the Uruguay Round negotiations, South Korea agreed to open its value added telecommunications services markets and also recognized that liberalization and competition in basic telecommunications were not only inevitable, but desirable. South Korea explicitly tried to take advantage of the agreement to restructure its domestic telecommunications market. South Korean authorities emphasized "domestic competition first and global competition afterwards" to improve the competitiveness of domestic industries and "gradual market liberalization," which supposedly served the purpose of minimizing any negative impact of a sudden influx of foreign capital. However, a more likely reason for the delay was the desire to exercise greater control over technology decisions of market operators. This was easier in the absence of foreign management and investment control.

In response to the demands of the other industrial countries for more market opening as part of the BTA, in 1998 South Korea permitted for the first time foreign investment in wireline-based telephone services (up to 33 per cent ownership of facilities-based operators and up to 20 per cent in Korea Telecom). (See Box 10.3) for the Korean offer.) The aggregate ownerships limits were lifted to 49 per cent for both in 2001. Full competition in resale of all telecommunications services except voice was allowed in January 1998, and full voice competition followed in January 2001.<sup>28</sup> The limit on resale was designed to avoid the kinds of manipulation of international traffic under the settlement rate system that the United States had identified as a risk. The value added services market was entirely opened in 2001, and Korea gradually relaxed restrictions on foreign investments in facilities-based telecommunications. By 2003 most regulations were lifted except for ceilings on foreign investment in facilities-based services (49 per cent) and restrictions on foreign investors becoming the major shareholder in Korea Telecom.

As in many countries the reduction of government ownership of the traditional monopolist, Korea Telecom, was slow and complex. Korea's monopoly common carrier for all wireline services and later for Internet access was split off from the Ministry of Postal Service in 1982. Privatization proceeded gradually by selling off its stock from

<sup>28</sup> In the wake of the Asian financial crisis, Korea adopted an even more aggressive set of policies to prompt recovery. In the summer of 1998 the Korean government abruptly changed policy in favor of economic stimulation through monetary and fiscal expansion. The government also simultaneously promoted corporate sector restructuring, financial sector restructuring, public sector restructuring, and labor market reform. Stephan Haggard (2000) for the Institute of International Economics.

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1987 to 2002. Turning this formerly government-owned company into an efficient private firm was a major advance. But concerns remain over privatization, given the huge proportion of the national economy that it represents and anti-competitive possibilities. This led the government to create an independent management cadre, to limit the shares of ownership that any one investor could hold, and to disperse its shares widely to individualism institutional investors and eventually to international investors. Both KT and SK Telecom, the wireless leader, has foreign ownership in the mid-40 per cent range and both now favor lifting the current 49 per cent ceiling on foreign ownership.

Competition was introduced for KT for international phone service in 1990 and for domestic long-distance service in 1995. (Dacom and Onse Telecom now compete in both areas.) The government established a wireline competitor, Hanaro Telecom, for local service that began service in 1999, but has so far made only small inroads into KT's market. In early 2004 KT's market share in local service remained at 96 per cent, its share of the domestic long-distance market had fallen to 79.7 per cent, and it retained 46 per cent of the international telephone service market.

Initially, Dacom received a nationwide monopoly for high-speed wireless internet provision. KT was allowed to provide Internet Access in 2000 and quickly took a strong position as competition in wireline-broadband access and the growing substitution of wireless for wired-spurred innovations in broadband service. Korea benefited from demography also. The strong concentration of population in urban areas with high-rise housing of recent origin facilitated residential broadband networks. Korea emerged as one of the leading countries for broadband Internet access.

An even greater success for Korea came in the wireless market, which now greatly exceeds wireline. Cell phone subscribers in Korea grew from under two million at the start of 1996 to reach 35 million by the third quarter of 2003. SK Telecom is the largest player but KTF (a subsidiary of KT) and LG Telecom both have healthy shares of the market. Vigorous competition has also spurred innovative services. Korea is one of the leaders in mobile-data markets. A striking characteristic of the market is the leadership in use by teenagers, thus making applications like downloads of ring tones into popular items. In addition, broadband data emerged first as a service in Korea. Korea was the first country to offer widespread 3G wireless service and continues to be a leader in wireless use and penetration. Koreans also are among the most active users of text messaging and wireless-data transfer anywhere.

KTF's second place position in the wireless market has created an unusual political opportunity for innovative regulation in wireless services. Most recently, it introduced mobile-phone-number portability in October 2003. And it also put price caps on the charges for terminating calls from wired onto wireless markets.

The producers of wireless equipment also have prospered as a result of providing equipment for its innovative service market. Samsung Electronics, which controls just over half of the domestic wireless equipment market and is a vigorous competitor

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worldwide, is now larger in terms of sales and market cap than Sony. LG Electronics is also a major global player.

This leadership in wireless technology represented a strategic gamble by a government that was willing to dictate technical standards in services in order to support innovation in the equipment market. Specifically, South Korea gambled on CDMA technology for second- and third-generation technologies. (This strategy worked in part because Korean suppliers were able to achieve a leading position in the U.S. market that also introduced CDMA technology in the same time frame.) This dictation of standards was typical of many governments in the 1980s and early 1990s, but it has become less common today because trade rules discourage such industrial policies, and experience has shown that governments often fail to guess right when picking standards. However, South Korea remains active in intervening in this area, and today is trying to impose a new mandatory standard for wireless technology that has been designed in Korea. This is becoming subject to a trade dispute.

In short, thoughtful regulation coupled with significant domestic competition and selected international partnerships and competition have propelled South Korea into a global leadership role. The goal of modernizing the economy by facilitating powerful and inexpensive communications and information technology services was reinforced by the general decision to rely more on market forces after the Asian financial crisis. This was complemented by a related growth in advanced technology equipment production. Together, these factors provided the political motivation for the difficult choices.

## **Annex 3**

### **COMMITMENTS OF COSTA RICA ON TELECOMMUNICATION SERVICES IN THE CONTEXT OF THE U.S.–CENTRAL AMERICA–DOMINICAN REPUBLIC FREE TRADE AGREEMENT (DR-CAFTA)**

Roberto Echandi

#### **Introduction**

This Annex explains the scope and content of the commitments undertaken by Costa Rica in telecommunication services in the context of the U.S.–Central America–Dominican Republic Free Trade Agreement (DR-CAFTA). Two fundamental issues are addressed: (1) the nature and practical implications of the structure of Chapter 13, “Telecommunications,” of the DR-CAFTA and its respective Annex; and (2) the scope and content of each of the four parts of Annex 13, “Specific Commitments of Costa Rica on Telecommunications Services.”



**424 PETER F. COWHEY AND JONATHAN D. ARONSON****The Structure of Chapter 13 and its Annex**

In the chapters on services in DR-CAFTA, the Parties involved assume a series of obligations, but also acquire a series of rights. These rights can benefit the States themselves or benefit their respective service providers. In many cases, the obligations assumed by a country are the same as those assumed by the rest of the Parties of the Free Trade Agreement, that is, they are symmetrical. However, that is not the case of the commitments assumed by the DR-CAFTA Parties on telecommunications. Note 1 to Chapter 13 expressly states the following: “In place of the obligations established in this Chapter, Costa Rica shall undertake the specific commitments set out in Annex 13.”

Pursuant to note 1 cited above, in the territory of the other Parties of DR-CAFTA, Costa Rica and its service providers will benefit from all the rights granted by Chapter 13. However, the obligations undertaken by Costa Rica relative to the other DR-CAFTA Parties and their service suppliers, are exclusively limited to the obligations included in Annex 13.

**Reach and Content of Annex 13**

Annex 13 is divided into four sections, as follows:

1. *Preamble*. The preamble states the object and purpose of the Parties when negotiating the content of the Annex. The importance of the elements included in the preamble stems from the fact that they will serve as a supplementary source of interpretation of the rest of the text of Annex 13.

The preamble acknowledges the unique nature of the Costa Rican social policy on telecommunications. Further, it reaffirms the decision to ensure that the process of opening of the telecommunications services sector must be based on the terms of the Constitution of Costa Rica. A key aspect of the preamble is that the process of opening of the telecommunications sector shall be to the benefit of the user and shall be based on the principles of graduality, selectivity, and regulation, and in strict conformity with the social objectives of universality and solidarity in the supply of telecommunications services in Costa Rica. Furthermore, it is explicitly recognized that the Costa Rican Institute of Electricity—“ICE” a public enterprise and main provider of telecommunications services in Costa Rica—will be a participant in the future competitive market. Thus, the preamble explicitly clarifies that there is not any commitment to privatize this institution.

2. *Modernization of ICE*. Section II of the Annex includes the obligation on the part of Costa Rica to promulgate a new legal framework in order to strengthen the ICE, through its appropriate modernization, by December 31, 2004. This is an obligation assumed by Costa Rica, which, as well as any other included in the Annex, in

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principle would be effective once the Treaty has entered into force. If at that date, Costa Rica has not yet promulgated this legal framework, technically the country would be violating its treaty obligations under DR-CAFTA. However, due to the fact that the inclusion of the commitment of modernization of the ICE within Annex 13 was at the request of Costa Rica, and not of the U.S. or any other DR-CAFTA Party, it is unlikely that the mechanism of dispute settlement would be used in order to enforce this obligation.

3. *Commitments of Selective and Gradual Opening of the Market.* Section III of Annex 13 includes two main obligations for Costa Rica. First, there is a market-access standstill, and second, there is the commitment for a gradual and selective opening of three telecommunication services. The market-access standstill obligation is an important feature of the Annex, as not all telecommunications services in Costa Rica are currently under public monopoly. A limited number of services are open to competition, for instance “radio messages” services and beepers. The market-access standstill entails that Costa Rica will not be able to extend the public monopoly regimen to services that already are open to competition in accordance with current Costa Rican legislation as of January 27, 2003.<sup>29</sup> In other words, Costa Rica will not be able to extend the public monopoly beyond the level existing level at the date the negotiation started.<sup>30</sup> It should be clarified that the market-access standstill obligation does not limit in any manner the prerogative of Costa Rica to enact modern legislation to regulate the telecommunications sector.<sup>31</sup> This provision neither implies that Costa Rica will have to grant retroactive benefits nor that it will have to “freeze” any frequency assigned or use of the “radio-frequency” spectrum.<sup>32</sup>

In addition to the market standstill commitment, in Section III.2 of the Annex, Costa Rica assumes the obligation of permitting, on a non-discriminatory basis, competition between telecommunications service providers so that they can provide directly to consumers three specific types of telecommunications services: private network services and Internet services by January 1, 2006 and mobile wireless services by January 1, 2007. The content of Section III.2. warrants several clarifications.

First, in accordance with this provision, Costa Rica does not grant the United States any right of exclusive access to the Costa Rican market. It should be noted that the obligation assumed consists in allowing competition on a non-discriminatory

<sup>29</sup> January 27, 2003 was the date the DR-CAFTA negotiations started.

<sup>30</sup> The determination of the scope of the monopoly of the telecommunications sector has been a subject of debate in Costa Rica. Nevertheless, paragraph III.1 does not prejudge which services are open to competition in accordance with Costa Rican legislation.

<sup>31</sup> On the contrary, Section IV of the Annex explicitly refers to the need for Costa Rica to issue a regulatory framework for telecommunications services. In this respect, Section IV of the Annex specifies a date to fulfill this objective, i.e., January 1, 2006 at the latest.

<sup>32</sup> This aspect is not regulated in Section III of the Annex, but very generally in its paragraph V.4.

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basis, rather than granting an exclusive preference to telecommunications service providers of the U.S. or Central America.

Second, Section III.2 includes a paragraph (b), where it is stated that the commitment to allow competition in the supply of telecommunication services on a non-discriminatory basis shall also apply to any other telecommunications service that Costa Rica unilaterally decides—and not pursuant the terms of Annex 13—to permit in the future. Thus, any additional opening in the market that takes place in the future will be automatically bound for non-discriminatory competition under the terms explained.

4. *Regulatory Principles.* Section IV of the Annex establishes the obligation of Costa Rica to promulgate, at the latest on January 1, 2006, a regulatory framework for telecommunications services that should comply with the principles included in this Section. The formulation of these principles, which derive from the principal international instruments that govern trade in telecommunications services, was drafted in quite general terms. The rationale for this approach was to provide Costa Rica with enough room to maneuver to specify these principles when enacting the legislation at the national level.

The purpose of these regulatory principles is to serve as a guide for the regulation of the telecommunications sector and not to affect the commitments of market access that Costa Rica would assume according to Section III of the Annex. Thus, nothing is stipulated in Section IV can be interpreted in the sense of expanding the commitments of market access assumed under Section III of the Annex. The principles included in Section IV are the following:

1. *Universal Service.* Costa Rica will have the right to define the kind of universal service obligations it wishes to maintain, which will not be considered anti-competitive per se, provided they are administered in a transparent, non-discriminatory, and competitively neutral manner and are not more burdensome than necessary for the kind of universal service defined.

This is one of the most important principles for Costa Rica, since it implies clearly that the country will enjoy room to maneuver in order to design a system of universal coverage, in accordance with the principle of solidarity in the supply of telecommunication services, where not only the ICE, but all the other suppliers of telecommunications services - nationals or foreigners - would have an obligation to contribute.

2. *Independence of the Regulatory Authority.* In order to guarantee the adequate supply of telecommunications as a public service, Costa Rica should have a regulatory authority of telecommunications services, which should be separate and not accountable to any supplier of these services and impartial with respect to all market participants. The Annex does not prejudge whether the regulatory authority could be

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built within the framework of an existing regulatory body. This point, as well as the other principles, would be specified through national legislation.

3. *Transparency.* Annex 13 guarantees access of the public to information on the procedures, agreements or offers related to interconnection. Further, this provision states the obligation to make available to the public all licensing or authorization criteria and procedures required for telecommunications service suppliers, and the terms and conditions of all licenses or authorizations issued.
4. *Allocation and Use of Scarce Resources.* Annex 13 also provides that Costa Rica shall ensure that procedures for the allocation and use of limited resources, including frequencies, numbers, and rights of way, are administered in an objective, timely, transparent, and non-discriminatory manner by a competent domestic authority.
5. *Regulated Interconnection.* This provision is directed to offer to the service providers of telecommunications the possibility to be able to be interconnected to the public network of telecommunications in a timely fashion, under non-discriminatory terms, conditions, and cost-oriented rates that are transparent, reasonable, and having regard to economic feasibility. This is not a provision of market access. Instead, this guarantee stems from the recognition that it is not possible to provide telecommunication services—at national or international levels—if there is not interconnection of networks among the different suppliers of telecommunication services.
6. *Access to and Use of the Network.* This guarantee is not exclusively directed to service providers of telecommunications, but to all sorts of companies that, in order to provide their services, need to have access to and to use—not to provide—public telecommunications services. This would apply, for example, to a bank that intends to have a network of automatic teller machines and branches in the entire national territory. In this case, the logic of the provision is that the telecommunication service providers do not deny to the bank access to the networks or the use of the public telecommunications services. This obligation is not absolute. The last phrase of paragraph IV.6 stipulates that Costa Rica can impose conditions to the access to and the use of networks or public telecommunications services in order to safeguard the public-service responsibilities of providers of public-telecommunications networks or services, in particular their ability to make their networks or services available to the public generally, or protect the technical integrity of public-telecommunications networks or services. Furthermore, it is important to clarify that this provision grants no right to a service provider of telecommunications not authorized to offer telecommunications services in the country.
7. *Supply of Information Services.* With this provision, Annex 13 purports to make the distinction between two different types of services: on the one hand, public-telecommunications services - any telecommunications service that a Party requires, explicitly or in effect, to be offered to the public generally—and on the other hand, information services—services that generate, store, transform, or process data that

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use telecommunications as a transport means. While part of the first services are subject to the public monopoly in Costa Rica, information services are not, and therefore can be offered by any public or private corporation. Furthermore, while public-telecommunications services are a public service and as such should be clearly regulated and subject to State supervision, information services are not public services, but private, and as such should not be subject to the same regimen as public-telecommunication services.

Recognizing that information services are not public utilities, paragraph IV.7 establishes for this type of services that Costa Rica cannot require a company to provide information services to the general public or justify its rates in accordance with its costs and register its rates for such services. It is noteworthy that it corresponds to what Costa Rica defines is an information service for the purpose of this paragraph.

8. *Competition.* In view of this principle, Costa Rica will maintain adequate measures to prevent important providers from using anticompetitive practices. The rationale of this provision is to ensure for the country a legal framework capable of promoting fair and transparent competition in the market. These regulations could also be applied to all other operators who enter the national market, and not just the important suppliers.
9. *Submarine Cable Systems.* Paragraph VI.9 is a guarantee that is applied only when a telecommunication provider is authorized to operate submarine cable systems as a public telecommunication service. In this situation, Costa Rica shall grant to this provider reasonable and non-discriminatory treatment for access to submarine cable systems—including landing facilities—in its territory. Again, in view of note 6 of the Annex, this obligation per se does not imply granting any right or duty of access to the telecommunications market in Costa Rica.
10. *Flexibility in the Choice of Technologies.* Pursuant to this principle, Costa Rica may not prevent suppliers of public-telecommunications services from having the flexibility to choose the technologies that they use to supply their services, subject to requirements necessary to satisfy legitimate public-policy interests.

## Conclusion

Annex 13 of the DR-CAFTA illustrates two fundamental aspects of international trade negotiations with small developing countries. First, the structure and contents of the Annex represent an example of how international trade agreements can be crafted in order to achieve a balance between two often contradictory objectives when negotiating highly sensitive political issues: on the one hand, to foster certainty and predictability for business transactions through sound and clear rules and disciplines, and on the

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other, to allow the countries concerned—especially those undertaking commitments that entail reforms to domestic regimes the right margin of policy space to be able to specify those rules and disciplines according to national idiosyncrasy. Annex 13 of the DR-CAFTA illustrates how such a delicate balance can be achieved.

The Annex provides for very specific and clear commitments for Costa Rica, not only with respect to the opening of the telecommunication sector to competition, but also regarding the enactment of a new legal framework to regulate the sector. By providing clear, but general principles, the Costa Rican authorities will have enough policy space to specify those rules and disciplines according to their national needs and policy objectives.

For instance, Annex 13 safeguards the right of Costa Rica to preserve the universal coverage of telecommunications services. This Annex delegates to the Costa Rican lawmaker not only the definition of the specific features and policy objectives that such universal system may have, but also the identification of the means to make such universal system effectively work. Since the obligations imposed on the service providers are transparent, non-discriminatory, and competitively neutral and not more burdensome than necessary for the kind of universal service defined, the Costa Rican authorities have significant policy space to craft the kind of universal service desired. This approach is also applicable for the other regulatory principles included in Annex 13.

The second key aspect that Annex 13 of the DR-CAFTA illustrates with respect to international trade negotiations with small developing countries is even more important. Annex 13 illustrates how the rationale of the DR-CAFTA negotiations—as with most other international trade negotiations in the context of developing countries—is not limited to improve conditions of access into key export markets for developing countries, or to enable the former to increase their exports, or attract increased investment inflows and diversify their export supply. Without doubt, all these objectives, aimed at improving the conditions through which developing economies integrate themselves to international markets are extremely important. However, these goals are only part of the story of the importance of free trade agreements for smaller developing economies.

The other main impact that a free trade agreement like the DR-CAFTA can have, and that is clearly illustrated by Annex 13, consists in the trade agreement becoming instrumental to foster key domestic reforms that Costa Rica should have undertaken a long time ago in order to foster the process of modernization of their institutions and promote sound, fair and sustainable economic development. In this sense, Annex 13 is an example of how the DR-CAFTA is then about domestic reform, a catalyst for internal change aimed at modernizing the economies of the region. Any process of reform always faces resistance by vested interests. In the case of small developing countries, institutions often are very vulnerable and permeable to pressures of particularly politically strong pressure groups. In such contexts, the negotiation of international trade agreements can represent a mechanism to exert external pressure to make domestic reform feasible.

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The process of opening the telecommunications sector in Costa Rica is a case on point. For more than a decade, Costa Rica has attempted to open the State monopoly in the telecommunications sector. However, the political pressure exerted mostly by public-sector unions has impeded a national consensus, making governments doubtful as to whether to use their political capital to foster the reform of the sector which is so badly needed by the Costa Rican economy. Within this context, had the DR-CAFTA Parties failed to ask Costa Rica to undertake any commitment in the telecommunications sector, it is very likely that the opening of the State monopoly in telecommunications would not be at the top of the Costa Rican domestic political agenda as it is today.

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