

Toward Sustainable Competition in Global Telecommunications: From Principle to Practice

A Report of
The Third Annual Aspen Institute Roundtable
on International Telecommunications

William J. Drake
Rapporteur



Communications and Society Program
Charles M. Firestone
Executive Director
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For all other inquiries, please contact:

The Aspen Institute
Communications and Society Program
1333 New Hampshire Avenue, NW
Suite 1070
Washington, DC 20036
Phone: (202) 736-5818
Fax: (202) 467-0790

Charles M. Firestone	Amy Korzick Garmer
<i>Executive Director</i>	<i>Associate Director</i>

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Washington, DC 20036

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1333 New Hampshire Avenue, NW
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Washington, DC 20036

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Foreword

Until the 1980s, the governance and regulation of international telecommunications regulation was relatively straightforward. Telephone companies were state-owned monopolies that provided services within discrete national boundaries. International traffic was carried at rates mutually agreed upon by governments and their respective national carriers.

The nationalist, protectionist paradigm started to crumble in the mid-1980s as nations began liberalizing their telecommunications sectors. Parochialism was dealt another blow roughly a decade later when the international community codified its commitment to competition by enacting the Uruguay Round Protocol to the General Agreement on Tariffs and Trade (GATT) in May 1994, and thereby establishing the World Trade Organization (WTO). In February 1997, sectoral liberalization and international competition converged as WTO members embraced an agreement to liberalize basic telecommunications services within a competitive trade framework.

Six months after the WTO agreement on basic telecommunications services entered into force, the Aspen Institute convened the third annual Aspen Institute Roundtable on International Telecommunications (AIRIT), September 14-17, 1997, in Aspen, Colorado. The main objective of the meeting was to identify appropriate institutions and forums to implement the new framework and to smooth the transition from the old monopoly order to a truly competitive environment. Three main themes were discussed at AIRIT: the implementation of the WTO agreement on telecommunications, the restructuring of global traffic precipitated by the demise of the accounting rate system, and the governance of global electronic commerce. The following report summarizes the roundtable dialogue and working group recommendations.

Although the report details these and other, more specific conclusions, it is important to note that no votes were taken, and participants were not asked to sign any particular statements. Thus, the observations of consensus are those of the rapporteur and should in no way be construed as the statement of any particular participant or employer unless specifically noted as such.

The Report

Participants widely viewed the new trade framework as a positive step toward increased competition and multilateral oversight of the dynamic global telecommunications marketplace. The report addresses tensions between unilateralism and broader forms of governance in accounting rates, electronic commerce, and domain name system management. Furthermore, it identifies the roles and responsibilities of different institutions in implementing the new trade framework. It underscores the challenges that remain in creating sustainable competition in global telecommunications at the national, regional, and international levels.

Valuing efficiency over international consensus, many large players are reluctant to hand over telecommunications regulation and governance to multilateral organizations. Participants identified two existing international organizations—the International Telecommunication Union (ITU) and the WTO—that continue to play important roles in the emerging multilateral framework for telecommunications services. Given the vast institutional differences between these organizations, however, participants believed that their roles and responsibilities should be quite different. The ITU, because of its wide membership, is an appropriate venue to generate ideas and raise awareness. The WTO, because of its reputation for efficiency, is more suited to dispute resolution, interface with the private sector, and governance more broadly.

Despite the participants' optimism about the WTO, many participants felt that the institution needed to be broadened and deepened. Furthermore, they observed that the WTO and the new trade framework may not be able to produce its desired outcome for three main reasons:

- **Scope.** Many nations were excluded from the negotiations that culminated in the WTO agreement on basic telecommunications services; consequently, they have not made commitments to the WTO. If the WTO wants all nations to comply with its rules, it should incorporate nonmember states' concerns into its decision-making process. Furthermore, existing members must adhere to and broaden their commitments. These steps are necessary both for its governance function and its ability to serve as an arbitrator for disputes.

- **Competition.** The removal of legal and regulatory barriers does not necessarily result in an explosion of competition. The dynamics of the United States marketplace since the Telecommunications Act of 1996 illustrates this point.
- **Transition.** There may be casualties in the rocky transition to a nondiscriminatory liberalized environment, especially in developing countries that depend on accounting rate revenue. Many developing countries also lack the transparent, independent, effective regulatory authorities that are critical to the success of a competitive global framework for telecommunications. Participants stressed the need to strengthen weak national regulatory institutions or to develop this capacity in countries where it does not yet exist. They encouraged developed nations and multilateral organizations to provide this type of assistance to governments that have little experience with competition.

Additionally, there was wide agreement that the international accounting and settlement system is in crisis. As industry ownership is passing from state-owned monopolies to private, globally oriented companies, the old rules are no longer viable. Furthermore, the economic and technological bases of the accounting rate and settlement system are eroding: accounting rates no longer reflect costs and savvy international clients can use technology to avoid initiating calls in countries where it is expensive to do so. Participants believed that cost-based interconnection agreements would likely replace accounting rates as the driving force of the international settlement system. They disagreed, however, on whether the Federal Communications Commission's Benchmark Order was a useful intermediary step.

With regard to electronic commerce, participants drew a useful distinction between transactions among large corporate entities and those involving small to medium-sized enterprises (SMEs). To ease the barriers to entry for smaller businesses, the group recommended the creation of an international clearinghouse for electronic commerce to provide licensing and tax assistance for companies operating in multiple jurisdictions. The participants identified the vacuum of Internet governance as a second hindrance to electronic com-

merce shared by large companies and SMEs alike. Participants debated a range of governance alternatives—from government coordination to industry self-regulation—to rectify the issue. They concluded that governments should play a role in Internet governance; such initiatives should be led, however, by the private sector.

Aspen Institute Roundtable on International Telecommunications

The first AIRIT was convened July 26-30, 1995, in Aspen, Colorado to reconcile conflicting European, American, and Asian perspectives on the emerging global information infrastructure. Competition, regulation, and social policy factored largely into the discussion. The second AIRIT, convened June 19-22, 1996, in Berlin, Germany, focused on the need to develop regulatory policies to support the development of multimedia services. The debate explored the impact of multimedia services on the Internet, and vice-versa. In the third forum, participants continued their discussion of how changing circumstances—at the political, institutional, economic, and technological levels—affect the international telecommunications landscape. Central to this meeting were discussions of the World Trade Organization, the General Agreement on Trade in Services, and the shift toward a competitive global framework for telecommunications services.

With this, its third iteration, AIRIT appears to offer some unique qualities to the international dialogue on telecommunications policy:

- The size and format are limited to approximately 25 leaders meeting in a roundtable format over several days. This arrangement has provided the opportunity for a frank exchange of ideas and positions, refinement of arguments, exploration of options, setting of agendas, and the development of near-consensus on important issues.
- The informality allows participants to be frank and forthright with each other; to develop trusting relationships, even among rivals and adversaries; and to learn rather than position and profess.
- The trust and respect around the table has led to a willingness to collaborate, work hard toward common ends,

and produce a report which we hope is helpful in framing thought and debate on leading questions.

Acknowledgments

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We also owe a great deal to the extensive work of our rapporteur, William Drake. He has both reported the main thrusts of the proceedings and provided a wealth of context and commentary. We believe this combination has resulted in a rather significant contribution to current policy debates within and among telecommunications regulatory regimes.

We also want to thank each of the participants for their time and energy at the conference and for their follow-up afterward. Additionally, we thank Amy Garmer, associate director, Susan Oberlander, research associate, Sylvia Pear, publications manager, Rebecca Weaver, graphic design specialist, Beth Wachs, program associate, Patricia Kirsch, program coordinator, Cheryl Sumter, program coordinator, and David Stearman, copy editor, for their help in editing, proofing, designing, and producing the final Report.

Charles M. Firestone
Executive Vice President, Policy Programs
and
Executive Director, Communications and Society Program
The Aspen Institute

Toward Sustainable Competition in Global Telecommunications: Introduction

Many observers consider 1998 to be a watershed year in the evolution of the global telecommunications industry. This view is based on the fact that two major changes in the international policy landscape have begun to clear away many longstanding barriers to competition in global networks and services.

The first of these changes is the expansion and consolidation of the international trade regime for telecommunications. On February 5, 1998, the agreement struck by members of the World Trade Organization's (WTO) Group on Basic Telecommunications (GBT) regarding basic telecommunications services formally entered into force. The GBT deal, which was reached one year earlier, committed 69 countries comprising approximately 93 percent of the \$600 billion per annum world market to liberalize their basic telecommunications services sectors in accordance with international trade disciplines. Three more countries have since come aboard, bringing the total number of signatories to 72.¹ The deal took the form of revisions to national schedules of market access commitments under the General Agreement on Trade in Services (GATS), one of the new international regime instruments created by the 1986-1994 Uruguay Round multilateral trade negotiations.²

Relatedly, 1998 also brings the onset of full liberalization within the European Union (EU). As part of a broader program to create a "single market" for goods and services, as of January 1 the EU's 15 member countries are obliged to remove barriers to competition with each other in telecommunications infrastructure and services under the guidance of the European Commission (EC).³ Although these changes have taken priority for the EC and at times affected its orientation toward broader multilateral negotiations, there is a fundamental symmetry between the EU's internal market reforms and the GBT deal.

The second major change involves the international accounting and settlements system.⁴ During the 1990s, the United States and

other liberalizing countries—especially those with significant settlements deficits—have been working to pressure foreign carriers to reduce their rates toward cost. This campaign has been waged both bilaterally and through the International Telecommunication Union (ITU), whose members work together to set international regime rules for accounting rates. At the same time, the spread of new modes of operation like international simple resale, traffic reorigination, and Internet telephony have been exerting some downward pressures on rates. Yet despite these forces, accounting rates on many of the world's routes remain well above cost, and the U.S. settlements deficit continues to mushroom.

In consequence, in the summer of 1997 the U.S. Federal Communications Commission (FCC) adopted its highly controversial "Benchmark Order," which went into effect on January 1, 1998.⁵ Through this Order, the FCC has set a timetable on which U.S. carriers must negotiate cost-based settlements with corresponding foreign carriers and has held out the possibility of tough enforcement measures if foreign carriers refuse to comply. Despite the heated and nearly universal public opposition of foreign governments and carriers to having the FCC unilaterally set the prices at which they may export termination services to the United States, the Order has had the benefit of finally forcing the issue of accounting rate reform. On the other hand, it also has created substantial problems for the majority of developing countries, which depend heavily on settlements revenue they receive from the United States.

The accounting rate system also is under attack on other fronts. The expansion of the GATS to encompass basic telecommunications means that competition will put additional downward pressure on prices. On many key international routes, accounting rates will be replaced entirely as new means of delivering and terminating traffic emerge. Furthermore, a central feature of the EU's liberalization program is the requirement that the dominant carriers in each country allow international correspondents and competitors to interconnect to their national networks to terminate traffic. For the 70 percent of members' international traffic that is destined for other EU nations, this requirement means the progressive abolition of accounting rates. In light of these and relat-

ed trends, it is fair to say that the archaic accounting and settlements system is now entering a period of crisis and decay.

Third, outside the boundaries of the traditional telecommunications industry, 1998 also brings major changes in the governance of another crucial part of the global communications and information environment—the Internet. These changes concern two closely related sets of issues: the management of the underlying infrastructure and the rules for international commercial transactions over that infrastructure. With regard to the former issues, the institutional mechanisms established years ago—when the U.S. government held ultimate authority over key functions, and the Internet was used largely for research and education purposes—clearly are ill-suited to what has become a truly global and commercialized medium. This is most obviously the case with the domain name system (DNS) that serves as the Internet’s addressing system. Several years of effort to redefine DNS management have been marred by often sharp disagreements among businesses, noncommercial stakeholders, and governments. A breakthrough in the process was achieved in June 1998, however, when the United States announced its long-awaited plan to privatize and internationalize the DNS; the EU and many other players have endorsed this plan. As such, a new framework that should promote the continued expansion of Internet communication and commerce will likely be in place by late in the year.

With regard to the latter issues, the U.S. Department of Commerce estimates that global electronic commerce over the Internet could reach a staggering \$300 billion by the year 2002.⁶ For this growth to occur, however, the market needs the predictability of shared international rules on a variety of pressing issues from taxation, contracts, and consumer protection to the protection of personal privacy and intellectual property. Although the creation of new international rules—whether they are inter-governmental regimes or industry-defined, “self-regulatory” mechanisms like codes of conduct—inevitably is a difficult process, the consultations and negotiations of the past few years are beginning to bear fruit on a number of fronts. For example, on May 20, 1998, members of the WTO agreed to declare the Internet a duty-free zone for electronic commerce (e-commerce) for at least one year.

They also agreed to launch a work program to clarify the applicability of WTO instruments and existing national commitments to Internet commerce, as well as to explore the possible inclusion of these issues in the next multilateral trade negotiations (which are expected to begin in the year 2000). Similarly, treaties signed by members of the World Intellectual Property Organization (WIPO) in December 1996 entered into effect in 1998, expanding copyright and other protections on the Internet in certain jurisdictions. Other multilateral organizations also are stepping up their work on related questions. Thus, although some issues remain unresolved, 1998 saw the beginnings of a real push to reach international consensus on the governance of global electronic commerce over the Internet.

In short, 1998 has brought fundamental changes in the international rules governing communications. Moreover, the benefits of change, in terms of lower costs and accelerated innovation, will not be limited to the communications and information sector. Telecommunications is a key infrastructure that underlies and integrates all economic sectors, just as information is a key input or factor of production in all economic activities. Shared international rules and the competition they promote should enhance the efficiency and effectiveness with which networks and information are used in every user industry, from manufacturing to banking to health care and beyond. By extension, this efficiency will contribute to overall organizational performance and to wealth creation in the global information economy as a whole.

The question now is, how do we move from international agreements to actual practice? Despite the hard work of policymakers, changing the international rules of the game is just the first step of the long road to open global competition. If the new GATS commitments are to have real, meaningful effects in the marketplace, they will have to be fully implemented in a timely manner at the national level.⁷ In parallel, market pressures and U.S. actions mean that recalcitrant foreign carriers will have to undertake often painful reductions in their accounting and settlement rates and adjust their operations accordingly and accelerate their heretofore sluggish multilateral efforts to reform the system more generally. In the Internet environment, governments will not only have to build

on the gains made thus far to reach consensus on the outstanding issues but also intensify efforts to adjust their national laws and institutions accordingly.

Change may not come easily. Telecommunications is an industry with deeply embedded institutional rigidities and powerful vested interests that often are wary of change; key actors have strong incentives to drag their feet for as long as possible. Governments around the world have established a hearty tradition of proclaiming victories in telecommunications liberalization before the real work has begun. Reforms on paper frequently get bogged down in practice, as incumbent carriers stall for time and strategize about how to preserve their existing positions and expand into newly emerging markets, much less to protect legitimate social objectives.

Given the popular discourse in this arena, many people may assume that the biggest barriers to change will arise where the dominant public telecommunications operator (PTO) is government owned, as remains the case in a declining but still notable number of developing countries. As the United States' experience since the enactment of the Telecommunications Act of 1996 indicates, however, private incumbents can be equally adept at blocking change, regardless of their professed eagerness for competition. Moreover, there obviously are a wide variety of other factors beyond ownership status that will affect how incumbent interests affect the pace and scope of the GATS implementation and accounting rate reform across countries: national laws and judicial systems, the strength of regulatory institutions, industry structures, the role regional intergovernmental agreements, and so forth.

Even where there is the political will to liberalize and to keep international commitments, implementation often will involve substantial technical difficulties. To comply with the GATS and the EU's program, governments will have to craft policies on issues for which they frequently lack experience and expertise. The requirement that all EU members and adherents to the GATS Reference Paper establish effective interconnection policies (with longer phase-in periods for some less-industrialized countries) presents a particularly obvious example. Lacking a history of multiple competing service providers, especially facilities-based carri-

ers, many countries will be hard-pressed to quickly find the right solutions to pricing, transparency, potential abuses of market power, and related matters. Indeed, the United States' record suggests that this process is difficult even for countries that do have a tradition of multiple carriers. Technical problems may be even more prominent with regard to Internet commerce because of the unique attributes of such transactions, many governments' lack of experience and expertise in this arena, and the paucity or inappropriateness of existing national rules.

Implementation will be technically challenging for lower-income countries in particular. For example, as the recent experience with national cost studies conducted under the aegis of the ITU suggests, many developing countries' carriers have inadequate internal accounting practices and often cannot say definitively what their costs are for each aspect of their operations. Getting interconnection pricing right under these circumstances might not be easy. Similarly, limitations on institutional capacity will make it difficult to handle the technical challenges involved in other key areas such as spectrum management, competitive safeguards, universal service funding, Internet commerce, and so forth.

One might add that establishing new rules will not lead to real competition if the private sector does not take advantage of the openings created. Once again, the United States provides a case in point. For years the cable television companies and Regional Bell Operating Companies (RBOCs) complained that outdated government policies were preventing media convergence and stifling innovation. Since the law was changed in 1996, however, many of these complainants have abandoned their plans for "500 channels" of interactive television, telephony via cable, and so on, to focus on other priorities. The point is not that these were bad business decisions but simply that as company strategies evolve, governments can eliminate legal and regulatory barriers without a consequent explosion of competition. If new competitors do not seek entry and press their case with national governments, the WTO, or the EC, many "devil is in the details" type barriers could remain in place. Moreover, because some opportunities are always going to be more attractive than others, inevitably there will be a lot of variation across and within national markets in the

extent to which the benefits of competition are realized, even under consistent international rules. The same is true with electronic commerce over the Internet, where the technical barriers to entry are low but many firms have reluctant or unable to dive in, especially in the developing world.

Exploring these topics—trade in telecommunications, reforming the accounting and settlements system, and governing global e-commerce—was the purpose of the third Aspen Institute Roundtable on International Telecommunications (AIRIT). Building on the results of the two previous AIRIT meetings, a group of leading experts from business, government, and academia gathered for three days in Aspen, Colorado, to consider and formulate policy recommendations on the three issue areas (a list of conference participants is included in the appendix of this report).

With regard to the shift to an international trade framework for basic telecommunications services, AIRIT participants discussed the extent to which the GBT deal really affects fundamental change in the policy environment; the challenges of transitioning to cost-oriented, nondiscriminatory, and transparent interconnection arrangements as a model for the organization of intercarrier financial relations; and the potential need for cooperation among national regulatory authorities to deal with the GATS implementation and related issues.

On the international accounting and settlement system, the group debated various approaches to reform and whether the system will be diminished over time or even collapse as competition and alternative models are implemented on major international routes. Participants also discussed at some length how to facilitate developing countries' transition to reduced dependency on settlements payments in light of the financial hit that rate reform will impose.

In the course of considering the GBT deal and the accounting and settlements system, two other subthemes emerged that cut across both issue areas. Roundtable participants considered the question of how countries, especially in the developing world, can finance universal service requirements in a more competitive global telecommunications environment. In addition, the existence of a “parallel universe” of nontraditional providers of telecommunications and information services became a *leitmotif*

of the conversation. In general, participants believed that the dynamism of this emerging universe, especially its Internet galaxies, will be at least as important to the development of global competition as the outcomes of intergovernmental negotiations over market access and accounting rates.

With regard to Internet commerce, participants explored the challenge of devising appropriate international frameworks to promote its development. Much of the discussion centered on the relative merits of industry self-regulation and coordination on one hand and the harmonization of laws and regulations through intergovernmental cooperation on the other. Participants agreed that both approaches will be necessary at times to establish stable and universally supported governance structures.

The purpose of this report is to contextualize and summarize some of the main themes of discussion at the third AIRIT. Chapter 1 provides some background on the trade and accounting rate topics explored at the meeting. Chapter 2 contains a partial record of the group's discussions of these two issues. Chapter 3 provides background on global Internet commerce; Chapter 4 recounts highlights of the group's deliberations on these issues. Chapter 5 contains recommendations prepared on the second day of the meeting by break-out working groups formed to examine the three subjects in additional depth. The conclusion situates the discussion in the broader context of the AIRIT series to date.

The Changing Global Telecommunications Environment

The discussions at the third AIRIT meeting of the WTO's trade deal on basic telecommunications and accounting rates covered a great deal of ground. To establish the context for the report of the discussions, this chapter provides some historical background and updates on recent developments concerning these two issues.

The Shift to an International Trade Framework

The GATS in Historical Perspective

Consolidation of the GATS regime arguably is the biggest change in the multilateral governance of global telecommunications since the beginning of international service. From the early bilateral international telegraph agreements of the 1840s to the Treaty of Dresden in 1850 (the world's first multilateral agreement on telecommunications policy, which created the Austro-German Telegraph Union) to the Treaty of Paris in 1865 (which created the International Telegraph Union, the forerunner to today's ITU) and up to the late 1980s, governments cooperated to set international regime rules that not only did not promote but actively discouraged international competition in telecommunications services.

These rules embodied an organizational model under which most national markets were self-contained and closed to foreign entry. International services were jointly provided: the dominant carriers—whether private companies or government ministries of Posts, Telegraphs, and Telephones (PTTs)—reached operating agreements with correspondents abroad to hand off traffic at an imaginary midpoint between their networks. Neither carrier provided end-to-end service into the other's market under this half-circuit system. The main exception, until recently, involved a comparatively small number of private companies such as Cable & Wireless, which were allowed to provide intercontinental services on an integrated basis.

This notion of cooperative rather than competitive service provisioning was a central component of the international telecommunications regime negotiated in the ITU.⁸ The financial arrangements for intercarrier relations underwent some evolution over the years, moving from a mixed system of termination and transition charges in continental Europe and unique cost-sharing agreements within the British empire (and later, the Commonwealth) to an accounting and settlements system pioneered by AT&T with FCC support, the modern incarnation of which was adopted for universal usage by the ITU in 1968.

Even as national liberalization programs took hold around the world in the 1980s and PTTs increasingly became privatized and commercially oriented PTOs, the fundamental architecture of joint service provisioning and accounting and settlements remained the same. The ITU's 1988 World Administrative Telegraph and Telephone Conference (WATTC-88) expanded the scope for "special arrangements" outside the traditional model, including competitive provisioning, but these arrangements generally were limited to specific niches in which influential corporate customers successfully pressed for greater choice and flexibility—most notably value-added services, leased circuits, and private networking. As liberalization pressures grew in the years to follow, some countries opted to allow foreign direct investment (FDI) in selected international service markets, and corporate alliances spread as a new way to deliver traffic across borders outside the standard arrangements. In the 1990s, other "new modes of operation"—including international simple resale,⁹ call-back,¹⁰ refile,¹¹ and Internet telephony¹² emerged to add to the creeping growth of competition, and at least made some markets contestable.

As important as these developments were, however, the dominant national PTOs remained the international basic service providers to the vast majority of customers in most countries. Most international telephone traffic—estimates seem to vary between 80 to 85 percent of the global total—remained within the international accounting and settlements system. Finally, policy changes to allow competition in international services often were reached through bilateral and regional agreements; unilateral decisions

were more rare. This resulted in widely disparate market access conditions across countries, often involving discrimination toward third parties.

This combination of facts explains why the GATS in general, and its GBT revision, in particular, constitute an historic change in the global rules of the game. Never before has there been a broad-based, multilateral regime that actively promotes international competition as a way to organize the global market. The GATS establishes procompetitive principles to which, if a country makes commitments in that area, national policies must be adapted. It also institutionalizes mechanisms of mutual surveillance and binding dispute resolution and sets a disciplined baseline for progressive liberalization in the future. Through the GBT's revisions of national schedules, it also sets a fairly high common denominator of uniformity for market access conditions across nations and generalizes those openings to all comers on a nondiscriminatory basis.

The GATS gives service providers a right—in countries (representing 80 percent of the world telecoms revenues) that allow full international facilities or resale competition—to choose how they wish to deliver traffic into foreign markets, including outside the joint service model. For example, as the relevant national schedules permit, a carrier can extend its network to a Point of Presence (PoP) within a foreign country and interconnect with a local PTO at domestic long-distance rates to terminate traffic in the latter's network. This approach may soon become dominant on lucrative routes such as the North Atlantic. On the other hand, if costs and demand warrant, a carrier can undertake FDI and deliver the traffic end-to-end over its own facilities. This strategy will be especially important where large corporate customers are involved. Whether a market entrant chooses one of these approaches or something else (such as corporate alliances or resale), the GATS allows companies to do so under a consistent, binding international framework.

None of this analysis necessarily means that the traditional model of joint provisioning and settlements between carriers is going to disappear any time soon. Although some observers have argued that the old economic architecture of correspondent rela-

tionships will simply collapse in the face of growing competition, many incumbent carriers some of them quite powerful, will seek to preserve it where this serves their interests. The GATS does mean, however, that from a systemic standpoint the global market increasingly will be organized in a variety of configurations on different routes in accordance with corporate strategies. As such, the uniformity of the old global market structure is gone.

Conceptual Change and Adjustment to the Trade Regime

Despite the extensive debate that went into the formulation of the GATS, its workings and potential implications may not yet be fully understood in many corners of the global telecommunications arena. Especially, but probably not only, in the United States—ironically, its leading proponent—one can attend many scholarly conferences and read a lot of literature on telecommunications policy without encountering much mention of the GATS, even when it directly affects the issues under consideration. More important, in many industry and government circles the GATS often seems to be on the agendas only of people for whom it is a specific responsibility, as if it were a self-contained issue of no broader relevance to an organization's operations.

There are numerous reasons for this state of affairs, but three in particular stand out. First, a gap remains between the trade policy community and the wider and more diverse range of stakeholders and analysts involved in telecommunications. A good deal of effort went into bridging that gap during the Uruguay Round negotiations¹³ and the subsequent GBT process, but it was not an especially open and inclusive dialogue. Consequently, there is still a relatively small number of people in telecommunications who make it their business to closely follow the details of what is happening in the WTO. Second, trade law can be obscure. The GATS may seem especially so to the telecommunications policy community, which has enough arcana of its own to master.

Third, insofar as the market access concessions made in the Uruguay Round frequently were in areas that governments were already liberalizing, while the GBT deal is new, the GATS framework is just beginning to be "tested" in the sense of governments and firms having to make difficult adjustments to be in compli-

ance. Absent much experience with such adjustments, it may seem to some that there is no problem. Some observers may continue to believe this if there are no high-profile uses of the dispute resolution mechanism in the near term to make the seemingly abstract more concrete. That would be precisely the wrong conclusion to draw, however, because the GATS often will encourage stakeholders to adapt their plans and resolve any differences to avoid escalating problems to this level in the first place. In fact, the agreement already is being used by carriers to win market access in the United States, Japan, Europe, and elsewhere, even if some countries are moving a bit slowly on implementing all of their commitments.

At the 1996 AIRIT meeting in Berlin, Germany, a participant suggested that the telephone industry was in “Internet denial.” There now may be a bit of “WTO denial” as well. In some cases, the denial may result from fear or opposition to the shift to a trade framework. In other cases, it may be that countries have not yet thought through what the GATS could mean—perhaps especially so within the PTTs or PTOs and ministries of communications of the 116 out of 188 ITU member countries that did not participate in the GBT. They undoubtedly will be affected, however, by the GBT through changes in their commercial relationships with carriers from participant countries. The situation can be expected to improve with time; there are signs that change already is well underway in some quarters. Nevertheless, because the learning curve is a bit steep and some incumbents feel threatened, the transition process will be uneven.

Not surprisingly, then, a mix of enthusiasm and uncertainty, adaptation and resistance was in evidence at the ITU’s Second World Telecommunication Policy Forum (WTPF) in March 1998. Chaired by Neil McMillan (who also chaired the GBT and has participated in the first three AIRIT meetings), the WTPF was called to consider the implications of the new trade environment for the ITU and its members. Five hundred ninety-three delegates representing 119 member states and 64 companies met for three days to agree on revisions to three opinions drafted by an informal expert group led by McMillan. Although they are not legally binding, the opinions do have a certain normative force as an expres-

sion of collective intent, so the delegates were keen to contribute to the laborious line-by-line debate over their language. Delegates devoted much of their time to the provisions concerning ITU programs and international accounting and settlements reform, with developing countries consistently expressing concern about the latter's short-term effects on their settlements revenues.

Delegates spent less time discussing issues directly concerning the GATS, even though the GATS probably will have far greater long-term impact on the development of the industry than will the intergovernmental jawboning over settlement rates. There was probably a mix of reasons for this, including the supposedly greater immediacy of the U.S. Benchmark Order, uncertainty on some delegations' parts about the GATS' implications, and the comparatively less controversial nature of the texts involved. Even so, it is noteworthy that some of the wording of the two opinions on the GATS was watered down in the face of objections from certain developing countries.

For example, the informal expert group's earlier versions of Opinion A on "The Implications of the GATS with Respect to Basic Telecommunications Services for the ITU Membership" on various occasions "encouraged" countries to consider adopting the principles contained in the Reference Paper; apply GATS principles like most favored nation (MFN) and national treatment when licensing new operators; and implement their the GATS commitments expeditiously, or make such commitments if they have not done so. In contrast, the final language approved at the meeting "recommends" ITU member states "consider, where appropriate, whether application of WTO principles, notably those contained in the Reference Paper, either in a national framework or by making commitments within the WTO framework, might be helpful in benefiting their economies."

The same sort of thing happened to parts of Opinion B on "The Implications of the WTO Agreement for Developing Countries and Cooperation between ITU Member States and Sector Members to Facilitate Adaptation to the New Telecommunication Environment." Deleted were draft provisions stating that a trade system "will require significant changes in attitudes toward regulation in developing countries" and that governments should

“avoid henceforth making any new decisions that are liable to introduce or perpetuate a situation of monopoly over any type of telecommunication service or network.” Similarly, draft language that “urges” countries to “actively consider the liberalization of their telecommunication markets...for instance by rebalancing national tariffs” became “invites [them] in conformity with national realities and national development goals, to continue taking appropriate steps to ease the transition to the new telecommunication environment, by considering the progressive liberalization of their telecommunication markets.”¹⁴

This softening of language would seem to reflect a certain reluctance to embrace trade disciplines in even a normative manner, at least on the part of vocal delegations from the Middle East and Africa, whose governments generally were not very active during the GBT negotiations. Nevertheless, on the whole the Forum could be considered a success in that it clearly established, for the first time in an ITU body, a collective recognition that the economic aspects of international telecommunications increasingly will be handled under a trade framework and that governments and carriers will have to adjust their policies to this new reality.

Moreover, Opinions A and B contained some specific steps forward. For example, the ITU's General Secretariat was invited to “make every effort to facilitate the transition to a fully competitive trade in telecommunications regime;” to expand information gathering and dissemination activities, training and information programs, and technical assistance efforts (including in cooperation with bodies like the World Bank) to help developing countries manage the transition to competition; to “take action, in co-operation with other international organizations, towards facilitating informal dialogue among regulators to foster adaptation to the changing environment,”¹⁵ and to prepare a draft cooperation agreement with the WTO secretariat for consideration by the ITU's council and its Minneapolis Plenipotentiary Conference in October 1998. Of course, cooperation between the two organizations already had been endorsed at the Kyoto Plenipotentiary Conference in 1994, and four important years passed without the ITU membership pushing to make cooperation a reality, but this is progress at last.

The Challenge of National Implementation

Moving toward sustainable competition will require that decisionmakers involved in implementing the GATS overcome challenges associated with each of its three components. First, they will have to determine what is specifically required in terms of national policy changes by the 15 General Obligations and Disciplines (GODs) contained in the Framework Agreement.¹⁶ These GODs normally are binding across-the-board for all measures affecting international trade in services in the WTO's 135 member countries, although some of their provisions apply only to the specific market access commitments listed in national schedules. Compliance with the GODs pertaining to MFN, transparency, domestic regulation, monopolies and exclusive service providers, and business practices in particular may require adjustments beyond what some ministries or regulators and PTOs have fully contemplated. This is especially true in countries that did not go through the demanding exercise of formulating substantial market access commitments. Moreover, as the conflicts over MFN issues between the FCC and the EC suggest, there may be differences of interpretation even among parties that obviously do understand the GATS requirements.

Second, WTO members must apply to their scheduled commitments the GATS annex on telecommunications, which deals with access to and use of public telecommunications transport networks and services as a mode of supply for other services (telecommunications, financial services, professional services, etc.). The annex requires that access to and use of public networks and services be provided on a reasonable and nondiscriminatory basis. Thus, governments are required to grant foreign suppliers access to, and use of, privately leased circuits. Moreover, governments must ensure that foreign service providers can purchase (or lease) and attach terminal or other equipment interfacing with public networks; interconnect privately leased or owned circuits with public networks or with circuits leased or owned by another service supplier; and use operating protocols of the service supplier's choice, provided that they do not disrupt telecommunications transport net-

works and services to the public generally. Furthermore, governments must make sure that foreign service suppliers can use these networks and circuits to transfer information without undue impediments within and across national borders and that they can access information contained in databases held in any member country.

In addition, governments must not establish conditions on access and use other than those necessary to safeguard PTOs' public service responsibilities, protect the technical integrity of public networks, or ensure that foreign service suppliers only provide services that have been designated open to competition in market access commitments. If they meet these criteria, however, governments may adopt policies that restrict resale and shared use of public services; require the use of specific technical interfaces and protocols for interconnection; require the interoperability of services; require type approval of terminal or other equipment interfacing with public networks; restrict the interconnection of privately leased or owned circuits with either public networks or the circuits of other service suppliers, and require the registration or licensing of foreign suppliers.¹⁷ As with the GODs, it is a fair bet that not all WTO members will find it easy to comply fully with these provisions. In specific cases, conflicts may arise regarding interpretation about what is necessary to safeguard public service responsibilities and so on, and trade lawyers and consultants could have a bright future explaining their application.

Third, the market access commitments contained in the national schedules present three further challenges that will have to be overcome for truly global, sustainable competition to take hold. These issues were the central focus of AIRIT's discussion of the GATS. One is that, as the WTPF experience demonstrates, the 116 ITU member nations that did not participate in the GBT but comprise seven percent of the global market would need to enter the fold, especially China.

Another challenge is that many of the commitments undertaken in 1997 would have to be broadened and enriched. These commitments were substantial as first efforts go: as the aggregate numbers indicate, countries representing more than 93 percent of the global market undertook sometimes striking market opening

commitments.¹⁸ Nevertheless, aggregate numbers obviously do not reveal the limitations contained in specific national schedules. Michael Tyler and Carol Joy have written that countries whose GATS schedules include open entry for foreign competitors in domestic and international basic fixed services, unrestricted FDI, and nondiscriminatory interconnection at cost-based prices can be thought of as constituting an integrated “single market.”¹⁹ They argue that only 20 countries meet that standard now: Australia, Chile, the Dominican Republic, El Salvador, Guatemala, Iceland, Japan, New Zealand, Norway, Switzerland, the United States, and nine of the 15 EU countries (Austria, Belgium, Denmark, Finland, Germany, Italy, Netherlands, Sweden, and the United Kingdom). Moreover, three of these countries—Australia, Japan and New Zealand—retain some foreign ownership restrictions regarding the incumbent operator.

Left out of this “Group A” of full liberalizers are important markets such as Brazil, Canada, France, Hong Kong, Mexico, South Korea, and Singapore. These markets have been liberalized a great deal but have either retained certain restrictions, such as on FDI or licensing, or have phased-in commitments. Other countries among the 72 signatories, particularly in the developing world, often have some additional limitations. None of this really lessens the GATS’ significance; to the contrary, the GATS provides a disciplined framework within which such limitations may be removed in the future on a nondiscriminatory basis. Through unilateral actions or negotiated progressive liberalization, however, at least the major markets would have to remove their remaining limitations and join “Group A” for sustainable global competition to become a reality.

Lastly, existing market access commitments need to be fully implemented. Even within “Group A” there are a great many government policies and carrier practices that will have to be brought into alignment with the GATS before true open market conditions exist. Particularly demanding and important will be the implementation of the Reference Paper that 57 countries endorsed in their schedules (six others committed to regulatory reform without doing so). The Reference Paper established six principles for the redesign of national regulatory rules and institutions:

- *Competitive safeguards.* Governments must ensure that major PTOs do not engage in anti-competitive cross-subsidization; use information gathered from competitors with trade-restricting results; or fail to make available, on a timely basis, technical information about their facilities and operations competitors need to enter the market.
- *Interconnection.* PTOs must provide market entrants with interconnection at any technically feasible point in the network. Interconnection is to be offered under nondiscriminatory terms, conditions, and rates and should be of a quality no less favorable than the provider gives its own services. Interconnection rates are to be cost-oriented, transparent, and (where economically feasible) unbundled. A dispute mechanism administered by an independent national body is to handle disputes over interconnection terms and other issues.
- *Universal service.* Such obligations are to be administered in a transparent, nondiscriminatory, and competitively neutral manner that is no more burdensome than is required to meet the policy objectives.
- *Public availability of licensing criteria.* Where licenses are needed, information and decision-making procedures are to be transparent.
- *Independent regulators.* Regulatory bodies are to be separated from service providers and not accountable to them.
- *Allocation and use of scarce resources.* Procedures for allocating and using frequencies, numbers, and rights-of-way are to be carried out in an objective, timely, transparent, and nondiscriminatory manner.

Implementation of these commitments will be difficult, even contentious at times. Already, squabbles have erupted in several countries over the terms of interconnection under the GATS. Some incumbent PTOs have sought to establish technical requirements about the number and location of PoPs that potential new entrants deem barriers to entry; others have simply dragged their

feet on fixing the prices and conditions of interconnection. Similarly, there have been disagreements about what contributions new entrants might make to universal service funding. The main message seems to be that implementation of the Reference Paper will make the intricacies of each nation's domestic regulations an international issue at times.

To begin to address this reality, a first step is to redefine the institutional apparatus and mission of the national regulatory agencies. As Lee Tuthill has argued, "A great many of those who committed in the WTO negotiations will urgently need to revise their regulatory frameworks and reorient their regulators to become facilitators of competition."²⁰ Included in that reorientation, she suggests, are the needs to attract and protect investors and to establish mechanisms for the fair and impartial treatment of all stakeholders and dispute resolution—unfamiliar tasks in many countries where the culture of independent regulation has yet to take hold. Moreover, a great many countries, especially in the developing world, do not have independent regulatory agencies to reorient. In such cases, there is an urgent need to establish them—with sufficient resources, independence, and competence to get the job done. National agencies like the FCC and international institutions like the World Bank have begun to play an advisory role in this regard, and the ITU has launched an information-sharing initiative to facilitate the process of institution building.

More ambitiously, it could be useful to regularize contacts and information sharing among regulatory agencies. The FCC has held a series of meetings with regulators from abroad over the past two years, and there is reason to believe that institutionalizing such contacts would be very helpful for the developing countries in particular. This contact would not only promote consensus about best practice regulation and organizational design but also might help governments attenuate or avoid conflicts as implementation goes forward. Finally, and in parallel, the WTO could set up a telecommunications trade policy committee that would deal in part with Reference Paper issues, as the United States proposed in 1995. Although many other countries are not yet prepared to support this idea, its potential utility will become more apparent as head-to-head international competition moves forward. To

achieve full implementation of the GATS, having the necessary institutional mechanisms—domestically and internationally—will be essential.

The Crisis of the International Accounting and Settlements System

Benchmarks and Their Discontents

There has been enormous international controversy over the FCC's August 1997 Benchmark Order.²¹ Not surprisingly, foreign governments and carriers, industry analysts, and the ITU have objected strenuously to the Order on a variety of grounds. A baseline concern is whether the United States has correctly defined the problem it wishes to redress. The popular discourse used to sell the issue within the United States has been framed in terms of foreign monopolists "ripping off" U.S. consumers by applying high accounting and settlement rates to the explosion of outbound traffic precipitated by liberalization and price competition in the United States. Most critics readily acknowledge that the rates generally are well above cost, that asymmetries in the degree of competition on either side of a given relation cause imbalances in traffic and settlements payments, and that the U.S. settlements deficit—a daunting \$5.4 billion in 1996—is politically unsustainable. Beyond those points, however, disagreements frequently arise.

Critics argue that the United States has aggravated the problem through its own actions. The majority of the surplus of outbound traffic that is subject to settlements undoubtedly results from competition and lower collection charges in the United States. In part, it also can be attributed to demographic, income, and cultural factors that are beyond the control of governments and carriers. In recent years, however, the changed composition and increased volume of outbound traffic from the U.S. has modified international traffic flows as U.S. firms pioneered techniques of traffic reorigination such as call-back, refile, country-direct, and country-beyond services. Even with the resulting settlements payments on surplus outbound traffic generated by call reorigination, these services remain enormously profitable to U.S. carriers because the FCC rewards them by requiring a proportionate return of inbound

traffic from abroad.²² Indeed, some critics argue that beyond the reorigination services they sell to end consumers, U.S. carriers routinely provide capacity below cost to independent call-back operators and resellers simply to benefit from proportionate return.²³

Precisely how much of the U.S. deficit is based on traffic generated through call reorigination is the subject of some dispute. Although the FCC has downplayed its significance to the U.S. deficit, many observers abroad disagree. An ITU report even goes as far as to conclude, that the recent growth of the U.S. traffic imbalance and deficit “can be largely explained by the adoption by U.S.-based carriers of alternative calling procedures.... As a result, the U.S. share of total international traffic has grown from 21 percent in 1985 to 26 percent in 1995.”²⁴ Of course, the expansion of international competition under the GATS should push down accounting rates and collection charges and could reduce at times the incentives to redirect traffic out of low-cost countries. In the meantime, however, the Benchmark Order is left open to somewhat convoluted charges that foreign carriers’ high accounting rates are not the problem.

Similarly, some critics suggest that the FCC is being a bit disingenuous in defining the issue in terms of consumer protection. Internationally, settlement rates fell on average by about nine percent per year between 1992 and 1996, but collection charges fell by only three percent per year during the period.²⁵ Clearly, many carriers around the world are not passing along the benefits of accounting rate reductions through commensurate reductions in the collection charges paid by consumers. U.S. carriers say they have—and indeed have had to, given the heated competition in the U.S. call origination market. Figures submitted to the GBT by the FCC itself, however, showed an average U.S. settlement rate of \$0.33-35 per minute, but a U.S. average collection rate for international calls of \$0.99 per minute. Moreover, skeptics question the assertion and suggest that if the FCC were really trying to serve consumer rather than carrier interests, it would immediately open the U.S. market to competition from all sources and abolish proportionate return.

As the FCC’s specification of the problem has been attacked, so too has its solution. One concern abroad is whether unilateral

action is in keeping with international comity and law. With regard to the former, through its actions the FCC has basically indicated that comity is not a governing constraint on the pursuit of national objectives. With regard to the latter, the FCC insists that it is not asserting an extraterritorial legal right to tell foreign carriers—many of them privately owned commercial enterprises—what they may charge to export termination services. Rather, it is only exerting its right under domestic law to tell U.S. carriers what they may pay to import such services.²⁶ In practice, critics point out, this is a lawyerly “distinction without a difference,” and is at variance with the standard practices of international trade in other industries.

The critics also question whether the benchmarks are consistent with U.S. treaty obligations in the ITU. The FCC notes that the International Telecommunication Regulations agreed at WATTC-88 recognize governments’ right to authorize carriers, which it interprets as including the right to attach “reasonable conditions” to ensure that the actions of such carriers are consistent with the public interest. Critics question, however, whether the conditions applied are reasonable. Furthermore, they point out that the regulations unambiguously require that carriers “shall by mutual agreement establish and revise accounting rates to be applied between them, taking into account the recommendations of the CCITT (Consultative Committee on Telegraphy and Telephony) and trends in the cost of providing the specific telecommunication service.”²⁷ The FCC maintains that these items have not been taken into account in setting rates, but one could debate exactly what is required by this purposively loose injunction and whether it trumps the much clearer requirement for mutual agreement.

Similarly, some critics question whether the Order is consistent with U.S. treaty obligations under the GATS. Although the GBT reached a “gentleman’s agreement” not to tackle accounting rates directly and make them subject to the WTO dispute resolution system before the year 2000,²⁸ sharp disagreements have arisen concerning the FCC’s use of benchmarks to establish new licensing conditions on foreign carriers seeking to provide international services in the United States. In the Order, any carrier’s provision of international facilities-based switching service from the United States to an affiliated market is conditioned on the carrier’s

foreign affiliate offering U.S. international carriers a settlement rate at or below the relevant benchmark. Furthermore, the FCC says it will grant foreign carriers' applications for authority to provide switched services over facilities-based or resold international private lines on the condition that at least half of the traffic on the route in question is subject to a settlement rate at or below the relevant benchmark. These twin measures are said to be necessary to protect the public interest and prevent anti-competitive market distortions such as "price squeezes" on U.S. carriers or one-way bypass of the accounting system using private lines.

In comments filed with the FCC, the EC expressed concern that the restrictions may be more burdensome than necessary, that the FCC's "public interest" criteria are overly expansive or vague, and that the licensing conditions could constitute disguised and MFN-incompatible market access barriers that the United States did not schedule in its GATS commitments. Similarly, Japan argued that such conditionality is inconsistent with the principle of national treatment. In the Order, the FCC responded that the existence of clear market distortions means the rules are not unduly burdensome and that the restrictions will be applied equally to all U.S. carriers regardless of whether they are foreign or U.S. owned.

Nevertheless, many critics abroad remain unpersuaded. For example, Michael Tyler and Carol Joy question whether the United States deserves to be considered in the "A group" of full liberalizers. In their view, the application of such unscheduled restrictions to all foreign operators regardless of market share may signal a reluctance to fully comply with the GATS and accommodate new forms of competition with U.S. carriers. Indeed, they argue, "It's painfully clear that [U.S. regulators] will not let foreign operators use the new modes of operation without a fight...the FCC's policy is to rigorously restrict the use of most new modes of operation, specifically leased-line resale and foreign-operators PoPs."²⁹ This assessment may seem overly strong if one takes into account the totality of recent FCC actions. For example, the FCC reports that it granted 26 applications by foreign carriers to enter the U.S. market in the three months following the entry into force of the GBT deal on February 5, 1998, including 13 applications

from carriers with market power in their home market. Moreover, one could argue that the November 1997 Foreign Participation Order renders at least some of the criticisms of U.S. policy moot.³⁰ Nevertheless, the view that the Benchmark Order establishes new trade barriers remains in some circles.

The Order also has fueled the controversy over how to calculate and deal with variations in the cost of providing international services. The FCC used a methodology based on total service long-run incremental costs (TSLRIC) to determine costs in different clusters of countries grouped by national income, and hence the cost-based settlement rates for each.³¹ Given the lack of transparency in the accounting rate system (only the United States, the United Kingdom, and New Zealand publish their rates), this tariffed component methodology was the best option available to the FCC, and it yielded benchmarks that probably are still well above cost in many relations. Nevertheless, there is continuing criticism abroad that the FCC's methodology fails to capture accurately the high degree of variability across countries in direct network-related costs like investment, equipment operation, and maintenance.³² Critics maintain that this is especially so in the developing world, where such costs may well be higher than the benchmarks recognize in certain instances, although the poor internal accounting procedures of many carriers make this difficult to determine with precision. Moreover, many developing countries insist that it is legitimate for accounting rates to reflect indirect costs like office expenses and personnel training, which may be more expensive for them than the FCC's methodology allows contribution to common costs to reflect.

Critics also argue with the U.S. effort to preserve the fundamental architecture of the accounting rate system while forcing down rates. They argue that this approach fails to acknowledge the inequity of an equal division of revenues when costs can vary widely among pairs of correspondents. Many observers would agree with the ITU's Tim Kelly that "it is not fair to insist that accounting rates...are divided on a 50:50 basis."³³ Developing countries have been calling for favorably asymmetric settlements at least since the ITU's 1982 Plenipotentiary; in the past, a few countries (such as the United Kingdom) reportedly employed them in cer-

tain post-colonial relations, but there has been little enthusiasm among rich nations for generalizing the practice. Indeed, benchmark advocates might argue that proposals for asymmetric settlements are simply a scheme to preserve developing countries' unjustifiable settlements revenues without reducing market inefficiencies. Critics of the FCC also argue that the costs of international transmission, international switching, and the national extension should not be aggregated to set a unitary accounting rate and that in a competitive GATS environment, companies should be able to choose which of these elements to provide or purchase on an unbundled basis. Wherever one comes down on these issues, both positions clearly feed directly into the growing international push to supplement or replace accounting rates with alternative economic mechanisms for intercarrier relations.

Finally, even if one accepts the U.S. view of the problem, many observers argue that the Benchmark Order was unnecessary because accounting rates will be falling soon as a result of the GBT deal and other changes in the global environment. Indeed, the FCC acknowledges in the Order that with the expanded GATS commitments, "In many markets, the accounting rate system will become largely irrelevant as alternative means for routing traffic become the norm....The liberalizing market trends that are undermining the accounting rate system will also make our settlement rate benchmarks moot for competitive countries and carriers."³⁴ The problem is simply that in the short-term, the prospect of evolutionary change is not enough for U.S. carriers that are facing competition and need to reduce their settlements deficits.

The Search for a Multilateral Solution

Most observers believe that proceeding on the basis of international consensus would be preferable. Indeed, the FCC has said repeatedly that it would back off on benchmark enforcement if an adequate multilateral solution were promptly implemented. Throughout the 1990s, however, countries reluctant to reduce their rates have used multilateral cooperation in the ITU to drag out—rather than accelerate—the reform process.

The negotiation of multilateral accounting and settlements principles is the domain of Study Group 3 of the Telecommunications

Standardization Sector (ITU-T). Here, as with other issues, the institutional mechanisms of the study groups historically have militated against quick adaptation to a changing technological and market environment.³⁵ Moreover, Study Group 3 deliberations tend to be dominated by incumbent PTOs, and national adoption of the ITU-T's recommendations is voluntary rather than legally binding. As a result, efforts to reform accounting rates in this venue have been slow in development, soft in commitment, and uneven in implementation.

The first nominally significant reform to ensue from the politicization of payments imbalances was taken in 1992, when the Study Group adopted Recommendation D.140 calling on countries to adopt cost-oriented, nondiscriminatory, and partially transparent accounting rates.³⁶ At the time, many of the developing countries—which have greatly increased their participation in the Study Group's work in the 1990s, because accounting rate reform means that big money is on the table—were notably unclear about how these trade principles applied and what they were supposedly agreeing to do. Indeed, many of them perceived Recommendation D.140 to be a tool of the industrialized world, particularly the United States, which they were not eager to implement. Thus, although accounting rates did become more cost-oriented in some aspects over the next few years, they generally remained far from being cost-based, nondiscriminatory, and transparent.³⁷

In 1995, D.140 was revised to endorse the notion of scheduled, staged reductions over a period of one to five years and to include guidelines for cost elements that addressed developing countries' concerns about indirect costs. Given the lack of transparency, it is not clear how many countries actually implemented staged reductions and of what magnitude. Although rates fell rapidly among the more liberalized industrialized countries, the average settlement rate (typically one-half the accounting rate) paid by U.S. carriers was still \$0.35 when the Benchmark Order was released in August 1997, and a great many North-South relations were well above that average. Five years of multilateralism in Geneva had yielded very uneven progress at the national level.

As the FCC intended, the Benchmark Order finally injected a sense of urgency into the ITU. Not only were developing coun-

tries irate about the prospect of forced reductions in their settlement income, but the ITU leadership perceived the Order as a challenge to the institution's traditional authority on accounting rate issues. In response, ITU Secretary General Pekka Tarjanne and his staff criticized the FCC and called for a multilateral solution—while invoking the Order as another reason members finally had to get on with the business of reforming the system.

In September 1996, Tarjanne attempted to light a fire under Study Group 3 with a consultation document calling for the reduction of rates, exploration of alternative economic mechanisms for intercarrier relations (i.e. termination charges) that would be more compatible with competitive markets, and assistance to developing countries in the transition.³⁸ In the same vein, in March 1997 he convened an informal expert group outside Study Group 3 to recommend changes, in part in the hope of convincing the FCC to back off on the benchmarks. The group's report argued that in all but a few cases settlement rates should be priced below \$0.25 per minute and recommended global reductions of five to ten percent in 1997 and again in 1998 as steps in this direction. The report also stressed the need for international institutions and carriers to provide a "soft landing" for developing countries that would be most affected by rate reductions and recommended that the ITU coordinate the production of national case studies on costs outside the institutional constraints of Study Group 3.³⁹ Many developing countries dismissed the significance of the report, however, pointing out that the expert group was composed almost entirely of people from the industrialized world, and arguing that Study Group 3 remained the most appropriate vehicle for decisions on accounting rates.

The second WTPF in March 1998 provided another opportunity to try to build support for change—this time with abundant participation by the developing countries. However, as with the two opinions concerning the GATS discussed above, Opinion C, "The Evolution of the International Telecommunication Environment, Particularly the Accounting and Settlement System," got watered down in preconference consultations and in the meeting itself. The dynamics of consensus-building meant that nothing really objectionable to either hard-line reformers such as the United

States or foot-draggers in the developing world could be included. Out went various proposals: to specify the cost levels on which rates should be based, to call for worldwide rate reductions of a fixed amount by dates certain, to trade the short-term preservation of developing countries' settlement income for commitments to staged reductions and risk sharing, to create a revolving infrastructure development fund using a portion of settlements payments, and so on. The principle innovation retained in the opinion was a call for ITU-T to create a "focus group" to study costing issues and report to Study Group 3 in an effort to accelerate the latter's work. This study was done in the summer of 1998, but the utility of the exercise remains to be seen.

Far from pointing the way forward, the opinion and indeed the conference were almost derailed by divisions over the Benchmark Order. Mexico proposed language discouraging countries from reducing settlements rates through unilateral measures, and Columbia and the European Commission suggested alternative formulations that effectively did the same. After an entire day of debate in which many delegations took turns decrying unilateralism, the U.S. ambassador finally stated that her delegation would not sign off on any such language. With time expired and the translators itching to go home, the conference appeared to be deadlocked and teetering on the brink of failure. After several hours of overtime negotiations guided by Chairman McMillan, however, the conference endorsed the opinion, which among other things calls on ITU members "to work on a bilateral basis, or on a multilateral basis through the ITU, to achieve cost-oriented accounting rates in accordance with ITU-T Recommendation D.140...[and] to facilitate the achievement of this objective within a multilaterally-agreed framework, taking into account the specific needs of developing countries and in particular the least developed countries."

Given the nature of the exercise, perhaps one should judge the WTPF more by what was learned during the forum than by what was formally agreed upon in the opinions. For despite the benchmark battle and the soft compromise language of the opinions, the process did make clear to opponents, in the most broadly participatory venue ever, that reform is imminent and that declarations of discontent will not change this reality. As McMillan later

noted, one of the most important results of the meeting was that developing countries recognized that the current system is not going to last forever.⁴⁰ That recognition was even more apparent at the ITU's second World Telecommunication Development Conference, which convened in Malta just five days later. There delegates took a more pragmatic route, agreeing on six new work programs for the ITU's development bureau that are designed to help developing countries adjust to the new trade environment, which will include reduced settlements income.

Unfortunately, none of these efforts to build consensus for change has yet had a notable effect on the work of Study Group 3. The group's December 1997 plenary session, which was attended by 240 delegates from 80 countries, was unable to agree on what should be included in the basket of costs upon which rates are based. Nor, despite more than five years of discussion, was it able to agree on the meaning of transparency as the principle applies to commercial operating agreements. It did manage to tentatively agree to a worldwide reduction of accounting rates to no more than one special drawing right (SDR; about \$1.35 in 1998). This rate probably is still very far above cost in most cases, but at least it would have imposed a normative ceiling on rates. Initially, it was proposed that this reduction be endorsed by the March 1998 WTPF. When Study Group 3 met again in June 1998, however, continuing opposition from countries such as India, Syria, and China put off final approval of the one-SDR guideline; the matter was scheduled to be taken up again in November 1998.

In short, although the ITU's leadership and the vast majority of its members insist that rate reductions and other reforms of the accounting and settlement system must be undertaken on a multilateral basis, there is little evidence that the organization can actually deliver results in time to satisfy the United States. The dominance of incumbent PTOs in the process and the procedural requirement that decisions be taken on the basis of consensus in biannual meetings mean that multilateralism has become synonymous with stalling for time, even under the pressure of the Benchmark Order. That leaves bilateral pressure between governments and carriers as the unappealing alternative instrument for the pursuit of rapid and widespread rate reductions.

Looking beyond the question of current rate levels, many observers believe that the best long-term solution would be to replace the accounting and settlements system with alternative mechanisms that are more pro-competitive. The EU's abolition of accounting rates and move toward facilities-based interconnection fees certainly is a positive step in this direction. If carriers opt to aggressively pursue their rights under GATS, one would expect interconnection charges and PoPs to become a dominant approach for delivering traffic across the Atlantic, as well as on other lucrative routes.

Another approach that has been strongly supported by many economists, the Organization for Economic Cooperation and Development (OECD) staff, and other observers would be to move toward termination charges. This approach would entail a "back to the future" scenario; termination charges were essentially the model used for record communications under ITU instruments before the accounting rate system was established as the dominant international model. Termination charges are by definition fully nondiscriminatory and transparent. The big question is whether they also can be subject to enough discipline to ensure cost-oriented, if not cost-based, prices. The United States has been extremely skeptical on that point, fearing that foreign countries would seek to unilaterally set high termination rates. As such, it has consistently worked to preclude any efforts in the ITU to hold up termination charges as a singular alternative to accounting rates. Moreover, although a great many developing countries, as well as industrialized countries in Asia, consistently have expressed strong interest in moving toward termination charges, Study Group 3 has experienced its usual difficulties in defining cost elements and other aspects precisely enough to include in a new version of Recommendation D.140. This process could take several more years to accomplish. A competitive global market must have multiple mechanisms available for the economic management of joint service provisioning from which to choose, and termination rates should be an important part of that mix. Winning international consensus on the point, however, will be a slow process.

In the United States, there seems to be growing belief that the benchmark issue basically has been settled and is yesterday's

news. Although 10 petitions for review of the Order have been filed with the Washington D.C. Circuit Court, benchmark proponents appear to believe that it will stand up to legal scrutiny of the FCC's jurisdiction over accounting and settlements rates under the Communications Act of America. Similarly, although there could be a challenge under the WTO dispute resolution mechanism after the GBT's "gentleman's agreement" expires in the year 2000, proponents expect that by then the Order will have largely done its work and transformed the economics of jointly provided services. Indeed, there is growing evidence that the Order may be adding momentum to the downward movement of rates on some routes, and there are carriers abroad that are finding the reductions to be in their interest in an increasingly competitive global market—even if they choose to publicly disavow the FCC's means of reaching that end.

Nevertheless, there is still virulent opposition to the FCC's actions in many developing countries, some of whom want to see the ITU's dispute resolution mechanisms amended so that the benchmarks can be attacked in a conducive multilateral setting. For these countries, at least, the prospect of significant, forced reductions in settlements revenues remains very much a live issue, as does the defensibility of the United States unilaterally using its power in this manner. Whether the FCC, in this context, will choose to aggressively enforce the benchmarks in situations of noncompliance remains an open question.

The AIRIT Discussion: Implementing the WTO Deal and Reforming the International Accounting and Settlement System

The first and third days of the AIRIT meeting were devoted to a wide-ranging plenary discussion of all three issue areas on the agenda. Not surprisingly, participants moved seamlessly back and forth between questions concerning the GATS and its implications for international competition and questions concerning the accounting and settlements system because the two matters are very much intertwined. Thus, the account that follows of these portions of the debate is organized around seven overarching themes that emerged in the comments that often cut across both issues: the significance of the GBT deal; the prospects for international interconnection under the GATS framework; the increasingly important role of the “parallel” universe of competitors involved in new modes of service provisioning; the reform of the accounting and settlements system; how to help developing countries make the transition to competition and reduced settlements payments; how to preserve the role of universal service in the new environment; and the potential for and merits of expanded international cooperation among national regulatory authorities.

The Significance of the GBT Deal on Basic Telecommunications Services

Consideration of the GBT deal on basic telecommunications services was kicked off by Neil McMillan, director of international communications policy at the United Kingdom’s Department of Trade and Industry. McMillan brought a unique insider’s perspective to the subject because he had served as chairperson of the GBT negotiations and, later, the ITU’s 1988 WTPF. As a starting point, he referred to an article on the subject that was distributed prior to the AIRIT meeting.⁴¹ The piece is constructed as a debate between William Drake, senior associate and the director of the

Project on the Information Revolution and World Politics at the Carnegie Endowment for International Peace and Eli Noam, professor of finance and economics and director of the Columbia Institute for Tele-Information at Columbia University's Graduate School of Business. In the article, Drake argues that the GBT deal could, depending on its implementation, have a substantial liberalizing effect not only on specific markets, but also on the broader institutional arrangements of the global telecommunications policy environment. In contrast, Noam argues that the significance of the accord is being greatly exaggerated because liberalization was happening anyway; in fact, it could have the negative effect of slowing down the process of global liberalization in certain instances.

McMillan began by stating that both perspectives had some merit, and they were not completely incompatible. Certainly, he noted, Noam is right to suggest that the GBT was essentially "catching a wave" that was already gathering force prior to conclusion of the deal. Moreover, McMillan recognized that the immediate impact on market access conditions varied across signatory nations, with some (especially developing) countries having committed only to selective or phased-in liberalization of direct foreign investment and service competition. Nevertheless, he did not believe that these circumstances detracted from the overall significance of the agreement.

McMillan stated that it would be very important for the future to bring basic telecommunications under the GATS' general obligations and disciplines, such as MFN, national treatment, and transparency. Of equal significance is the application of the principles listed in the Reference Paper regarding interconnection, competitive safeguards, independence of regulatory authorities, and so forth. McMillan pointed out that governments that had committed themselves to the Reference Paper would be obligated to bring their national actions and institutional arrangements into conformity with these principles, and that their trade partners would be able to identify anti-competitive practices that violate the letter and the spirit of the GATS framework. If a signatory violated its commitments, its trade partners would be able to raise a complaint that could go before the WTO dispute resolution system and, given a favorable ruling, undertake internationally legitimate trade reprisals. The possibility of triggering this sequence of

events should provide governments with disincentives to undertake protectionist actions, he maintained.

McMillan also felt that the GBT deal raises telecommunications liberalization higher on domestic political agendas and should strengthen the resolve of governments to carry through on difficult but important reforms. For example, the GATS provides governments that might be reluctant to pay the political cost of liberalization with cover, insofar as they can tell domestic opponents that there is no choice in the matter because their hands are bound by international commitments. Beyond these international institutional issues, McMillan also noted that the GBT process had acted as a catalyst for change in national policies among countries that had not previously embarked on substantial liberalization programs; he mentioned Singapore as a prime example.

McMillan predicted that the GBT would have a significant impact on the global telecommunications market. Potential entrants would have certainty about the rules they needed to follow to undertake investments. Countries that once were reluctant liberalizers would now begin wooing foreign investors. Those with bad infrastructures or that were slow to implement the deal would find investors being pickier—given their other options around the world. Thus, McMillan said, “Governments will have to show investors that they will be treated properly.” Indeed, countries like Ghana already have used their participation in the GBT to attract fresh foreign investment. Considering these factors, McMillan concluded that “the world is going to change rapidly” because of the GBT in terms of the extent of competition and how countries finance investment in telecommunications development.

Lee Tuthill, the lead staff person on telecommunications at the WTO and former Secretary of the GBT, agreed with McMillan’s assessment of the deal’s significance. She stated that as of January 1, 1998, “Most of the industrialized world will have completely unfettered competition in all forms of telecommunications services” and that the same would be true for much of the developing world after the year 2000, give or take a few years. She also pointed out that the deal has substantial implications for other issues under consideration by the AIRIT group. With the GATS expanded to cover much of the world’s basic telecommunications

services, she suggested, new service providers will gain market access in ways that sidestep the constraints of the accounting and settlement rates system, and these suppliers will scale up the infrastructure and services needed to promote the expansion of global electronic commerce.

Noam responded to these assessments by laying out his thesis that the significance of the deal was being blown out of proportion. He acknowledged the hard work of negotiators and expressed understanding that they are proud of their achievement. He also noted that there were, indeed, some ways in which the GBT deal might make things better at the margins, particularly insofar as it helps to empower users. Nevertheless, Noam started “with the supposition that if everyone agrees to something there must be something wrong with it.” Here he drew a parallel with the U.S. Telecommunications Act of 1996, which passed by large margins in the Congress, and postulated that “revolutionary actions are not undertaken unanimously.”

In Noam’s view, the United States did not agree to anything that it was not going to do anyway for its own domestic reasons. The same was true of Europe, either because of the European Union’s internal market program or because of bilateral bargaining with trade partners like United States and Japan. The industrialized countries were not reforming because of demands made in the WTO context. “Liberalization is not a favor or concession they do for others,” Noam said, “but rather a favor they do for themselves.” They are liberalizing because of their own internal calculations of national self interest, which indicated that liberalization would be beneficial to economic growth and development. Noam argued that these countries joined the GBT deal simply to ratify internationally their domestic programs and to try to get other countries to play by their new rules. Although Noam conceded that the GATS might account for some minor changes in their programs here or there, he maintained that nothing fundamental would be a direct result of the GBT’s actions.

Similarly, developing countries already were reforming their telecommunications sectors. The only cases where the GBT deal might make a difference is “second- and third-tier countries” like Singapore and Indonesia. In any case, Noam asked, if they failed

to liberalize, "Who cares?" Such countries represent only a tiny portion of the global market and are hardly significant in the broad scheme of things, and global market pressures would eventually force them to comply anyway. The only real cost of delaying reform would have been to their own consumers and national development prospects.

Noam further argued that not only was the GBT deal not an historic breakthrough but that it actually could have negative effects in certain respects. Deregulatory agreements, whether national or international, tend to have life cycles: they start with great enthusiasm and fanfare but then degenerate once implementation and use begins. Bureaucratization sets in, and the biggest and most powerful players capture the process and turn it to their advantage. By way of illustration, he argued that in the United States the process would go something like this: a company with a grievance about foreign market entry conditions goes to Washington D.C., lobbies all the relevant agencies, and tries to persuade the federal government to take its case. The government then has to pick and chose among the arguments of various firms, which may not share the complainant's concerns or would have different concerns of their own. Prior to the GBT deal, resolving such disputes among companies took a long time. Adding the WTO to that process just means another layer of bureaucracy: after the lengthy and lawyerly domestic deliberations, the U.S. government would have to decide whether to take the case to Geneva for another bureaucratic proceeding that, because of its international character, could be even more time consuming. All of this could actually delay market openings relative to what might have been achieved if the potential new entrants had directly entered into bilateral consultations and contractual relations with the foreign country's PTO.

Finally, Noam predicted that implementation would be a very slow and painful process. For example, he noted that France Telecom had recently issued its list of international switches to which new entrants in principle could be interconnected in line with the Reference Paper principles, but had claimed that in practice they already are full and cannot accommodate more traffic at this time. "Beware of paper liberalization," Noam concluded.

As might be expected, lively discussion ensued. Herbert Ungerer, head of telecommunications, postal services and information society issues in Directorate General IV of the EC remarked that he was simply "astonished" that the significance of the deal was being questioned. It "cannot be overestimated," he insisted, not just because of the market access concessions but also because of the multilateral adoption of principles like MFN and transparency.

Carlos Braga, principle economist of the telecommunications and informatics division and acting program manager of the World Bank's Information for Development Program (*infoDev*), also was optimistic about the significance of the accords, but a bit more cautious. He felt that what matters is the tangible results of the implementation in the months and years ahead. These results will determine whether the Reference Paper and other aspects of the agreement are really revolutionary. He also observed that although some people might not care what happens in the 20 percent of the global market composed of developing countries, others do. For those countries, he argued, the GBT deal will make a big difference. Citing the liberalization commitments entered into by Latin American and other governments, he stated that bringing the developing world into the framework is a major accomplishment for the multilateral trading system.

Participants from the business sector also expressed support and optimism regarding the GBT deal. James Graf, president of British Telecom North America, agreed with Noam that in large measure the deal ratified forces already in progress, but noted that it also went substantially farther than the status quo ante because of the Reference Paper's principles. "If properly implemented," Graf said, "that could spell a real revolution" and promote effective competition in many markets. Michael Kleeman, vice-president of the Boston Consulting Group, added that the WTO framework is very important because it enables a more systematic and principled dialogue between governments and companies seeking market entry in their nations.

Eric Spivey, president of Netcom International, began by taking exception with Noam's characterization of the deal as having been easy to reach. The players certainly thought that the

stakes were very high and real. Often, difficult concessions were needed on all sides to reach agreement. Moreover, Spivey thought it significant that the industrialized countries converged on the highest possible common denominator of regulatory discipline in the Reference Paper rather than the lowest, as one might have expected. Spivey noted that the agreement already was having an impact on FCC actions and predicted that it would similarly affect other national regulatory agencies in the future. Finally, he expressed satisfaction at the wisdom of the U.S. strategy of holding out in 1996 for more countries to join the deal with better offers before accepting it, although there are still big holes in its coverage that need to be plugged, particularly in Asia and Africa.

Jacob Davidson, director and chairman of the Board of Delta Three, said that his Internet telephony business already had seen positive effects of the GBT deal. In the half year since it had been reached, Delta Three had experienced a fivefold increase in contacts from potential business partners who saw new room to operate, including in the developing countries. More generally, the agreement had lifted spirits and generated a heightened sense of possibilities among many people in communications and information industries. Davidson worried, however, that there could be backlash effect if governments decided that they had given up too much in the negotiations or that they needed to protect emerging markets where they had not made market access commitments, such as Internet services.

Although these and other members of the group generally felt that the GBT deal was an important breakthrough, they all agreed with Noam that difficult challenges lay ahead. One immediate problem is the extent to which participating governments have a shared understanding of what they have agreed to do. Graf raised the issue by noting, in response to Noam, that "if everyone agrees to something, maybe they are agreeing to what they perceive to be different things." Hiroyuki Tanaka, an advisor at the Japanese Ministry of Posts and Telecommunications, also expressed concern about the potential for diverging interpretations, noting that there may be a bit of confusion in some circles regarding the obligations the signatories have undertaken.

GATS Implementation and International Interconnection

As the discussion shifted from the general significance of the GBT deal in principle to its implementation in practice, participants focused on the interdependent questions of market access under the GATS and achieving interconnection under the terms of its Reference Paper. Kleeman anticipated difficulties in getting incumbent PTOs to comply fully with their commitments to allow new entrants to interconnect with their networks. Noting the similarities between the interconnection principles embodied in the Reference Paper and the U.S. Telecommunications Act of 1996, he pointed out that despite the United States' historical experience with interconnection and a multi-vendor environment, RBOCs have resisted opening their networks in accordance with the FCC's interpretation of the Act. It will be even harder to get carriers to do this in countries that historically have not had a policy culture of structural separations, standards coordination among multiple carriers, and so on. Thus, although the Reference Paper's principles are important, "the devil will be in the details" of implementation.

Larry Lafaro, general attorney for international law and public policy at AT&T, voiced similar concerns. He pointed out that regardless of their professed willingness to compete, local monopolies have strong incentives to drag their feet when it comes to opening their bottleneck facilities to interconnection by potential competitors. Lafaro added that it is ironic that the same RBOCs that have demanded that foreign PTOs allow interconnection under the GATS simultaneously resist implementing their obligations under the Telecommunications Act. Ron Cross, vice president for regulatory policy at Nortel Networks, cited difficulties he has witnessed in certain Asian markets, where years of asking whether there is a right to incumbents' networks have yielded no consensus or clear answers. He noted that carriers that have succeeded in winning interconnection typically have offered different services via different technologies from those of the incumbents; wireless service providers were an obvious example. Things may be more difficult where head-on competition in the same service markets is the issue, Cross suggested.

Some participants did see positive signs emerging, however. Stephen Liddell, president for the Asia-Pacific region at

WorldCom, noted that the Japanese have established a very welcome consultation processes to facilitate interconnection negotiations. He thought it important to ensure that other countries that have made the GATS commitments also establish procedures and fora that the private sector can rely on. Yet Peter Cowhey, professor of international relations at the University of California at San Diego (formerly the chief of the international bureau at the FCC), suggested that the Japanese still did not have an effective interconnection regime in place and stated that it might take several years to get to cost-based access in that market. Considering the United States' experience with these matters, Stuart Brotman, president of Stuart N. Brotman Communications, predicted that in some countries, "We are going to see massive intervention by the courts over what is an appropriate interconnection regime." Over the years, Brotman said, the courts will adopt a series of decisions on interconnection and the application of competition laws to intercarrier cooperation, and we will have to piece together those decisions to get a clear and definitive sense of what the GATS commitments really mean.

McMillan, Tuthill, Braga, and others pointed out that the first big challenge is to help regulators in developing countries figure out how the market access and Reference Paper commitments affect their policies and institutions. In this connection, Braga outlined some of the extensive work that was done by the World Bank's *infoDev* program in facilitating developing countries' participation in the GBT and the preparation of their national schedules. Now the Bank and the WTO are engaged in technical consultations with developing countries on implementation issues, activities that could be broadened and strengthened. Braga suggested that it would be desirable to be able to provide "a regulator in a box" that would "parachute into these countries and explain how to address questions about interconnection, spectrum management, the Internet, and so on."

AIRIT participants also addressed the GATS' implications for the international accounting and settlements system. In general terms, most participants were able to agree that the spread of interconnection agreements and competitive market access would put strong downward pressures on accounting rates on many routes.

In some cases, there even will be a direct substitution of interconnection agreements for accounting and settlement agreements, so the latter will apply in a declining share of the global market in the years ahead. This is most immediately the case within the EU where—as Ungerer noted, movement toward interconnection agreements is required as of January 1, 1998.

Moreover, Cowhey pointed out that where governments have signed the Reference Paper and taken full market access commitments, in effect they have an obligation to provide new entrants with unbundled access to the components of international services that normally are grouped together in establishing operating agreements and accounting rates: international transmission, international switching, and the national extension. This is critical for competitive entry to take hold. Lafaro argued that the Reference Paper’s language requiring incumbents to allow interconnection “at any technically feasible point” applies directly to the midway point between half-circuits in existing joint service provisioning relationships—giving carriers, in essence, a right of interconnection without the need for a foreign PoP. Thus, in Lafaro’s view, the Reference Paper and market access commitments immediately obligate carriers to provide such interconnection, in lieu of accounting rates, on cost-based terms. McMillan pointed out that GBT members had specifically decided not to try to apply the GATS disciplines and dispute resolution procedures to accounting rates and that there was no international consensus to treat existing correspondent relationships in this manner.

Tuthill stated that although the Reference Paper was not explicit on the matter, “you don’t you have to see the interconnection point as being the midpoint in the ocean to end up with the same results.” On routes where carriers interconnect their facilities and switch traffic under the GATS, competition will have the effect of driving accounting rates down to cost anyway. Ungerer agreed that interconnection would have this effect. He also argued that confusion often results because of the labels we use to describe things, and that the interconnection and accounting rate terminologies really are just different ways of talking about the same fundamental issues of intracarrier relationships. An additional complexity that both Tuthill and Ungerer addressed was whether accounting rates

should be viewed as purely contractual relationships between private carriers—in which case they generally would not be directly subject to the GATS commitments—or as government measures where the state has granted a private monopoly, maintains regulatory oversight, or even is the service provider. In the latter cases, the GATS does apply to government measures that limit market access for new entrants, although precisely what that will mean for accounting rates has yet to be tested. Moreover, Tuthill suggested, the GATS' MFN principle might apply to monopolies regardless of whether they are public or private.

The Parallel Universe

Another theme that emerged in this discussion (and became a *leitmotif* for the duration of the meeting) concerned what Davidson called “the parallel universe.” The debate about the impact of government reforms and intergovernmental agreements was interesting and important, he noted, but it seemed to overlook the fact that there is a burgeoning group of innovative new service providers around the world that “really just ignores everything being debated around this table” and is getting on with the business of carving out market niches regardless of what states do or fail to do. He cited in particular Internet telephony providers for whom the system of international tariffs and accounting rates “has collapsed already...they are just operating separately” as if it was not there.

Charles Firestone, director of the Aspen Institute Communications and Society Program, observed that there were interesting parallels between Davidson's remarks and comments made during the previous AIRIT meetings. At the first AIRIT, much of the early discussion had focused on regulatory issues and how governments could pursue reforms while continuing to promote legitimate social objectives. Participants who worked for corporations that are users of telecommunications systems and services piped up to argue that the discussion was missing the central issues concerning the customer's needs. Similarly, at the second AIRIT, some participants had argued that their colleagues in government and the traditional carrier industry seemed to be in “Internet denial.” Once again, Firestone noted, we are being reminded that the organizations that historically dominated the global telecommunications industry no longer complete-

ly control the game, and that there is a new, dynamic breed of market entrants that can leverage their own innovative technologies to carve out distinct market niches.

Noam elaborated on these observations. The parallel universe includes many players in addition to Internet companies, such as suppliers of international simple resale, call-back, and systems integration. Given new technologies and the possibilities for bypass, barriers to entry are declining; even some of Noam's students are launching telephone companies. In parallel, the major carriers are adopting new strategies outside the constraints of the traditional industry architecture of national monopolies engaged in joint service provision; the spread of international alliances and of refile and hubbing provides examples. Hence, the parallel universe not only sidesteps or ignores the traditional order; it also is generating external competitive pressures that are driving its transformation. Noam added that because of the United States' comparatively liberal policy environment and related factors, it has been the premier breeding ground for alternative carriers and new competitive strategies. Given its size and centrality in global traffic, in the future the United States may serve as the "O'Hare Airport of international telecommunications traffic routes."

Ungerer suggested that alternative carriers are putting substantial downward pressures on international tariffs and accounting rates and added to the discussion the otherwise unnoted potential of new satellite operators, such as providers of global mobile personal communications systems. Cowhey heartily agreed with this emphasis on the parallel universe, stating that the emergence of gray markets has indeed been a key driver of change internationally. He cautioned, however, that "gray markets do not automatically translate into the collapse of traditional market restrictions or efficient pricing across the board. They can linger for a long time precisely because the traditional system is wildly profitable." Because the transition is not easy or automatic, he noted, decisive government action is important. For this reason, he said, the FCC moved quickly to release its Flexibility Order even before its Benchmark Order, to actively encourage companies to grow markets outside the constraints of the international accounting rate system.

Kenneth Robinson, an independent telecommunications consultant, argued along the same lines. New technologies and the competitive pressures unleashed by denizens of the parallel universe would certainly exert downward pressures on accounting rates and help engender wider pro-competitive reforms, he noted, but “it’s by no means clear that this is going to happen soon. . . technology is a solution, but only a long-term one.”

Reforming the International Accounting and Settlements System

As the preceding comments suggest, although interconnection under the GATS and the parallel universe provide alternatives to and pressures on the accounting and settlements system, the fact remains that there are powerful industry interests and institutional factors that may nevertheless preserve it in many relations, at least for the next few years. Given the massive outpayments and market distortions they create, the United States at least believes that concerted government action is necessary to move accounting and settlement rates toward cost and prevent discrimination. Accordingly, AIRIT participants also considered possible pathways to reform.

Not surprisingly, the efficacy and appropriateness of the Benchmark Order generated some disagreement. Ungerer raised the point by stating that because the United States represents about 40 percent of the global market, one of the big questions now would be “how that market power will be used in a liberalized environment.” The GBT deal “is extremely important in that it should impose on the United States a self-restraint not to use its economic power in a unilateral manner, and that is exactly what is at stake” in the FCC’s “high risk” actions on accounting and settlements rates. Thus it is critical in the months ahead that governments live up to their WTO commitments and promote true competition, otherwise “liberalization may become no longer acceptable because it may lead to such domination by some nations” as to generate anti-liberalization responses from others. Moreover, Ungerer worried that the Benchmark Order may have the effect of serving as a “magnetic ceiling” for rates.

In response, Cowhey argued that the real underlying tension in a wide range of trade issues is that Europe views multilateral

agreements such as the GBT deal as tools to restrain unilateral action by the United States. The U.S. government seeks to promote a large-scale process of market transformation in telecommunications and strongly supports multilateral cooperation in the WTO to that end, but it also believes that there are cases where other initiatives are required and that there is no contradiction in moving on both fronts simultaneously. There is simply no way around this fundamental difference in perspective, Cowhey suggested. Lafaro agreed that the United States must actively promote cost-based rates and that the FCC's actions are compatible with and supportive of the GATS.

Another issue raised regarding the FCC's program concerned whether leading carriers have been passing along to consumers the savings realized through accounting rate reductions. Lafaro argued that for its part, AT&T has done precisely that. Foreign carriers may believe that they do not need to worry about passing along the savings, but the United States has a competitive market that would penalize international carriers who failed to do so. Indeed, he maintained, AT&T's collection charges have decreased more rapidly than its settlements outpayments. Lafaro denied assertions that AT&T had failed to reduce collection charges in tandem with accounting rate reductions and said the facts do not bear out the claim.

In line with Ungerer's remarks, Jean Paul Simon, head of European regulation at France Telecom, expressed concern about the United States' propensity for unilateral actions and suggested that it would be better to pursue reform on a multilateral basis. Jeremy Beale, policy analyst and administrator for the OECD, said that the idea of pursuing reform on a multilateral basis is interesting but asked, "What does it mean?" He noted that the OECD has been trying for years to get countries to publish their accounting rates, yet despite governments' professed desire for greater transparency, virtually everyone (except the United States, Great Britain, and New Zealand) has refused. In light of the obvious reluctance of governments to actually implement changes endorsed in multilateral bodies, he sympathized with the United States' feeling that it has to go it alone, even if it is not clear that the strategy will work. Robinson also felt that appeals to multilateralism were unlikely to

yield notable results and that there was no optimal international forum in which to pursue reform—they all have strengths and weakness in addressing this matter, he suggested.

With the question of multilateral solutions on the table, the discussion turned to the possibility of achieving reform within the ITU. Alas few AIRIT participants exhibited much hope for real progress in the ITU. Most expressed regret that, as Kleeman put it, “the ITU doesn’t work” when it comes to accounting rate reform. Indeed, Kleeman argued, the downward movement of accounting rates has been slow since Study Group 3 adopted Recommendation D.140 in 1992, which is supposed to encourage lower rates, nondiscrimination, and transparency. The study group is dominated by national PTOs—a factor that in the minds of most participants, presented a fundamental barrier to change. In general, there was little optimism that strong commitments to substantial and prompt accounting rate reform would be realized through existing multilateral programs as they currently are configured. Perhaps the most optimistic note was sounded by Ungerer, who suggested that with competition under the GATS framework, the EU’s move toward interconnection charges, and related forces at work, the accounting rate system could soon collapse and be replaced by other, sounder economic mechanisms.

Facilitating the Transition to Reduced Dependency on Settlements in the Developing World

Pending that eventuality, in the short term, reform will continue to be a difficult and contentious process. Many developing countries may be coming to terms with the inevitability of change, but they are not convinced of its benefits and view the prospect of reduced settlements income as a zero-sum proposition that will deny them much-needed foreign exchange. The AIRIT participants therefore discussed ways to raise consciousness in developing countries about the benefits of lower rates and the need to help them reform their operations to manage the transition and reap the benefits of reform.

Heather Hudson, director of the telecommunications management and policy program at the University of San Francisco School of Business, outlined some of the reasons many develop-

ing countries have resisted change and could seek to prolong high rates for as long as possible. First, governments claim that PTOs rely on settlements revenues to finance the very infrastructure investments that everyone agrees are sorely needed to attain low-cost, efficient networks. In some cases, the funds also may be used to cross-subsidize the expansion of services to high-cost areas and low-income segments of the population. Second, governments often treat their PTOs as “cash cows” to be squeezed to finance state programs outside the telecommunications sector, and international settlements often account for a major portion of the total revenues carriers can generate. Hudson pointed out that the first issue is frequently, although not always, used as a disguise for the second, real reason. Braga added that World Bank studies of how developing countries use settlements revenue did not reveal a consistent pattern of reinvestment in infrastructure upgrades.

Third, Hudson noted that developing countries may view the matter in terms of industrial policy. Asian governments in particular observe that many industrialized countries have done well by having strong, internationally competitive carriers, whether public or private, and they would like to have “national champions” in telecommunications as well. To this one might add a fourth, related consideration: many developing countries are privatizing, or preparing to privatize, their PTOs and wish these PTOs to be in the best financial shape possible when negotiating with potential foreign investors. Indeed, multinational firms have sometimes sought monopoly licenses, or at least commanding market positions, as the price for buying into developing countries’ carriers.

Hudson then described some ways to help change developing countries’ thinking about reform. External pressures through the WTO and other institutions could provide one avenue. Internal pressures from governments’ domestic constituents would be equally if not more helpful. She noted that consumer organizations are beginning to get involved in telecommunications issues in places as diverse as Eastern Europe, Hong Kong, and Malaysia and suggested that such “bottom up” demands for lower collection charges could stimulate reform. Similarly, commercial Internet Service Providers (ISPs) that are confronting infrastructure

and pricing problems also could be allies, and some bilateral and multilateral efforts are underway to support such users. The key, she suggested, is to work around the PTOs and not let them unilaterally define the issues and the agenda in any consultations. Instead, governments and companies from the industrialized world should try to work with more receptive parts of developing countries' governments—such as trade and finance ministries or the central leadership—and should stress that new investment, efficient networks, and lower-cost services would benefit every part of their national economies.

Kleeman seconded the view that clear economic arguments must be made to the right people to get results. Governments must understand basic questions of price elasticity and demand, and they must be able to see that countries that have reformed their rates and undertaken related reforms have generated a lot of new economic activity, whereas those that have not are falling behind. John Jensik, director of international regulatory policy at GTE, agreed that it is important to overcome zero-sum and static assumptions that demand and revenues are a fixed pie that developing countries would simply lose a piece of by reforming. In a hypothetical discussion with the PTOs, "Rather than saying to them you will just have to do without this \$30 million a year or whatever, we need to say you will make it up and then some in increased traffic volume."

AIRIT participants saw a potential role for international institutions in helping to increase understanding of the issues and in facilitating "soft landings" for developing countries that reduce their settlements dependency. The question was which institutions could provide what kind of assistance.

On the first point, Brotman thought the ITU could be helpful with regard to information dissemination and awareness raising. Others around the table agreed that it could usefully undertake tasks such as sponsoring research on the cost of providing international service from developing countries and other matters, disseminating information gathered from member governments and PTOs, holding meetings that include representatives of all industry stakeholders, and perhaps providing some operational assistance—although such activities probably would require institu-

tional improvements in the ITU's Bureau of Telecommunications Development. Other participants, however, expressed general skepticism that the ITU could play a positive role at present.

In contrast, there was strong consensus that the World Bank was playing a very constructive role, which some hoped could be expanded. Braga mentioned some of the work that has been done through the Bank's *infoDev* Program to support developing countries in the WTO process and noted that the Bank is launching a program to assess the potential effects of accounting rate reform in developing countries. Several participants also singled out the contributions of the OECD which provides a source of solid economic studies and a forum for collective analysis and consensus building among member governments. Other bodies that could play a role might include regional telecommunications policy organizations like the Asia-Pacific Telecommunity and the Inter-American Telecommunications Council, as well as multinational industry organizations.

With regard to the kinds of assistance that should be provided, Hudson and others suggested that additional financial resources might be useful in certain carefully delineated circumstances—such as pilot projects that provide seed money for infrastructure development. Hudson also pointed to WorldTel, a private-sector lending program operating under the aegis of the ITU, as a promising initiative. Braga explained that the World Bank already has targeted some funds for studies, technical consultations, and awareness raising, and there has been some discussion of opening a special line of credit to help countries deal with any abrupt revenue losses from accounting rate reform. However, he cautioned, that here as elsewhere, people should not expect that substantial amounts of funding will be available through multilateral institutions. “The bottom line is that it is going to be a bumpy road ahead,” he noted, “and there is no easy way to finance this transition.”

Accordingly, the discussion focused more on knowledge transfers than on financial transfers. Hudson ran through a list of possibilities, including cost studies and market assessments, consultations on regulatory and competition policy measures, technical and managerial training programs, and so forth. There generally

was strong support for these and related forms of technical assistance, although they would take time to ramp up and might not translate into the sort of rapid progress demanded by the FCC and effected companies.

Promoting Universal Service in the New Network Order

A related issue that arose in relation to both the GATS implementation and accounting rate reform involves how to promote universal service in a competitive global marketplace. In recent years, industrialized countries have been devising new policies to maintain universal service in an era in which former monopoly carriers will no longer be able to afford to cross-subsidize less profitable markets like rural and residential services by charging above-cost prices in other markets, notably business, long-distance, and international services. For the developing countries, of course the problem is different. Because more than half of the world's population lacks local access to a telephone, "universal service" really is a label for a long-term goal. The question is: how will international competition under the GATS and accounting rate reform affect the pursuit of these objectives around the world?

As Hudson noted, reduced settlements payments would force developing countries to rebalance their rates by increasing domestic prices, which will be politically problematic. There may be sound economic arguments for them to do so, she noted, but these arguments are not always obvious. What is needed, therefore, is an international dialogue that would fully explore alternative models for universal service funding. Some innovative approaches, such as incentive schemes that are alternatives to subsidizing monopoly carriers, are emerging. For example, Chile has auctioned franchises for unserved territory and the Philippines has made installation of networks in specified regions a requirement of mobile and international gateway licenses.

McMillan argued that one thing was certain: namely, that of the available options, continuing the tradition of hidden cross-subsidies was the least efficient way forward. A number of participants agreed that cross-subsidies are very inefficient and incompatible with competition, and several suggested that it would make better economic

sense if universal service funding were secured through general tax revenues.

Firestone was somewhat uneasy with this notion. Meetings of telecommunications analysts frequently recommend that tax revenues be used for universal service, he noted, but just because this would be more economically rational does not mean that it also would be politically viable. To create a new budgetary line would make universal service funding a political football subject to attacks amidst partisan political battles—which, in part, is precisely why governments historically have buried it in hidden cross-subsidies. Moreover, reliance on politically vulnerable taxes also would make it even more difficult for governments to consider expanding the scope of universal services programs beyond basic telephony in the future.

Ungerer voiced similar concerns regarding the taxation solution. It is frequently endorsed by economists and industry analysts, he noted, but everyone knows that it is not happening and is not likely to happen soon. He also wondered whether it was a good idea to foster carrier dependency on government revenues, especially when many such carriers are extremely profitable. Ungerer cited as an interesting model the approach taken by the U.S. Telecommunications Act of 1996, which requires all carriers to make competitively neutral and nondiscriminatory contributions to a universal service fund. Whatever solution is chosen, he suggested, it is important to ensure that the funding mechanisms are transparent. Frank Gumper, vice president for long-range public policy at Bell Atlantic, took the point further, arguing that if funding via general taxation is politically impossible, then at a minimum universal service should be supported through explicit measures such as carrier-collected surcharges on customers' bills.

Although the group did not attempt to reach consensus on any particular funding mechanism, there generally was optimism that competition could help alleviate the problem. As McMillan argued, people should not simply assume that enhanced competition will undermine universal service. To the contrary, he said, it should increase the penetration and accessibility of basic telephone service and spur providers to get more out of their local networks rather than relying on revenues from overpriced long-

distance and international services. In a competitive environment, carriers have strong incentives to find offsetting cost savings to keep prices in line and retain their customer base. Indeed, the elimination of certain cross-subsidies between long-distance and local calls in the United Kingdom has not negatively affected penetration rates, as had often been predicted. In fact, with no universal service fund or compensating access charges, penetration in the UK increased from 78 percent to 96 percent of households in the 13 years since competition was introduced there. This increase was a direct result of strong competition in the local loop, which brought new marketing techniques to bear and brought down line rental and call charges. The positive effects should be even stronger with regard to advanced services provided by innovative new entrants using alternative technologies. Other participants agreed that liberalization would bring in new investment and competitors, which could keep prices from escalating.

International Regulatory Cooperation

Cowhey touched off this discussion thread by noting that governments will have to face a lot of difficult regulatory issues that include but go beyond the details of implementing the GATS commitments. It is unfortunate, he said, that there is no forum or mechanism for national regulators to get together to share information and coordinate their actions in addressing those issues; "it is a big hole that needs to be filled." Several other participants agreed that it would be helpful to have an institutionalized framework within which to compare notes and draw on collective expertise and experience. Jensik added that it is desirable to develop models of "best practice" so that regulators, particularly in the developing world, do not have to tackle the GATS implementation and other challenges from scratch and reinvent the wheel.

Because several participants shared this concern, the question arose as to where this dialogue could best be conducted. A few participants suggested that none of the existing international institutions seemed obviously appropriate for the task, so a new entity may be needed. However, others were uneasy with that idea.

Ungerer agreed that in the absence of a mechanism there is a real danger that governments will adopt contradictory policies that negate the GATS commitments and cause uncertainty in the marketplace, but he added, "I do not think the future is in adding additional fora;" instead, what is needed is a careful examination of the strengths and utility of each of the existing organizations. Given that the Reference Paper establishes a broad framework under which a measure of regulatory harmonization can be achieved, he suggested, the role of the WTO in particular merited attention.

Participants offered a number of observations on whether existing institutions could be used for regulatory dialogue. A WTO telecommunications committee, as proposed by the United States, might grow to fill the hole to which Cowhey referred. However, the U.S. proposal has yet to attract sufficient support from other member countries. Surprisingly, although the AIRIT Working Group on the WTO endorsed the idea, only a few participants made a point of doing so in the plenary discussion. Brotman thought the committee would be a useful step forward. Tuthill also felt that if members decided they wanted one, a WTO committee could be valuable in providing governments with place to "do homework" and think through the implications and implementation of the Reference Paper in particular. She felt the committee would be complementary to the solid work being done in the OECD on the deeper analytical issues and would provide a vehicle for developing countries to participate in collective problem solving as well. Cowhey saw some potential in a WTO committee but also thought that the OECD might be a good vehicle if more newly industrializing countries could be engaged as a bridge to developing country concerns. In any event, he noted, it is very important that whatever forum is chosen, "You cannot lose the discussion down at the level of middle management. It has got to be at a higher level if it is really going to have the ability to crack through the question of what is the proper way of thinking about competition levels" and related issues.

Tanaka suggested that this area might be an appropriate place to "use the ITU's powers," particularly in light of its near universal membership, well-established institutional structures, and long

history of dealing with the technical complexities of telecommunications. Again, however, several other participants expressed wariness of addressing regulatory matters in the ITU, which they thought would be looked on with acute skepticism by new entrants and denizens of the parallel universe in particular. Ungerer objected somewhat to the larger tone of this conversation because in his view the ITU remains a very valuable organization for many purposes, although he did not suggest that it take on this one. He did add, however, that it would be beneficial to have better coordination between the ITU and the WTO.

Tuthill noted that in 1994 the ITU's council called on the organization to work more closely with the WTO, but there had not been a great deal of outreach in consequence. In light of the opinions adopted at the March 1998 WTPF, this situation may change after the ITU's October 1998 Plenipotentiary Conference in Minneapolis. In general, however, AIRIT participants seemed to concur with Braga's assessment that "we are not going to find any kind of ideal solution to this question." As such, although there was strong sentiment that regulatory cooperation must be pursued, the group did not attempt to reach agreement on a single best forum in which to accomplish that goal. That will be a political decision for governments to take down the road.

In summary, this portion of the discussion revealed a strong consensus on most of the major themes participants raised. That consensus also is reflected in the Working Group reports on these issues contained in Chapter 5 of this report. The only major issues on which there was not general agreement concerned the wisdom and necessity of the FCC's Benchmark Order, the time frame in which market forces will force down accounting rates or lead to broader reforms of the system, and the best means to promote regulatory cooperation. In these respects, the group's views mirrored somewhat the diversity of perspectives in the global industry as a whole.

The Internet and Global Electronic Commerce

Until recently, discussions of international telecommunications policy typically did not delve deeply into developments in the Internet environment. The traditional telecommunications industry and the Internet were two separate networked worlds populated by different players and concerned with distinct issues. However, technological and industry convergence has rapidly eroded that separation over the past few years, and a raging, multifaceted global debate is underway about how to establish international rules for the Internet and electronic commerce over it. As such, the governance of the Internet environment is now central to the global telecommunications policy agenda. Consequently, this issue was a major focus of deliberation at the third AIRIT as well. This chapter provides background and context for the report on the AIRIT discussion of these issues in Chapter 4.

The Challenge of Governance

If the bold predictions turn out to be even half right, global electronic commerce over the Internet will become a major new source of economic dynamism and wealth creation in the years ahead. For those predictions to materialize, however, the international community must first remove the barriers that presently restrict the expansion of electronic commerce. Some of these barriers involve the same basic contractual issues that must be resolved for any marketplace to function, but they take on distinctive characteristics because the parties involved may be on different sides of the planet and unable to independently verify who they are dealing with or whether the familiar terms of exchange apply. For example, consumers need to be confident that they will get what they paid for, that they can get refunds or replacements if they do not, that their transactions will not be monitored by third parties with ill intentions, and so forth. Other barriers are peculiar to the Internet. These barriers include situations in which two governments apply different laws and regulations to the same

transaction in the same (cyber)space, and where the public's access to that space is limited by its costs, the lack of requisite computers and telecommunications links, cultural and educational impediments to Internet usage, and so forth.

The condition of the underlying infrastructure can pose barriers as well. For example, how well the domain name system (DNS) is organized can affect companies' ability to establish their identities and trademarks, be located by consumers, and do business on the Internet. The prices and other conditions that telecommunications carriers impose on ISPs affect the cost of doing business online, just as the prices consumers pay for local dial-up access affect their propensity to browse and shop.⁴² How telecommunications carriers and ISPs structure the flow of traffic around the world, in terms of both technological architecture and the economics of peering or interconnection among them, can affect the speed of transmission and the cost of online business.⁴³ Furthermore, whether governments choose not to regulate ISPs, Internet telephony providers, and other players, or instead establish requirements akin to universal service and related rules applicable to telecommunications common carriers also will affect the future of online business. In short, individual and collective decisions about the infrastructure can affect the prospects for e-commerce such that issues concerning the governance of carriage and content (to use an old dichotomy) are sometimes inseparable.

Creating an environment in which robust e-commerce can develop requires establishing market-friendly international rules of the game. Absent shared, stable rules around which the players' expectations can converge, sellers will not have the incentive to invest and undertake business plans, consumers will not have confidence that buying in cyberspace is as safe as it is in physical space, and governments may conclude that the achievement of relevant policy objectives requires national actions that, in the end, do more harm than good. To avoid that situation, shared approaches must be found to a variety of outstanding issues, such as contractual conditions applicable to online transactions, trade barriers and market access, customs treatment and taxation, the protection of intellectual property and personal privacy, and so forth.

Establishing governance mechanisms is a difficult task because of the Internet's unique characteristics. Despite the sweeping changes of recent years, in the traditional telecommunications industry there are longstanding "legacy systems" in place in terms of the technology, network architecture, industrial organization, corporate players, government agencies, and international policy mechanisms involved. There are, of course, many disagreements over public policies and heated battles in the market, but the fundamental parameters of the issues and the means for addressing them are fairly well established. In contrast, the Internet environment is much more fluid in terms of the technology and contending business models. The range and interests of the players is more diverse, and the modalities and habits of cooperation are less well established—outside, that is, the technical community that has coordinated the infrastructure's development to date. In many cases, creating the necessary international rules requires working from scratch on the part of a wide range of stakeholders that may not know or trust each other's judgment and objectives. Not surprisingly, debates about Internet and e-commerce "governance" often become types of Rorschach tests in which people view and make sense of abstractions and possible futures in strikingly different ways; things can get complicated rather quickly.

Five factors in particular complicate the search for workable governance. First, the speed and unpredictability of technological change in infrastructure, services, and applications makes it difficult to devise continuously appropriate rules, particularly insofar as major changes frequently are generated by individual entrepreneurs, researchers, and users. When big shifts such as the creation of the World Wide Web more or less come out of the blue from the standpoint of rulemakers, there is a substantial risk that approaches chosen on the basis of today's technological conditions will become obsolete or counterproductive tomorrow. How well, for example, will current national and international approaches to intellectual property, indecency, cultural integrity, and so forth work as webcasting becomes widespread and thousands of home pages become home stations?⁴⁴ Thus, some types of rules will have to be continuously monitored and adapted or allowed to sunset as circumstances warrant.

Second, and relatedly, the complexity of the issues involved in global cyberspace often makes it difficult to apply rules created for the offline world. An obvious example is the problem of balancing free speech with the protection of minors from indecent material. In the Telecommunications Act of 1996, the U.S. Congress attempted to apply the sort of standards that work for traditional broadcasting to the Internet, with patently unworkable and unconstitutional results. Other governments around the world are pursuing similar or even worse policies in an effort to control what they deem to be objectional content (which in many cases may include the expression of political and social views). Given the problems that arise with regard to this and many other issues, some analysts have suggested that cyberspace simply be declared an entirely separate realm from the material world—one in which governance mechanisms appropriate to the medium's unique properties will be created *de novo* by those Internet stakeholders who are closest to the issues and therefore “know best” what is needed.⁴⁵ Governments, however, seem unlikely to find this elegant solution acceptable in many instances and instead probably will muddle through with a lot of trials and errors in an effort to either adapt offline rules or create new ones that fit the Internet. Needless to say, that process may impose costs and uncertainties on e-commerce participants.

Third, as recent battles over DNS, intellectual property, technical standards, and other issues demonstrate, the unusual diversity of industry interests involved means that there often are divisions within the private sector with regard to the design of governance. In the realm of infrastructure management, where industry coordination and private rules are the norm, there have been outbreaks of dissension and legal challenges when some parties have felt that others have used market power to push approaches favoring their interests over those of others, either unilaterally or through back room deal-making. Similarly, in arenas where public policy is involved, ardent lobbying campaigns can leave governments in the position of having to pick solutions that are not widely supported by all factions. Given the flexibility of the technology and the diversity of practices it facilitates, such unpopular policies ultimately may prove unsustainable.

Fourth, whatever its virtues, from the standpoint of establishing widely supported governance mechanisms, the dominant libertarian culture of the Internet can be a complicating factor. Much has been made of the propensity of Internet users to create collective behavioral norms like “netiquette” and of the efficiency with which the technical community scaled up the Internet through voluntary coordination, but the picture has gotten less perfect as the Net has gone from being an academic and research network run by like-minded engineers to a worldwide commercial medium with highly diverse interests at stake. Cooperation within the so-called “Internet community” (an increasingly anachronistic term) often is less easy to achieve today, and rules and procedures that some groups think apply to a situation may be flouted by others. Moreover, a great many Internet cognoscenti—or at least the most vocal of them—are extremely suspicious of any and all moves to establish government authority, which they frequently view as synonymous with heavy-handed, inappropriate regulation by out-of-touch state bureaucracies, even when the contemplated rules are designed to facilitate the expansion of open, industry-driven markets.

Finally, as the international community begins to work through the issues, differences of perspective are emerging among governments themselves. The opening bell for the intergovernmental dialogue was rung by the Clinton administration, which launched an initiative in 1996 under the coordination of White House advisor, Ira Magaziner. For more than a year, Magaziner and other officials engaged in dialogue with relevant federal agencies and corporate stakeholders, as well as with noncommercial interests and consumer groups. A draft “Framework for Global Electronic Commerce” was posted on the World Wide Web and was revised repeatedly in light of comments received there and in meetings until it was officially released in August 1997.⁴⁶ The EU went through a somewhat parallel process, releasing its own position paper on intra-European and global priorities, and has called for the establishment of a “global charter” on governance.⁴⁷ Japan chimed in with a report, too, but the Japanese have taken a more cautious and quiet approach in the international discussion. Much of the early discussion was a U.S.-EU affair [e.g., under the aus-

pices of the Trans-Atlantic Business Dialogue] and has included joint declarations on broadly framed principles at the Ministerial Conference on Information Networks at Bonn in July 1997 and the EU-U.S. summit at Washington D.C. in December 1997.⁴⁸ In addition, the OECD has launched a broader and more inclusive dialogue on many of the issues.

The papers released by the United States and the EU and the positions adopted in their meetings indicate that the two sides of the Atlantic generally are in agreement on guiding principles such as the importance of international cooperation, the leading role of the private sector, and the need for consistent but minimalist regulations that take into account the Internet's unique properties. Consensus among the United States, European governments, and the EC breaks down at times on just how far one can rely on industry self-regulation and contractual relationships among the parties to commercial transactions instead of government regulation. This deeply rooted divergence on the precise balance between state and market sometimes translates into incompatible approaches to specific questions, most notably the protection of personal privacy and the role of government in technical standardization. In both cases, the EC has favored a greater role for governments both within the EU and internationally.

The developing countries face their own challenges going into the emerging debate. Internet infrastructure, commercial service provisioning, and public access and use are growing rapidly in many parts of the developing world, especially in the comparatively upper-income or "newly industrializing countries" of Asia and Latin America. In tandem, a few of the Asian countries in particular have been quickly moving up the learning curve on electronic commerce and Internet governance and are beginning to make their voices heard on the issues, at least regionally. Nevertheless, the vast majority of developing countries have not begun to pursue electronic commerce, and their governments and private sectors have not begun to define their interests regarding its governance.

Moreover, the developing countries are effectively excluded from many of the relevant, key international fora.⁴⁹ The private bodies indigenous to the Internet that are involved in infrastruc-

ture coordination are fairly open institutions—but not for those lacking the financial resources and expertise to participate. Among intergovernmental bodies, the EC and the OECD have taken significant strides in assessing and building consensus on infrastructure and electronic commerce issues, but they are not open to participation by most developing countries. The ITU, WTO, and WIPO are, of course, open to such participation, but their respective involvements in Internet matters are more narrowly defined and preliminary; resource and expertise constraints apply here as well.

In consequence, lack of readiness and participation leaves a growing number of developing countries worried that the industrialized world will go off and establish global rules and procedures that do not reflect their interests or allow them to weigh in effectively in the future. Although some stakeholders in the industrialized world may think it is better to reach deals first among those with the greatest stakes and reasonably comparable visions, developing countries may be less willing to buy into such deals *post hoc* if they feel excluded.

Industry Self-Regulation as Governance

As the governance debate heats up, concerns that intergovernmental programs will produce overly regulatory results are generating growing interest in an alternative model—industry self-regulation. The notion that rules and institutional mechanisms devised within the Internet environment are the best way forward is not simply an anticipatory reaction to the possibility of government heavy-handedness. It is grounded in decades of practical experience in the development of computer internetworking.

Of course, most members of the technical community that laid the Internet's foundations probably did not think that they were engaging in “self-regulation” or “governance.” Indeed many express puzzlement at the use of these terms today and say that they simply engage in “management” and “coordination,” in line with the engineering logic of the technology and a culture of collective problem solving. Nevertheless, their actions are bound by shared norms, rules, and decision-making procedures that constitute a form of decentralized governance. Its emergence has been

facilitated by the adoption of open protocols and technical standards that allow the interoperability and voluntary cojoining of separately owned networks. Thus, as Sharon Gillet Weisner and Mitchell Kapor have written, “Contrary to its popular portrayal as total anarchy, the Internet is actually managed. It runs like a decentralized organization, but without a single person or organization filling the manager’s role. The system that allows 99 percent of day-to-day operations to be coordinated without a central authority is embedded in the technical design of the Internet. The manager’s job—handling the exceptional one percent—is performed not by one but several organizations.”⁵⁰

These administrative organizations manage the identifiers that allow computers on the Internet to reach one another. The most important of these organizations is the Internet Assigned Numbers Authority (IANA) operated under the legal authority and with the financial support of the U.S. government (and, more recently, with additional support from the private sector). IANA coordinates and maintains the key file for the generic global top-level domain (gTLD) names designated by suffixes such as “.com,” “.edu,” and “.org.” The actual registration of second-level domain names under these gTLDs is the exclusive preserve of Network Solutions Inc. (NSI), a partner in the InterNIC project with AT&T and General Atomics. NSI handles the DNS registration portion of the InterNIC’s functions in accordance with a five-year monopoly contract awarded by the National Science Foundation (NSF) in 1993. NSI receives additional funding by levying DNS allocation fees on users of the .com, .net, and .org gTLDs.

In addition, IANA is responsible for delegating the management of country code TLDs (such as “.fr” for France) to monopoly name registries in each country. These registries generally are commercial firms or ISP associations; like NSI, they charge users for registrations. Furthermore, IANA coordinates the numerical Internet protocol addresses assigned to computers (to which domain names point the user without requiring the user to know them) by delegating management authority to three regional registries: the Réseaux IP Européens Network Coordination Centre (RIPE NCC) for Europe; the Asia Pacific Network Information Centre (APNIC) for Asia; and the American Registry for Internet Numbers

(ARIN), for the Americas, the Caribbean, and sub-Saharan Africa. The three registries then allocate blocks of IP addresses to ISPs. IANA also sets some technical parameters for protocol specifications and has some authority over who operates the 13 root-level name servers that contain databases with information about which DNS servers act for which domain names and route transmissions accordingly. 10 of the 13 servers are in the United States.

Beyond these core administrative bodies, other private organizations are involved in making the Internet work. For example, many of the technical standards required are developed on an open and voluntary basis by the Internet Engineering Task Force (IETF), which operates under the aegis of the Internet Architecture Board (IAB); other specialized industry groups, such as the World Wide Web Consortium (W3C), also play a role. Similarly, ISPs around the world have numerous collective bodies like the U.S.'s Commercial Internet eXchange (CIX) for managing the peering of networks at network access points and metropolitan area ethernets, and the big five—MCI, Sprint, BBN, ANS, and UUnet, which collectively account for about 80 percent of traffic—have their own coordination procedures. In addition, a growing number of professional associations such as the Internet Society (ISOC) and trade associations promote shared rules and coordination on various issues.

The foregoing account is a necessarily schematic overview of just some of the main organizations and functions involved, but it is enough to raise three points about self-regulation. First, on the whole, infrastructure coordination among these and other organizations has worked very well in guiding the Internet's transition into a global commercial medium in the 1990s.

Second, this tradition is nevertheless showing signs of strain as the financial stakes grow and globalization brings an increasingly diverse range of interests to the table. The most notable example of such strain involves the effort to reform DNS management, which was necessitated by a confluence of factors. The commercialization of the gTLD registration process has made it a more than \$60 million business.³¹ However, it also triggered lawsuits against the NSI monopoly and encouraged other companies to try to set up their own alternative registries, which could fragment

the global addressing system. Lawsuits have flown as trademark holders have attempted to wrest control of allegedly infringing domain names from other organizations and speculators who buy and sell addresses. The explosion of registrations in the .com domain in particular has created strong pressures to expand the number of gTLDs to avoid a depletion of commercially desirable addresses. Furthermore, the U.S. government did not renew NSI's monopoly contract when it expired in 1998 and wants to privatize its own residual oversight functions and legal authority, while other countries want a greater role in decision-making. These and other factors have created a crisis atmosphere, with very sharp, cross-cutting divisions among stakeholders as to how to reform the system, who should be involved, and on what basis.

In October 1996, ISOC initiated, at IANA's request, an Internet International Ad Hoc Committee (IAHC) to formulate a new plan for DNS governance. The IAHC comprised representatives from ISOC, IANA, the IAB, the NSF, the U.S. Federal Networking Council, the International Trademark Association, and two inter-governmental organizations—the ITU and WIPO. After publishing a draft plan on the Internet and receiving more than 4,000 messages and more than 100 formal submissions of comments and proposals in response, the IAHC formally signed a gTLD Memorandum of Understanding (MoU) at Geneva in February 1997.⁵² The MoU was supposed to establish a new array of joint management and oversight bodies that would internationalize decision-making (with the governing body established in Geneva under Swiss law), create seven new gTLDs, facilitate competition among multiple globally dispersed registries, and establish trademark arbitration processes under the auspices of WIPO. Despite the IAHC's efforts to build international support for its approach, however, companies like NSI and other stakeholders who were not included in the process rebelled and launched a vociferous campaign against the MoU. The IAHC was accused of attempting a coup d'état of sorts by unilaterally pronouncing itself to have authority to take control of essential decision-making about global governance.⁵³

With the global industry sharply divided and near-warfare raging, the Clinton administration stepped into the fray in the hope

of forging a more widely supported plan. This action effectively killed the gTLD-MoU, which other organizations already were moving to implement. Magaziner led the new initiative and held meetings with stakeholders around the world seeking consensus. The National Telecommunications and Information Administration (NTIA) released a Notice of Inquiry on gTLD reform in August 1997 that generated more than 450 comments; in March 1998 the NTIA released a green paper containing a provisional plan. The EC and others criticized it for not adequately representing the interests of stakeholders abroad, and after some reformulation the Clinton administration released its revised plan in June 1998 in the form of a Commerce Department white paper on "Management of Internet Names and Addresses."⁵⁴

In essence, the white paper privatizes the residual U.S. government support functions and legal authority and promotes competition in registration services. A new, private, not-for-profit organization is to be incorporated in the United States that will coordinate the DNS, manage the allocation of IP address space to regional registries, oversee operation of the root server system, help guide decisions about the creation of new TLDs, and coordinate the assignment of other technical parameters needed for universal connectivity. This new organization is to include diverse participants, including stakeholders abroad. An international consultation process called the International Forum on the White Paper (IFWP) has been established to flesh out the details of the new body. Predictably, however, the IFWP process too is experiencing problems in building consensus among all the players; although the transition will go forward, it will not be an easy one.⁵⁵

Rendered here in highly abbreviated form, the DNS battle would seem to indicate that in at least some cases, self-regulation of the Internet may become an increasingly difficult process as globalization and commercialization continue to deepen. Within the private sector, stakeholders were sharply divided, widely recognized authority was absent, and cooperation and trust among many parties broke down quite severely. One wonders how this story would have played out had the U.S. government failed to play an active role in sorting things out, and there may be other

cases on the horizon in which conflicts require state intervention as well. On the other hand, one could argue that this was an important learning process and that if the new DNS organization works the ugliness of the process that led to its establishment ultimately will prove insignificant.

A third and final point on self-regulation concerns its generalizability to the governance of e-commerce and communication over the infrastructure. Much needs to be done to determine precisely on which issues self regulation can provide authoritative solutions that are broadly supported by users and acceptable to governments. To note one questionable experience to date, the Clinton administration's approach to the protection of personal privacy on the web is based on a contractual model that many privacy rights advocates regard as inadequate and unrealistic. It also is not yet clear how well the administration's approach will mesh with the EU's Data Directive, which established legally enforceable protections as of October 1998. Insofar as the EU approach bars the transmission of personal information from EU states to countries that lack adequate privacy protection, current proposals to bridge the transatlantic divide through the mutual recognition of different means to the end of protection arguably could rob the directive of meaning.

In the realm of trade facilitation, the private sector has devoted a great deal of effort to develop contracts, operational standards, and software tools needed for electronic data interchange (EDI) and e-commerce, including digital signatures, encryption, bills of lading, and so forth. Concurrent with individual companies' projects, specialized trade associations and the International Chamber of Commerce (ICC) have been working to develop contractual "interchange agreements" or industry-wide rules such as the ICC's guidelines for "General Usage in International Digitally Ensured Commerce." Many governments and stakeholders believe, however, that contractual arrangements and self-regulation are not enough to establish truly authoritative rules or to preclude the use of market power in establishing suboptimal de facto standards. As such, there has been a proliferation of potentially incompatible national laws dealing with different parts of this puzzle. Indeed, in the United States, approximately 40 states have adopted their own legislation on digital signatures.

Thus, although the international debate about the idea of self-regulation has been taking shape for several years, much more work is needed to flesh out in detail what it means and whether it is superior to government rules in specific cases. Many trade groups are actively pursuing initiatives in this area, such as developing codes of conduct. In parallel, there has been some interesting theoretical work of late that seeks to specify the merits and modalities of self-regulation, with scholars and libertarians in the United States taking the lead.⁵⁶ Work in this vein typically is shaped by a worldview in which free social agents resolve issues through contracts and cogenerated norms and select the most efficient solutions because it is they who care most deeply about the matters at hand. The conditions under which the state—an external actor with its own distinct interests—can legitimately intervene and impose its will is narrowly circumscribed. Whether this limited view of the state and its proper relationship to civil society will be widely shared abroad is unclear, but interest in such ideas is growing in the OECD as the search for innovative solutions to the distinctive challenges of cyberspace proceeds.

Intergovernmental Regimes as Governance

Where self-regulation is deemed inadequate, governments will seek to establish authoritative international rules. The possible role of intergovernmental organizations and regimes therefore was a major focus of the AIRIT discussion.

Given its historically central role in setting multilateral rules for international telecommunications, one might have expected the ITU to emerge as an important player in the governance of certain aspects of Internet infrastructure and, by extension, global e-commerce. At least in the near future, however, that is not in the cards. The explanation is that the ITU represents in microcosm the increasingly complex interrelationships between two networked worlds—the traditional telecommunications industry and the Internet—that to date have been defined by divergent organizational models, technologies, and stakeholders.

When the Internet began to blossom as a global medium in the early 1990s, some of the ITU's PTO membership and staff adopted slightly schizophrenic attitudes: they simultaneously dismissed

the Internet as an “academic plaything” of no real significance and expressed muted concern that it could someday become yet another threat to a monopoly order already besieged by liberalization pressures from within the industry’s traditional parameters. Since 1994, however, the explosive global growth and mass popularization set off by the emergence of the World Wide Web has made it undeniably clear that the Internet will be a defining feature of the new global communications landscape with far-reaching implications for all industry stakeholders. In response, many PTOs became aggressive competitors on the Internet, others merely accommodated the activities of independent ISPs and users, and still others took a more defensive and restrictive stance. As carriers around the world adjusted their strategies and the governance debate intensified, the ITU began to look for places where it could play a leading role.⁵⁷

To the ITU’s surprise, the response to its initial forays into the Internet environment has been less than receptive. Many of the diverse stakeholders involved, especially those in the United States, are steeped in the tradition of industry coordination and self-regulation of the infrastructure and tend to view the ITU—despite the approximately 500 corporate members involved in the work of its three sectors—as the same exclusive clubhouse for PTOs that it was in the monopoly era. Given this mindset, they are strongly predisposed to view any move by the ITU on Internet issues as being unwelcome and unwarranted. That view has been very much encouraged in various fora on the Internet devoted to industry and policy matters, where vocal critics have depicted the ITU as (take your pick) engaging in a pathetic and ultimately doomed effort to remain relevant in a post-monopoly world, launching a bureaucratic power grab for new turf, or having some secret strategy to force the Internet into an old paradigm model of PTO control. In one memorable instance, a particularly vociferous critic put out a fictitious and absurd report of a meeting in which the ITU Secretary General supposedly revealed the ITU’s desire not only to “control the Internet” but to regulate content circulated over it as well. The report propagated across multiple listservs, and numerous postings from otherwise well-informed people who do not follow ITU matters ensued to the effect that

this was the smoking gun that proved the evil international bureaucrats were poised to move. One could almost hear the United Nations' secret black helicopters descending on the Internet.

The ITU plunged into this less-than-propitious environment by participating in the IAHC's ill-fated MoU on domain name management. Under the plan, the ITU was to serve as the depository for the gTLD-MoU and to appoint one of 12 members of a new policy oversight committee. Although neither role was likely to have been of earth-shaking significance, this plan gave rise to responses ranging from hostility to near-hysteria in many circles. As one of the more judicious opponents of the plan summed up the mood, the "ITU is the representative *par excellence* of the old regime in telecommunications. The ITU is an intergovernmental organization and as such is strongly tied to national governments and national telephone companies. The gTLD-MoU, which the ITU played a major role in formulating and promoting, can be seen as an attempt to incorporate the Internet into the traditional governance model applied to the telecommunication sector."⁵⁸ U.S. Congressional committees held hearings in which the gTLD-MoU was depicted as an effort to transfer power over the apparently red, white, and blue DNS to Geneva bureaucrats, and vociferous and highly polarized debate ensued until the Clinton administration put forward its white paper, which effectively removed the ITU from the process.

The ITU's second high-profile foray into the Internet did not fare much better. In September 1997, the ITU held a conference and technology exhibit called *TELECOM Interactive* to explore the nexus of the Internet, broadband networking, and multimedia and to position the ITU as an important international forum for such discussions. Although more than 2,000 people attended, most were from the traditional telecommunications industry. Much of the Internet's "parallel universe" opted to stay away. At the conference, the ITU also released a report tellingly entitled "Challenges to the Network" that could be viewed as speaking much more to the worries of its PTO members than to the aspirations of the Internet industry as a whole. The report frankly summed up the problem faced by the ITU and its dominant mem-

bers: "Why is it, then, that PTOs are so worried about the Internet? The main reason is that the Internet is coming from *outside* their sphere of influence, and therefore outside their control. Unlike other telecommunications services, such as mobile communications, which have largely been provided by the PTOs themselves, or by closely allied firms, Internet services are primarily provided by firms outside the traditional telecommunications sector. Thus the Internet is seen, in some quarters, as being 'subversive,' and undermining the established order."⁵⁹

Given this background, it seems highly unlikely that there can be a sufficiently broad consensus for the ITU to play a new and prominent role in Internet governance for the foreseeable future. This situation may be a bit disappointing to developing countries which view the ITU as friendly to their interests and find it difficult to participate in decision-making carried out by industry-driven fora indigenous to the Internet. The one exception, the *arcana* of which may leave it below the radar of some ITU opponents, is in the area of technical standardization. Insofar as the Internet rides on PTO-provided infrastructure, the standards that carriers develop for broadband and IP-based networking and so on in the ITU-T sector could, where implemented, be important in the evolution of the Internet and e-commerce. The sector is increasingly active in this arena and has established some coordination with bodies like the IETF. On most other issues, however, (e.g. economic and regulatory questions), the ITU is unlikely to make notable contributions to the governance of the Internet and e-commerce.

The WTO is an entirely different matter. Given its strong and unambiguous support from the United States and other industrialized countries, the compatibility of its mission and instruments with the goals of most Internet businesses, and the obvious fact that international commercial transactions over the Internet constitute international trade, it seems certain that the WTO will become a major force in the governance of global e-commerce. Indeed, the organization already has taken steps in that direction. Following the recommendations of the 1997 White House report, in February 1998 the United States proposed that members agree on a declaration promoting e-commerce. The idea quickly gar-

nered widespread support, including that of developing countries. Although some complained that they were not kept fully in the loop by the industrialized world on the deliberations over its wording or that the declaration might limit their future scope of action, their relative paucity of e-commerce at present and their hopes for more in the future made supporting the declaration a relatively easy choice for developing countries.

Just three months later, the Declaration on Global Electronic Commerce was adopted in May 1998 at the WTO's second ministerial conference in Geneva. The declaration has two components. First, it calls on the WTO's general council to adopt at its September 1998 session "a comprehensive work programme to examine all trade-related issues relating to global electronic commerce." The council is to produce a report on the progress of work undertaken under this program, including any recommendations for action, for consideration at the next ministerial conference in 1999. Second, "without prejudice to the outcome of the work programme or the rights and obligations of Members under the WTO Agreements, we also declare that Members will continue their current practice of not imposing customs duties on electronic transmissions."⁶⁰ Of course, governments remain free to levy duties on goods ordered over the Internet and shipped through conventional means, but they are to defer doing this with products shipped directly over the Internet. The declaration is to be reviewed at the next ministerial conference, where a decision on its possible extension will be taken by consensus.

The main issues now involve the focus and organization of the work program that will help define whether and how e-commerce is addressed in a proposed "Millennium Round" of multilateral trade negotiations, which should begin in the year 2000. To facilitate the collective learning process, in April 1998 the WTO released a report outlining a range of issues in global e-commerce and the potential role of the WTO in its governance.⁶¹

As the report points out, the GATS would figure prominently in an e-commerce framework; indeed it probably applies already in many instances. For example, the Telecommunications Annex covers access to and use of public telecommunications networks for scheduled services, and there are provisions in the GODs and

the Reference Paper on access to networks as well. Similarly, the supply of Internet access services probably is covered in many countries' national schedules (10 countries made explicit commitments; others' broadly inclusive commitments on basic telecommunications could be seen as doing the same). The GATS presumably applies as well to noncommunications services scheduled under the cross-border mode of delivery (e.g. a management consulting service provided over networks). Some clarification is needed because negotiators generally were not thinking of the Internet as a delivery vehicle when the GATS was formulated. In principle, however, if they did not exclude it, then Internet delivery should be covered by their scheduled commitments. However the existing schedules are interpreted, the GATS will be the framework under which many e-commerce commitments would be undertaken in a new round. In addition, provisions of other WTO instruments may apply now and in the future to specific issues, such as the General Agreement on Tariffs and Trade (GATT), the Agreement on Trade-Related Intellectual Property Rights (TRIPS), and perhaps the Agreement on Customs Valuations, the Agreement on Government Procurement, the Agreement on Technical Barriers to Trade, and the Ministerial Declaration in Information Technology Products signed at the first WTO ministerial conference in December 1996.⁶²

Beyond solving technical or conceptual issues and reaching agreement among the major players, another major challenge for the WTO will be to involve the developing world. Though in the short-term e-commerce will likely be dominated by industrialized countries, the relatively low costs of establishing online businesses and related attributes of the Internet environment should provide developing countries with significant opportunities in many markets. At the same time, the potential of e-commerce for everyone will increase substantially if a truly global system is established. The challenge then is not only to win the support of developing countries for e-commerce negotiations and any deal that may result, but also to create the conditions under which they can actually benefit from participating in open markets.

In March 1998 the Egyptian delegation floated a paper in the WTO's Committee on Trade and Development (CTD) that sought

to ensure that developing country concerns would figure prominently in the WTO's work program. Egypt proposed, *inter alia*, that the WTO communicate with other international organizations about their e-commerce activities and inform the CTD; produce a study on how to enhance the participation of developing countries in global e-commerce and otherwise use information technology to integrate them into the multilateral trade system; and convene a special session of the CTD to address the development aspects of e-commerce; and organize a seminar on related issues in conjunction with the United Nations Conference on Trade and Development (UNCTAD) and International Trade Center.⁶³ A number of developing countries endorsed the Egyptian approach at subsequent CTD meetings and at the ministerial conference, but the industrialized countries' preference to hold back and let the General Council take the lead on framing and coordinating the program carried the day. The CTD undoubtedly will play a role in this work, though perhaps not as much of a lead role as some developing countries would like. Either way, developing countries' concerns need to be integral to the program from the outset, not treated as a minor add-ons to broaden a deal brokered by the major trading powers.

Other intergovernmental organizations also are playing important roles in establishing international rules for e-commerce. For example, members of the WIPO agreed on two highly relevant treaties in December 1996. Taken together, the Copyright Treaty and the Performances and Phonograms Treaty clarify the exclusive rights of authors and performers, or parties to which they have contractually ceded ownership, to control the reproduction and distribution of protected creations by any means, including the Internet. Explicitly covered are computer programs and compilations of data in databases where the selection or arrangement of content constitutes an independent intellectual creation, and the use of technologies allowing the circumvention of such rights is made subject to legal remedies. The entry into force of the treaties is still pending, and it remains unclear just how consistently it will be interpreted and enforced. For example, the U.S. Congress's legislation goes well beyond what was agreed internationally, thereby placating powerful copyright holders.⁶⁴ WIPO

probably will also play an important role in resolving trademark disputes concerning the DNS, and it has launched a broad investigation of intellectual property aspects of global e-commerce. Together with the WTO's TRIPS mechanisms, the WIPO undoubtedly will figure centrally in the future Internet environment.

Several international organizations are involved in efforts to develop harmonized international rules or guidelines for national legislation pertaining to trade facilitation and contracting. For example, the United Nations Commission on International Trade Law has adopted, among other things, a Model Law on Electronic Commerce and accompanying "Guide to Enactment" in June 1996 and is now working on international rules for digital signatures and certification authorities. In parallel, the United Nations Economic Commission for Europe—which was responsible for the United Nations EDIFACT (Electronic Data Interchange for Administration, Commerce, and Transport) framework for commercial EDI—has established a new Centre for Facilitation of Procedures and Practices for Administration, Commerce, and Transport and is considering programs in areas such as electronic authentication, data protection, and a revised model interchange agreement.⁶⁵ Another international body that may adopt new rules is the Bank of International Settlements, which is investigating the creation and use of electronic money.

Regional and multilateral organizations also are in the intergovernmental rulemaking mix. For example, members of the OECD have established three sets of guidelines—on privacy protection (1980), transborder data flows (1985), and encryption (1997)—that, though not legally binding, provide some normative clarity about governments' intentions on some key issues. The OECD now is pursuing a broad work program on e-commerce issues, including an October 1998 ministerial conference in Ottawa, and undoubtedly will figure prominently in building international consensus on authentication, consumer protection, privacy protection, and other issues. The EU also has a wide-ranging set of initiatives applicable to its members, and the Asia Pacific Economic Cooperation (APEC) is increasingly active in the area as well.⁶⁶

In sum, the tidiness of the old monopoly era in telecommunications, in which international collaboration on multiple issues

took place under the umbrella of the ITU, simply will not be replicated with regard to the Internet and e-commerce. A wide variety of public and private organizations will continue to play key roles on different issues, so the institutional architecture of governance will be far more complicated than is the case with most other international issue areas. This situation is fitting for a uniquely distributed medium like the Internet.

The AIRIT Discussion: Governing Global Electronic Commerce

The plenary discussions about governing global electronic commerce were as wide-ranging and vibrant as they were on the other topics. They also were a bit more exploratory and conjectural. In the cases of the WTO agreement and accounting rates, the issues are reasonably well defined and familiar, and the problem is to implement reforms in the context of well-established international frameworks. In the case of electronic commerce, the issues are more fluid and at times conceptually challenging because of the Internet's unique properties, and it is not yet clear how best to establish stable and widely supported international frameworks. As the discussion of this topic evolved, participants' observations clustered around three thematic poles: the complexity of the issues and the current inadequacy or absence of rules to address them; the potential benefits and risks of private sector self-regulation as a governance model; and the need for inter-governmental regimes and organizations in situations where self-regulation might not be enough.

Emerging Issues and Inadequate Rules

Walter Baer, senior policy analyst in the science and technology division of the Rand Corporation, kicked off the discussion. He began by noting that there are a number of emerging issues with regard to global electronic commerce over the Internet. The lack of clear international rules may in some cases stymie the blossoming of markets, and governments are moving now to adopt national policies and multilateral regimes that may help or hinder the cause, depending on the particular initiative in question. A first problem to explore, then, was: in what instances do we need shared rules to provide suppliers and consumers alike with clarity and certainty about transactions conducted over the Internet?

Baer noted that for business-to-business transactions, large companies already are beginning to work out ground rules for their contractual relations without any government involvement.

Such ad hoc commercial agreements “operate below the level of official pronouncements” and actions through practical problem-solving among market participants. This approach might be sufficient for many purposes and will facilitate rapid commercial development, although it is reasonable to expect that conflicts may arise at times. In contrast, Baer thought there is a more urgent need for a broadly recognized framework in the case of transactions involving small and medium-sized firms or individual consumers who otherwise might lack the large companies’ ability to protect their interests against fraud, abuse, privacy violations and so forth.

A second question follows: what institutional settings might provide the optimal places in which to develop such rules? Baer noted that “clearly, the ITU wants to play, and thinks it will be playing, some significant roles” in the Internet environment, as the case of domain name management attests. It also is easy to imagine that the WTO will get involved in some cases. However, what Baer thought may be more interesting, and in need of exploration, was the potential for multilateral rulemaking in private-industry organizations that would allow broad-based participation by all kinds of stakeholders. For denizens of the parallel universe in particular, this development could prove an attractive solution to certain problems. He concluded, “I personally expect this kind of de facto coordination to continue to expand, but how well it will mesh with governmental agreements remains to be seen.” Another participant agreed, noting that it was not a question of government being in or out totally, but rather what roles the two sectors would play in the process.

In the ensuing discussion, participants noted a number of issues on which either international rules are inadequate or potential conflicts exist among the national policies being adopted. One participant noted that a fundamental distinction should be kept in mind when thinking about these questions. When dealing with infrastructures, the role of government is not to be heavily involved but rather to provide a general framework. In contrast, when matters of content and services are at stake, governments inevitably will want to set rules about the kinds of content that can be provided over the infrastructure, and this situation will create conflict.

Frank Gumper agreed, adding that although the Internet works nicely for users as it is, it is not yet a truly mass market. As it becomes one, questions about privacy, security, and reliability will become real consumer issues. "When that happens, and Congressmen's phones start ringing," he predicted, "they will feel compelled to ask, 'Who is running this thing, who is controlling it, who is regulating it?'" This prospect was not attractive in the view of some participants. As Stephen Liddell said, it is highly debatable whether government involvement really is required. "The Internet has gone rather well being self-regulated," he believed.

Gumper questioned the continuing efficacy of the current style of self-regulation of the infrastructure and whether it scales well to electronic commerce issues. "The way the Internet is governed is sort of an ad hoc framework—the primary route servers are being handled by volunteers who have no contractual obligations or performance standards. They pretty much do what they want to do. Granted they have been very reliable, but if you want to see the Internet transform into the mass market for electronic commerce, can you continue to rely on this ad hoc structure?" Or has the Internet outgrown that?

Picking up on Baer's earlier points, a participant noted that governments inevitably will get involved in consumer protection issues. "If we went to Congress and said that a Mexican entrepreneur who is selling services in the United States via the Internet does not have to follow U.S. consumer protection laws, Congress would say we are crazy. There is no way you're going to convince a government that its entire structure of consumer protection laws has suddenly become null and void." Others in the group agreed that these types of cases will surface, and that it would be good if governments got it right and did not adopt unnecessarily intrusive and poorly designed consumer protections.

Similarly, Jeremy Beale stated that large firms could handle sorting the terms of their contractual relationships perfectly well by themselves, but government action may indeed be needed with regard to relations between large businesses and small and medium-sized enterprises. This issue was deemed important; the entire group appeared to agree with Ron Cross' statement that small

businesses are the key to the vitality of the Internet. As Jacob Davidson noted, the Internet really is unique in the extent to which it empowers individual entrepreneurs and small firms to participate in global commerce at very low entry costs; this factor has been key to the emergence of the parallel universe as a vital source of innovation and competition. "People can use the Web as a virtual storefront behind which you do not really know what exists," Davidson said. "If somebody wants to set up a store, in the old days they would have to get a physical store and handle a very large overhead. Today you set up a web site with your ISP, and you have a store with almost no overhead and you can start processing credit cards." Preserving an environment in which small businesses can take advantage of these opportunities, while protecting the rights of consumers, was essential, in his view.

Not everyone agreed, however, with the view that little government action was required with regard to relations among large firms. For example, Allen Miller, executive director of government affairs at Electronic Data Systems, pointed out that there were in fact cases where clear government frameworks were essential. By way of examples, he mentioned digital signatures, authentication, and encryption as areas where private-sector agreements alone might not provide sufficient guidance to facilitate business expansion. Absent government rules, large firms might seek to impose their own systems as de facto industry standards or claim that the rules agreed by others do not apply to them as well. Charles Firestone added that legal rules might be needed on how contracts are enforced, regardless of the size of the companies involved.

Christopher Wailoo, director of government affairs for American Express, also thought that the matter of digital signatures requires a clear legal framework. He stated, "If you are interested in providing travel or financial services over the Internet, and you are developing a payments system and do not want to risk being shut out by the banks, then you really need an electronic qualification standard. And in the United States, if you are looking at the prospect of about 30 or 35 different state statutes, with some being in their implementation stage while others have not been passed, you would want an overarching federal statute that pre-

empts those state laws. And it is a very short leap from the need for a coherent federal standard in the United States to the need for one on a global scale. So we are very leery about just trying to solve the problem in the private sector.”

Another issue for which there are not adequate rules involves taxation. Michael Niebel, deputy head of the cabinet of Martin Bangemann at the European Commission, suggested that although national and international laws may lag behind at the moment, anyone who believes that governments will allow the Internet to flourish as a sort of tax-and duty-free zone “is just fooling themselves.” Governments have legitimate interests to protect in this regard that obviously cannot be addressed by the private sector. Participants also pointed to the continuing battle over the management of Internet domain names as an example of what can happen when there are no widely agreed rules. Turning to issues that have both economic and social dimensions, Kevin Feather, director of business development at Daimler-Benz, Washington D.C., mentioned the equally contentious nexus of pornography, hate speech, censorship, and free speech as an area in which governments are adopting divergent national laws without any international coordination. These variations could raise problems of legal jurisdiction, cause conflict, and affect the development of global electronic commerce. Other participants expressed agreement with this assessment. Michael Kleeman added that the absence of First Amendment-type protections in most countries was sure to be a problem in any effort to set global rules.

Kleeman also pointed to the protection of personal privacy as an issue on which national laws diverged and international coordination is inadequate. For example, he noted that soon “every Internet site in the United States will be in violation” of the EU’s Data Directive protecting the integrity of personal information. Because the United States extends far less protection to sensitive information than does the EU, a variety of conflicts may arise that could negatively affect transatlantic digital commerce. If countries elsewhere adopt their own, different laws, the problem will simply mushroom, and the result will be a patchwork of incompatible rules that impede information flow around the world.

Private Institutions and Self-Regulation

These examples of issues on which there are inadequate laws or conflicting national policies seemed to indicate that internationally recognized rules will be needed in some instances. In this context, Baer's suggestion that the group identify some of the appropriate institutional settings in which to establish such rules engendered further discussion. Given the long history of extensive and not always enlightened government involvement in telecommunications and information, participants were notably cautious about the risks of governments doing too much of the wrong kinds of things in the Internet environment. Hence, the group considered the merits of building on the tradition of private coordination and management of the underlying infrastructure to develop a self-regulatory approach to commerce over the Internet.

Baer cited the IETF as an example of what could be possible. The IETF has promoted the development and adoption of the open and nonproprietary technical standards central to the Internet's exponential growth. As Baer explained, "It differs from traditional standards bodies like those of the ITU in that anybody can play,"—including through electronic submissions—and it has a long record of rapidly producing standards that are widely implemented and regarded as legitimate by diverse stakeholders. Moreover, he suggested that "it represents an interesting counter-example to established governmental organization that deserves to be considered" as a possible model for Internet commerce policy-making.

Other AIRIT participants wondered, however, if this broadly held view of the IETF as an open and democratic organization is really accurate. Gumper noted that people in his company who have attended IETF meetings reported that after the big public meetings are held with hundreds of participants, a dozen people or so would go off in some room and make all the actual decisions. "The only way to have a seat at the Internet standards table is to take over that function or to buy one of those dozen people," he said. "So I am wondering if it is really as open as it sounds, or is it really a very closed group of people who started this thing many years ago? They give the appearance of openness, but actually it is very closed."

Kleeman had similar concerns, stating that “the IETF worked very well until there was a lot more money at the table.” When major commercial stakes arise, industry bodies can be subject to capture by powerful interests. “Similar things have happened in other fora where there was pretty open debate, and all of a sudden when the markets became large enough to matter, companies would start stacking the proceedings. “Without naming names,” he added, “I am thinking in particular of a certain software company from Redmond that tends to stack meetings to implement its will.”

Another participant agreed, adding that big companies frequently impose what they want in standards organizations and other industry bodies—a dynamic that could become even more problematic as the Internet becomes an increasingly globalized medium, and people and organizations abroad want to have a fair say in the decision making. The current battle over domain names is a perfect illustration, he argued. Some leading organizations went off and negotiated what looked like an international treaty, and people outside the process realized that it would have real commercial impact on them, and nobody, including many governments, understood that it was even occurring.

Noam broadened the point. The telegraph, telephone, and radio industries in the United States all started out with competition among multiple players and then underwent waves of industry consolidation. The same dynamic is now occurring in the Internet environment, where “you have high fixed costs and very low marginal costs, which leads to instability in a very competitive environment. And the way to deal with that is to concentrate and cartelize,” as is now happening with key parts of the Internet infrastructure. Many firms prefer to collaborate rather than compete head-on, and “unless we postulate that some kind of new economic man or woman has emerged in the Internet environment, I expect that will happen here, too.”

Hence, Noam asked, how do you sustain truly open governance that caters to competition and the participation of all stakeholders by relying on private industry groups to make the international rules? “Self-regulation has this marvelous ring to it, but there is just too much on the table now. So you can say let’s do

nothing, but then you get Bill Gates and people like that. Or you can modify this and say let's do nothing, we'll have one party define the standards for the industry, then every 10 years or so we're going to break him up" with antitrust laws. "The system in fact has just run out of control," Noam concluded.

Charles Firestone responded that "it is important to keep in mind that although there have been a lot of high profile consolidations, the Internet sector is still quite diverse. For example, in the U.S. there are 4,500 ISPs. There may be fewer in two years, but it is not going to be 40. There are going to be a lot. And in the UK there are 300, and in Brazil, 350. So it's not going to be consolidated down into decision making by just a few companies."

Herbert Ungerer also had concerns about the relying too heavily on private governance. He remarked that advocates of self-regulation seem to operate on "general presumptions of innocence" that may be misplaced. For example, in the case of technical standards, people seem to assume that "when industry works together it is always best for the sector," but many of the companies involved are major players that are naturally motivated by their desire to recover investments and win the industry-wide adoption of their technologies, which may or may not be optimal from the standpoint of ensuring open competition. Ungerer concluded that there must be accountability and some measure of government oversight for any private decision-making bodies of consequence. To this Miller added the questions of how one could have authoritative solutions and enforcement through private institutions. It would be better to concentrate on how the private sector could be more effectively integrated into existing intergovernmental processes and have its voice heard.

The thrust of this conversation was striking. As participants noted, the dominant popular culture on the Internet tends to be highly skeptical of government involvement in Internet policy-making and to reflect a strong faith in self-governance and industry management. Indeed, private management of Internet infrastructure and services has worked quite well, recent conflicts over the DNS and so forth notwithstanding. Yet when it comes to the new policy issues involved in electronic commerce, many AIRIT participants, including some from the private sector, were of the

view that private self-regulation may have significant limitations in terms of accountability, authority, and enforcement, and that international agreement among governments will be required and inevitable in many instances. The question then is how to ensure that governments get it right and adopt flexible, market-enhancing international rules, rather than the sort of market constraining regulations that were prevalent in the past.

The Role of Intergovernmental Rules and Institutions

Governments have two major options for establishing widely accepted international rules. The first option is to promote the mutual recognition of national laws and regulations. This approach has been pursued within the EU for a wide range of issues. A few AIRIT participants were of the view that in the short term, mutual recognition would be the easiest way to quickly achieve a measure of order in the international policy landscape and hence reduce any uncertainties that might inhibit market development. Stuart Brotman added to this discussion a legal process consideration: “Since we have an enormous body of embedded commercial and contract laws, the courts are going to play a very powerful role in interpreting how those apply to digital commerce. Domestically and internationally, many of the issues will be decided on the basis of where they were brought in the first place, under which jurisdiction.” Moreover, Brotman noted, working some of the issues through the courts has the advantage that diverse stakeholders like consumer groups can have standing and participate in ways that they could not in international institutions.

The second approach is to enter into intergovernmental consultations and negotiations with the objective of harmonizing national laws and regulations to some extent. Most of the discussion focused on this mechanism for reducing the problem of divergent national policies. Kleeman suggested that in terms of the architecture of international cooperation, we need a distributed model—a charter or sorts—that specifies which issues will be dealt with through the market and private-sector coordination and which should be addressed in various international institutional settings.

Carlos Braga was skeptical, however, that this seemingly logical method would be feasible in practice. "The idea of one forum for each specific issue, let's forget it, we are not going to get there; it's as simple as that." Rapid technological change, particularly in the parallel universe, would challenge the efficacy of any neat division of labor among international institutions. Moreover, "real politics will play a role; governments and organizations are going to compete for relevance. Some are going to be able to show the relevance, others will not, but that process will affect things. So to expect that we're going to achieve a situation in which everyone agrees that these specific fora are going to deal with those specific issues in an environment of continuous discontinuity like the Internet is just a search for the holy grail."

As the discussion moved from the general need for international cooperation to specifics, there was surprisingly little comment on the consultations that have been underway among the quad countries, particularly between the United States and the EU. Instead, participants returned once again to the relative merits of the ITU and the WTO. With regard to the ITU, Neil McMillan noted that the computer industry would be hostile to any effort to set electronic commerce policies therein. Cross agreed; the ITU is an appropriate place to examine telecommunications standardization but not anything having to do with information services. Peter Cowhey summarized the mood by stating that although the ITU has the advantage of universal membership, "I don't think any of us expect it to be the place where a lot of the key decisions get made."

There was greater support for the WTO. One participant suggested that it will be important to extend the GATS framework to clearly cover electronic commerce over the Internet. Lee Tuthill responded that in fact, WTO rules are meant to "cover all forms of international commerce; it's just that nobody had electronic commerce in mind when they set up the provisions we have now." She noted that the WTO and OECD staff are studying the issues so they will have answers when asked how the GATS applies or might be adapted to explicitly apply. Beale added that "if the WTO is to provide a general framework for the development of electronic commerce, it will be very important that

regional groupings like the OECD and APEC get together and discuss the implementation issues with each other, because they are much closer to their member nations' industries. Countries that are members of both groups, like the United States, Canada, Australia, Japan, and South Korea, could do a lot to help advance the agenda and complete the WTO process."

Some participants were concerned about the implication that a long time would be needed to sort out the issues, define national positions, and ramp up well-organized deliberations in a multilateral setting. Such sluggishness in the political process might have constraining effects on the electronic marketplace if businesses and the financial sector hold back on making commitments because of uncertainty about the rules that eventually will apply. Gumper suggested that an initially concentrated decision-making process might be necessary to get things moving.

Gumper offered for consideration a design for infrastructure governance that he thought had parallels to the North American Numbering Council that the FCC established in the 1980s to take over management of the U.S. telephone numbering system from AT&T. An international organization would be responsible for setting framework to manage things like the main name servers, the route servers, and IP number allocations. Below this on the organizational chart would be other international groups dealing with technical standardization, policy matters, and so forth. To "kick start" the process, this nexus would be created under the administrative authority of the U.S. government, "with a clear understanding that in a very short period of time it would be migrated" to multilateral control by all concerned nations. There are some parallels here to the approach the Clinton administration is taking on the DNS issue, although Gumper's focus was more broadly framed.

Other participants were skeptical. Braga argued that having the United States launch such an organization "would be the kiss of death from the point of view of trying to create a multilateral solution. I have no doubt that the United States can move more quickly than anybody else on these topics," Braga said, but other nations would surely object to the plan. Ungerer pointed out that people around the world already are trying to figure out how to

make the transition in Internet governance and management from a state of near-unilateral control by the U.S. public and private sectors to a truly multilateral and participatory framework that matches the globalization of the medium. In that context, Ungerer said, "I think it's not a very good idea to start the new period by stating that now we will put everything in the hands of the U.S. government." Several other participants agreed that the idea was politically problematic.

In summary, given the range and complexity of the problems at hand, the AIRIT group naturally did not attempt to settle on a comprehensive approach to governance. It did identify some issues on which international frameworks are needed; consider the efficacy of expanding private-sector collaboration beyond the technical managerial domain where it is now prevalent; and come to the view that for certain kinds of problems, the potential accountability and the authority and enforcement capabilities of government inevitably will be required. In some cases, mutual recognition of national laws and regulations may suffice, but in many others international coordination and harmonization will be essential, although this process may prove difficult and slow. Finally, the AIRIT participants endorsed the recommendations of the Roundtable's global electronic commerce working group as practical first steps worthy of further consideration. These recommendations, and those of the other two working groups, are described in Chapter 5.

The Working Group Reports

On the second day of the meeting, participants broke into three working groups to discuss in more detail some of the issues surrounding implementation of the GBT deal, accounting rates, and the governance of global electronic commerce. As at the two previous AIRIT meetings, the purpose of the exercise was to formulate consensus position statements that included concrete and well-focused policy recommendations. These statements were then discussed and endorsed by all participants meeting in plenary session on the third day of the meeting.

Report of Working Group on Implementation of the WTO Agreement

Issues Related to Implementation

For the agreement to create the open global market needed to support new services more generally and electronic commerce specifically, the group concluded that WTO members will need to ensure that the commitments they and others have made are implemented in a complete and timely manner. This process can be enforced through the WTO dispute resolution procedure as a last resort, but the knowledge that this remedy is available should make it easier to encourage countries to live up to their commitments without resorting to the formal procedures. Where necessary, technical assistance also can be offered to improve implementation.

Many of the issues are unfamiliar to governments in markets, particularly in the developing world, where there has been no competition hitherto. Governments have submitted differing levels of market opening, and the group felt that those with lower levels of commitment should, after ratification of the agreement, be encouraged to broaden their offers, particularly to provide for new services. Given the more relaxed attitude to, for example, mobile services or virtual private networks (VPNs) already seen in countries with otherwise fairly closed markets, the group felt that this expectation was realistic, particularly where the new service

in question cannot be seen as a threat to the incumbent PTT. Equally, WTO countries that have not submitted offers—but can under WTO rules at any time submit such commitments—should be helped and encouraged to submit such offers, if possible before ratification. In this area, the group felt that many countries could benefit from expert advice on best practice.

The group also discussed the position of the numerous countries seeking accession to the WTO and concluded that commitments on telecommunications at least as good as if not better than those from comparable countries should be a prerequisite of accession. This issue was of particular interest with respect to countries such as China and Russia.

For all countries, the group felt that the commitments made, as well as their implementation, should include all of the issues covered in the Reference Paper, along with clear dates for liberalization of their markets. Transparent and fair interconnection arrangements were a central issue and would need to be policed by an independent regulatory body with resources and competencies appropriate to the market. The levying of license fees by the regulator was suggested as one useful method of ensuring adequate funding without creating new burdens on the national budget. The regulatory body also should provide for open and transparent regulation, drawing on as wide a range of private-sector and user opinion as possible.

The group presumed that countries that had made commitments to total market opening and the totality of the Reference Paper would permit the unbundling of network elements involved in present international traffic arrangements and see accounting rates replaced by flexible commercial arrangements closely based on domestic interconnection charges. On issues related to implementation, they offered the following recommendation:

The WTO agreement should (a) be broadened and deepened, bringing in new or improved offers from existing and new WTO members; and (b) ensure full implementation of the Reference Paper, including strong commitments to independent regulation and fair, transparent frameworks for interconnection.

Socioeconomic Aspects

The group believed that universal service, for which the Reference Paper allows countries to establish national parameters, could be achieved in many ways and that competition and universal service were by no means opposing concepts. Competition could be a powerful driver for new investment and for diversifying the sources of such investment away from the monopoly PTT or national resources alone. Such investment could lead to dramatically improved availability of basic services to the general population and to innovative services for economic actors. The advent of the Internet creates a new paradigm for these issues. An affordable, efficient telecommunications network was a major factor, in the group's view, in improving the economic competitiveness of developing and developed countries. In the specific case of developing countries—or poorer areas of the developed countries—such a network could overcome shortcomings in the physical infrastructure of the country (e.g., poor transport links) and the distance of many developing countries from centers of economic activity. The pattern hitherto in developing countries of high charges for international telecommunications service (pricing it as a luxury good) was not considered conducive to narrowing the economic gap between them and the developed world.

The group also noted that universal service could be used as a pretext to avoid or distort competition (through access charges) and that funding for universal service should be transparent and perhaps drawn from general tax revenues rather than operator revenues. On the socioeconomic aspects of the new trade framework for telecommunications services, they offered the following recommendation:

Universal service and network development should not be regarded as antithetical to competition, and all countries should be encouraged to embrace competition in telecommunications as a driver for general economic growth.

Fora for Taking These Issues Forward

The group believed that a range of bodies should be involved, including strong input from the private sector, in disseminating

the advantages of widespread and detailed implementation of the WTO agreement.

The ITU, given its wide membership, should be used as a vehicle for awareness-raising; the ITU development sector should be encouraged to give greater assistance to its members in introducing strong, independent regulatory frameworks. The ITU regulatory colloquia were a useful source of original thinking that should be widely disseminated. The ITU Policy Forum in March 1998 on trade in telecommunications could be used to widen discussion of these issues.

The group felt that the WTO should set up a telecommunications committee to discuss substantive issues, particularly with regard to implementation, and consider holding occasional workshops involving the private-sector. In the WTO, national delegations should be encouraged to conduct open consultation of private-sector and user interests in forming national positions.

The group felt that World Bank's *infoDev* program should be expanded to give developing countries advice on offers and technical assistance in setting up independent regulators. Regional telecommunications groupings such as the Asia Pacific Telecommunications or APEC Telecom, la Conférence Européenne des Administrations des Postes et des Télécommunications (CEPT), or the Caribbean Telecommunications Union (CTU) should be used to exchange information on and encourage adoption of best regulatory practice. The OECD offered a valuable resource of information and thinking on such issues and should be drawn upon, although care should be taken to avoid dismissing its views as simply those of rich man's club.

Finally, the group felt that the private sector should encourage Governments to deal with these issues and put forward imaginative new offers now and in the next WTO Services Round in 2000. Global groupings such as the Global Information Infrastructure Commission (GIIC), International Telecommunications Users Group (INTUG), and World Information Technology and Services Alliance (WITSA) could offer a valuable focus for such efforts. Thus, the group recommended the following action to move the process forward:

International intergovernmental and private-sector organizations should be urged to discuss these issues and encourage commitments to be imple-

mented and made to create an open global market for telecommunications.

Report of Working Group on Restructuring Telecommunications Traffic: Accounting Rates and Beyond

1. Globalization and technological change have undermined the traditional telecommunications accounting rate regime. Changes have been, and must continue to be, made.
2. Under the recent WTO agreement, countries that subscribed fully to market access reforms and the Reference Paper obliged themselves to provide nondiscriminatory, cost-oriented interconnection; to unbundle network components or facilities; and to provide interconnection at any technically feasible point.
3. Fully subscribed countries represent a substantial part—but by no means all—of the international telecommunications market.
4. Achieving broader coverage of the WTO agreement is important, but it will require special attention to the needs and concerns of other partially or non-subscribing countries.
5. Fully-subscribed WTO countries should work together affirmatively with a view toward achieving broader coverage. Among the steps that Group B recommends are:

Leading by example. Fully-subscribed countries should follow through with respect to the terms of the WTO Reference Paper and creating an open and fully competitive market access environment.

Reinforcement and conversion. Fully-subscribed countries need to promote greater understanding of the benefits of competition and open market access. Particularly with respect to developing countries, fully-subscribed nations need to make clear that technical assistance and other transitional help is available.

6. Existing multilateral forums should be encouraged to address accounting rate and market access reform issues. The World Bank and regional development banks have played and should continue to play a prominent role in providing technical assistance (e.g., through the World Bank's *infoDev* program). Recognizing the historic challenges that the ITU has faced, the Secretary General should convene a new, focused working group within the next 12 months. This working group should include representatives of other knowledgeable organizations, including the OECD and the EU.

Report of the Working Group on Governance of Electronic Commerce

Electronic commerce holds great promise for businesses and consumers—in encouraging innovative new businesses, creating jobs, making goods and services widely available at reasonable prices throughout the world, lowering transaction costs, and increasing international trade. In particular, it can help level the playing field for and bring new business opportunities to small and medium-sized enterprises (SMEs), as well as those in developing countries.

The working group supports the general goal of promoting the vigorous growth of electronic commerce and agrees with several basic principles that have been articulated in recent policy documents from the EC, the United States, and Japan:

- electronic commerce should be market driven and led by the private sector;
- businesses, governments, and consumers should work together to build trust and confidence in electronic commerce among buyers and sellers;
- governments should create a supportive legal/regulatory environment; specifically, restrictions on electronic commerce generally should be less than, and certainly no greater than, those that apply to conventional transactions; and,
- where government interventions are necessary, they should be transparent, predictable, consistent, and minimal.

Before electronic commerce can begin to realize its potential, however, businesses and governments must confront myriad issues and obstacles, such as those listed below:

- location of buyers and sellers;
- applicable law and jurisdiction;
- dispute resolution mechanisms;
- contract law/commercial codes;
- business licensing;
- taxes and customs duties;
- consumer protection;
- physical fulfillment of items ordered electronically;
- liabilities of sellers, carriers, and intermediaries;
- data protection and privacy;
- encryption, wiretapping, and other security issues;
- digital signatures and authentication/certification of buyers and sellers;
- electronic payment systems;
- network and service reliability (Internet governance);
- standards;
- intellectual property rights;
- advertising restrictions and/or regulation;
- restrictions on illegal or harmful content;
- criminal violations (e.g., securities fraud, money laundering, hacking); and,
- antitrust issues.

The working group identified five principal governance approaches to dealing with such issues:

- no action necessary;
- industry self-regulation;
- mutual recognition of national laws, regulations, and policies;
- international coordination of national or regional laws and policies; and,
- binding international agreements.

Clearly different governance approaches are appropriate for different issues; the policy objective should be to agree on and implement the best approach for each issue. Moreover, all of these issues are being studied by private-sector, nongovernmental, national, and international government organizations, and they are the subject of a number of legal/regulatory/policy initiatives. Consequently, the group did not try to assess or develop recommendations for each issue it identified, but rather focused on a few points that deserve priority attention.

Applicable Law and Jurisdiction

An important cluster of issues, including taxation and customs duties, business registration and licensing, buyers' rights and protections, and other aspects of business contracts/commercial codes require clarification of which laws and jurisdictions apply to electronic commerce. Here the working group found it useful to distinguish between large company business-to-business transactions (which in terms of revenue probably will dominate electronic commerce in its early years) and transactions involving SMEs or consumers. Large companies engaged in electronic commerce transactions among themselves will nearly always specify the applicable law and jurisdiction in their contracts. Because such companies are experienced negotiators and have roughly comparable bargaining powers, no additional action seems needed.

Governmental agreements may have to specify the applicable law and jurisdiction for international transactions involving SMEs or individuals that do not have such bargaining power, however. The group identified two alternative approaches for SMEs and individual consumers: a) transactions would be governed by the national commercial laws of the purchaser (similar to the legal regimes currently in place for most international sales of tangible goods); or b) a uniform international commercial code would be established for electronic commerce transactions. For the former option, the group also recommended developing "international clearinghouse" functions as described below. The latter option would require substantial discussion and negotiation, which might initially be conducted within the OECD, the UN Commission on International Trade Law, or the ICC.

International Clearinghouse for Electronic Commerce

Electronic commerce over the Internet will open up new international sales opportunities for SMEs as well as for larger firms. If mutually recognized national laws govern electronic transactions, however, many SMEs may find it difficult to operate in compliance with the national law of each purchaser. This obstacle may pose particular problems for SMEs delivering content or services directly over the Internet because these firms may not have had prior experience in dealing with customs, taxes, and other aspects of international trade.

The working group developed the concept of international clearinghouse functions for electronic commerce that would help SMEs and other firms do business over the Internet in multiple countries. Such clearinghouses initially would focus on facilitating national business licensing and tax/customs compliance for sellers over the Internet. They would not only provide firms with information about national commercial codes and tax/customs procedures but also actively help them meet the minimum requirements for doing business in each jurisdiction. In addition, clearinghouses would work closely with national authorities to simplify their procedures, documentation, and other requirements for Internet-based electronic commerce. Clearinghouse functions also might include handling required taxes and/or customs duties for Internet sellers and remitting them to the appropriate national authorities. Although many details about how such clearinghouses would be organized, financed, and (perhaps) certified by national authorities remain to be worked out, the group believed the concept deserves consideration as a way to facilitate the growth of electronic commerce across national borders, especially for SMEs.

Network Reliability and Future Governance of the Internet

While acknowledging the impressive growth of the Internet under its current, largely voluntary governance processes, the working group agreed that the Internet must become more reliable and robust to serve as the vehicle for mass-market electronic commerce. The current, well-publicized problems surrounding

the DNS and regional IP address management indicate that high priority should be placed on developing a more rigorous and clearly international governance structure for the Internet.

In the group's view, Internet governance should remain primarily within the private sector and should be representative of the growing international character of Internet equipment and service providers, as well as users. To enable this governance group to play a strong role in international coordination, however, it should be chartered by an international governmental body. As an interim step to expedite the process, the Internet governance group could be chartered initially by a U.S. government agency, with an explicit agreement to transfer it to an appropriate international intergovernmental body as quickly as possible.

Other Priority Issues

The working group identified data protection and privacy, digital signatures/authentication, encryption and related security issues, and the control of illegal content as among the other priority issues that must be resolved for electronic commerce to expand and bring about its potential economic and social benefits. Resolving these issues will require intergovernmental agreements and coordination, as well as continuing private-sector efforts.

Conclusion: From Principle to Practice

With the passing of the long and sleepy monopoly era, global Telecommunications has become an incredibly dynamic and rapidly changing field. The interaction of technological innovation, shifting corporate strategies, and the liberalization of national and international policy frameworks in this environment is constantly generating new challenges and redefining the issues faced by governments and firms and the terms in which they are debated. The AIRIT series has reflected this fluid state of affairs.

The first AIRIT meeting, held at Aspen in July 1995, explored a range of topics that were then being debated under the umbrella rubrics of the “global information infrastructure” (the American formulation) and the “global information society” (the more socially-oriented European alternative). This first AIRIT meeting took place at a time when the Internet was just emerging as a major reconfigurative force on the global communications landscape, Vice President Al Gore was popularizing the notion of an “information superhighway,” and governments across the industrialized world were rushing to put together vision statements (everyone had to have one, it seemed) and strategies to grow their “national information infrastructures.” There was widespread anticipation of the broadband convergence of telecommunications, cable television, and other traditional media systems. Washington, D.C., was obsessed with sometimes arcane battles over provisions of what would become the Telecommunications Act of 1996; other governments and the EU were embarking on related legislative and regulatory reform programs geared to unleashing competition and convergence; and the distributed information revolution, based on the marriage of personal computing and the Internet and the digitization of everything, was beginning to redefine and expand our collective sense of the possible.⁶⁷

The first AIRIT’s major conclusions were that all governments should move toward competition in all media markets; that concerns about cultural integrity did not justify restrictions on the

flow of content in the new media environment; that more attention would be needed to the social dimensions of the transformation, such as the preservation and expansion of universal service; and that limitations on international investments in and foreign ownership of media systems should be eradicated.⁶⁸ Needless to say, there has been a substantial amount of action on these principles since the meeting was held.

The second AIRIT conference, held in Berlin in June 1996, carried this agenda further. Here participants focused on the need to foster the development of multimedia services—whether they are conveyed over the Internet, PTO-operated broadband telecommunications networks, cable television networks, or some other medium. Social dimensions such as public interest obligations and noncommercial applications of the technology, the preservation of personal privacy and intellectual property rights, and the public demand for and use of new media systems were all considered. The group reached consensus on a number of items, such as the potential desirability of relying more on antitrust laws than regulation when fully competitive markets are established; the priority of expanding universal service to include advanced telecommunications services for education, libraries, training, and health care; the need to promote consumer access to and confidence in broadband networks and multimedia services delivered to the home; the importance of cultural and linguistic diversity and of controlling offensive content without unduly restricting free speech (e.g., through software tools); and the need to pass a strong WTO deal on basic telecommunications, which was still pending at the time.⁶⁹ Once again, there subsequently has been progress on many of these points, although in some cases there has been backsliding as well.

By the third AIRIT conference, the international debate was shifting in tandem with trends in technologies and markets. Broadly defined notions of information superhighways, information infrastructures and societies, and media convergence have given way to a significant extent to more precise formulations and objectives. In the United States, at least, one rarely hears these terms used anymore—everyone is back to talking about telecommunications and the Internet. Indeed, to the extent that there is

multimedia convergence in the offing, the Internet has emerged as its focal point and driving force. Internet telephony, Internet webcasting, Internet television, Internet appliances, Internet commerce, and so on are the order of the day—not “500 channels” of interactive television services and proprietary platforms provided by PTOs, cable companies, and the like. At the same time, the enactment and implementation of the GBT deal on basic telecommunications services and the growing crisis of the international accounting and settlements system present the real possibility of a substantial restructuring of the global marketplace. Accordingly, the third AIRIT meeting shifted the focus to address these matters.

On the GATS and basic telecommunications, there generally was strong consensus that the new trade framework provides an auspicious institutional basis for significantly increased international competition; indeed, there already are signs of companies using their new freedoms to that end. Participants agreed that the main action items now are to use the framework to make sure that governments fully comply with their commitments; to reconcile competition and universal service obligations, which should not be viewed in overly dichotomous terms; and to broaden and deepen the agreement in terms of the issues it covers and the governments that accept it. There was some ambiguity, however, about whether the group as a whole also supported the establishment of a trade committee in the WTO or the formal institutionalization of regulatory cooperation.

On the international accounting and settlements system, participants agreed to disagree on whether the FCC’s Benchmark Order is good, bad, or just plain ugly (but useful). Clearly, everyone preferred that reform be pursued on the basis of strong international consensus, but there was almost no optimism that multilateral cooperation in the ITU’s Study Group 3 would soon yield any significant progress. Nevertheless, there generally was support for the ITU Secretary General and his staff to continue their consciousness-raising and consensus-building efforts, and the working group called for him to establish a new, broadly inclusive expert group to pursue these ends. Whether the focus group created by the 1998 WTPF will serve this purpose is unclear, given its narrow mandate and strong ties to Study Group 3. AIRIT par-

ticipants also agreed that other international institutions, such as the World Bank, have played constructive roles in the past, and that activities in this area should be expanded. Lastly, the AIRIT participants felt that more must be done in terms of technical assistance to get the developing countries on board with reform.

On global electronic commerce, participants shared the widespread view that it could really take off and become a substantial new source of wealth creation in the coming years. However, there are many barriers to its expansion that must be addressed before that can happen, most notably the absence of stable, widely supported global governance structures. Participants agreed that particular attention to the relationships between large firms and consumers and SMEs is merited, but that more broadly applicable rules may be needed as well. The working group recommended the establishment of an international clearinghouse to help SMEs and other firms do business over the Internet, and all participants concurred that governance necessarily would be based on a distributed architecture in which both industry self-regulation and intergovernmental harmonization would come into play, depending on the issues in question (In the period since the meeting was held, the international community has made some substantial progress, most notably through the OECD, on some of the issues—such as authentication—that were mentioned in the AIRIT working group report and discussed in the plenary sessions.). The next step, then, is to define more precisely which approach is optimal, and when, and to broaden the focus from commerce over the Internet to a more detailed examination of governance issues concerning the underlying infrastructure. The way in which the Internet is organized, and the extent to which its governance truly reflects the globalization of the medium, will have direct effects on the prospects for electronic commerce around the world and indeed on the future evolution of global communications more generally. As such, the next AIRIT meeting, to be held in Japan in the fall of 1998, will take up the problem of Internet governance in more detail.

Endnotes

1. The 55 schedules (covering 69 governments) annexed to the Fourth Protocol of the General Agreement on Trade in Services in February 1997 cover the following countries: Antigua and Barbuda, Argentina, Australia, Bangladesh, Belize, Bolivia, Brazil, Brunei Darussalam, Bulgaria, Canada, Chile, Columbia, Cote d'Ivoire, the Czech Republic, Dominica, Dominican Republic, Ecuador, El Salvador, the European Union and its members states, Ghana, Grenada, Guatemala, Hong Kong, Hungary, Iceland, India, Indonesia, Israel, Jamaica, Japan, Korea, Malaysia, Mauritius, Mexico, Morocco, New Zealand, Norway, Pakistan, Papua New Guinea, Peru, the Philippines, Poland, Romania, Senegal, Singapore, Sri Lanka, Switzerland, Slovak Republic, South Africa, Thailand, Trinidad and Tobago, Tunisia, Turkey, the United States, and Venezuela. Barbados, Cyprus, and Suriname are three recent additions. Pakistan and Switzerland have improved their national schedules since the deal was struck.
2. Summaries of the GBT deal and related materials are available at the WTO's web site (<http://www.wto.org/wto/services/tel.btm>). Additional materials and a transcript of a virtual conference held on the web regarding the GBT deal can be found at <http://www.ctr.columbia.edu/vi/wto>.
3. The texts of the relevant EC Directives and related resolutions, decisions, and studies can be found on the World Wide Web at <http://www.ispo.cec.be/infosoc>.
4. In brief, under the accounting and settlements system, carriers freely establish retail prices for consumers, called collection charges, which are typically set in local currency units. Separate wholesale prices, called accounting rates, are negotiated between corresponding carriers and set in international currency units like the U.S. dollar or special drawing rights (SDRs). The accounting rate is used to fix the price, called a settlement rate, that the originating carrier pays the receiving carrier to terminate a call in its national network. The settlement rate typically is one-half the accounting rate and is paid only on the surplus of outbound over inbound minutes of traffic. This arrangement works fairly well when flows are reasonably balanced and where there is not significant competition. However, the asymmetric liberalization of international services that began in the 1980s and related factors have produced substantial traffic imbalances. Payments deficits have resulted on the part of comparatively low-cost and liberalized countries such as the United States that send much more traffic than they receive.
5. Federal Communications Commission, *In the Matter of International Settlement Rates—Report and Order*, FCC 97-280, Docket No. 96-261, adopted August 7, 1997. Available on the World Wide Web at <http://www.fcc.gov>.
6. U.S. Department of Commerce, *The Emerging Digital Economy*, April 1998, 7. Available at <http://www.ecommerce.gov/emerging.btm>.
7. Things did not exactly get off to a roaring start on this score. By early 1998, when the GBT deal was scheduled to enter into force, 15 of the signatory governments had yet to ratify the deal. In consequence, the United States delayed full implementation of its commitments. Together with the entry conditions that the FCC established for foreign carriers charging accounting rates above its benchmarks, this action has led to charges that the United States is reluctant to abide fully by the free trade disciplines it has championed over the years. In contrast, the EU moved forward with the new GATS com-

mitments and its own internal reforms. The predictable result of this asymmetry was assertions such as this from an EC official: "We think the U.S. position is a maneuver to test market access in Europe before giving us market access in the U.S." (quoted in David Malony, "WTO Basic Agreement Put on Hold as Signatories Clash Over Timetable," *Communications Week International*, January 19, 1998: 27).

8. On the historical development and substance of the international telecommunications regime, see William J. Drake, "Asymmetric Deregulation and the Transformation of the International Telecommunications Regime," in *Asymmetric Deregulation: The Dynamics of Telecommunications Policies in Europe and the United States*, ed. Eli M. Noam and Gerard Pogorel (Norwood, N.J.: Ablex, 1994): 137-203.
9. *International Simple Resale (ISR)* is the resale of switched services using privately leased circuits that are interconnected with public networks. International leased circuits are priced on a flat rate basis; the traffic they carry is not subject to the international accounting and settlements system. For outbound traffic, incumbent facilities-based carriers have strong incentives to bypass the system in this manner because they can levy per minute collection charges on their customers without having to pay settlements on any surplus of minutes sent abroad. ISR also is very attractive to new market entrants because they do not have to invest in building facilities. For inbound traffic there obviously is less incentive to allow ISR (given the loss of settlements revenue) unless a carrier also gains assurances that it can send back such traffic and have it terminated in its foreign correspondent's network. The FCC has prohibited "one-way bypass" and insists that ISR relationships with the United States must involve reciprocal market access. Other countries, such as the United Kingdom, Sweden, New Zealand, and Australia, have taken a more liberal approach, believing that competition and consumer interests will be promoted even if their carriers are not protected by strict reciprocity.
10. *Call-back* is the reversal in direction of an international call to bypass high collection charges in the outbound country; it typically is provided by resellers in competition with incumbent facilities-based carriers. In the most common approach, a customer in country A calls a number in country B that has low collection rates (typically, the United States) and hangs up after a certain number of rings without being charged. Having thus been signaled, a computer at the number then "calls back" the customer and provides a dial tone that can be used to place the international call as if it actually originated in the low-cost country B. The traffic remains within the accounting and settlement system and is treated as a normal outbound call from country B to country A. Although country A carriers will receive settlements payments on the inbound traffic if there is a surplus in the relation, the loss of collections revenue is strongly objectionable to many of them. As such, many (mostly developing) countries have stated their desire to restrict call-back and tried unsuccessfully to win a multilateral ban in the ITU, although far fewer have adopted specific legal prohibitions. The FCC does not authorize resellers to provide the call-back to countries that have done so.
11. *Refile*, like call-back, is a form of traffic reorigination, but it typically is provided by facilities-based carriers rather than resellers, and it is initiated to limit carriers' settlements outpayments rather than customers' collection charges. If the combined accounting rates between country A and country B and between country B and country C are lower than the rate between country A and country C, a carrier in country A may route its traffic to country C via country B. Accounting and settlements liabilities can be reduced even further if ISR is permitted between two of the countries, so that the traffic is carried over privately leased circuits at flat rates and then breaks back into the public switched telephone network (PSTN) and normal joint service relationships. The carrier in country C is the loser, in that its inbound settlements revenue have been reduced. Refile is proscribed under ITU instruments but is flourishing anyway.

12. *Internet telephony* is the transmission of voice signals over the Internet to bypass the high collection charges and accounting and settlements rates associated with traditional calling over PSTNs. Initially, Internet telephony was restricted to computer-to-computer transmissions, required that both users were online simultaneously and using the same software applications (and of course, a sound card in their computers), and often provided uneven sound quality. The technology has advanced rapidly in the past few years, however, and gateways interconnecting the packet-switched Internet and the circuit-switched PSTNs have been established to facilitate telephone-to-telephone transmissions of a quality that is increasingly comparable to that of traditional telephony. A growing number of PTOs have decided to join rather than fight this blossoming market, even though it bypasses their traditional tariff and accounting rate systems. This development is especially prominent in the booming Intranet market geared toward corporate customers. Some other countries' carriers, however, view Internet telephony in zero-sum terms and have endeavored to restrict such Internet-PSTN gateways.
13. On the processes of bridge-building between the telecommunications and trade communities, see William J. Drake and Kalypso Nicolaïdis, "Ideas, Interests and Institutionalization: 'Trade in Services' and the Uruguay Round," *International Organization* 45 (Winter 1992): 37-100.
14. The final opinions approved by the meeting, the Secretary General's background report (prepared by the Informal Expert Group), Chairman McMillan's report, and other documents related to the Second World Telecommunication Policy Forum are available at <http://www.itu.int/wtpf>.
15. At the Policy Forum, the ITU and the World Bank pledged a further \$1.5 million to support such dialogue to help developing countries establish effective regulators.
16. The GODs concern the following issues: MFN; transparency; disclosure of confidential information; increasing participation of developing countries; economic integration agreements and a corollary on labor market integration; domestic regulation; mutual recognition of standards or criteria for the authorization, certification, and licensing of service suppliers; monopolies and exclusive service providers; business practices; emergency safeguard measures; payments and transfers; restrictions to safeguard the balance of payments; government procurement; general exceptions; national security exceptions; and subsidies. See World Trade Organization, *The Results of the Uruguay Round of Multilateral Trade Negotiations: The Legal Texts* (Geneva: WTO, 1994), 329-341. On their application to telecommunications, see G. Russell Pipe, *Trade of Telecommunications Services: Implications of a GATT Uruguay Round Agreement for ITU and Member States* (Geneva: ITU, 1993); and *Trade Agreements on Telecommunications: Regulatory Implications—Briefing Report No. 5 of the International Telecommunication Union Regulatory Colloquium* (Geneva: ITU, 1996).
17. For a discussion of the challenges posed by the Telecommunications Annex, see Lee Tuthill, "Users' Rights? The Multilateral Rules on Access to Telecommunications," *Telecommunications Policy* 20 (March, 1996): 89-99.
18. According to the WTO, 47 of the schedules (covering 61 governments) commit to competitive supply of voice telephony by two or more providers in at least one market (with phase-in periods for 25 countries). In further detail, 41 schedules (55 governments) made commitments on local service, 37 schedules (51 governments) made commitments on domestic long distance, and 42 schedules (56 governments) made commitments on international service. Resale of public voice services is included in 28 schedules (42 governments). For nonvoice services, 49 schedules (63 governments) made commitments on data transmission; 41 schedules (55 governments) allow com-

petition in the supply of leased circuit capacity; 46 schedules (60 governments) allow market access for cellular mobile services; 45 schedules (59 governments) include commitments on other types of mobile services, such as personal communications services, mobile data, or paging; 37 schedules (51 governments) made commitments on some or all kinds of mobile satellite services or transport capacity; 36 schedules (50 governments) made commitments on fixed satellite services or transport capacity; and 8 governments scheduled additional commitments on value-added services such as electronic mail, online data processing, and database retrieval.

19. Michael Tyler and Carol Joy, *1.1.98—Telecommunications in the New Era: Competing in the Single Market* (London: Multiplex Press, 1997), 33.
20. Lee Tuthill, "The GATS and New Rules for Regulators," *Telecommunications Policy* 21 (November/December, 1997): 783.
21. The Benchmark Order revises downward the settlement rate benchmarks established in 1992 and adds to the threat of enforcement if U.S. carriers fail to achieve them in negotiations with foreign correspondents by specific dates. The new rates and transition deadlines are differentiated on the basis of the national income of the corresponding countries: \$0.15 per minute within one year with upper-income countries, \$0.19 per minute within two years with upper-middle-income countries, \$0.19 per minute within three years with lower-middle-income countries, \$0.23 per minute within four years with lower-income countries, and \$0.23 per minute within five years with countries that have a teledensity of less than one. The Order leaves open what will happen if these levels are not reached on time, but the FCC previously has indicated that enforcement measures might include directing U.S. carriers to pay a settlement rate no higher than the relevant benchmark. See Federal Communications Commission, *In the Matter of International Settlement Rates—Report and Order*, 1997 (available at <http://www.fcc.gov>).
22. A longstanding foundational principle of the FCC's international settlements policy, proportionate return requires that U.S. international carriers' respective shares of inbound traffic be the same as their share of outbound traffic. The FCC says this requirement is necessary to safeguard against foreign monopolists abusing their market power by "whipsawing" U.S. carriers, or playing them off against each other to secure a better deal in exchange for the traffic. Critics point out that the policy is a barrier to market entry within the U.S. market for traffic origination because it reinforces the positions of incumbents; it provides those incumbents with incentives to garner outbound traffic through reorigination that may be contrary to the interests of their foreign correspondents (e.g. refile and hubbing); and it is no longer necessary because the GATS will break down foreign monopolies and stimulate the growth of alternatives to accounting and settlements. The FCC acknowledges these problems but says it must stick with its current position until there is substantial international competition.
23. For a fairly controversial and acerbic statement of this and related views, see Maev Sullivan, "Why is the United States Whining About its Own Creation?" *Communications Week International* 177 (January 20, 1997), available at <http://www.emap.com/cwi/177/177news14.html>.
24. International Telecommunication Union, *World Telecommunication Development Report, 1996/97: Trade in Telecommunications* (Geneva, ITU, 1997), 92-93.
25. See ITU and TeleGeography Inc., *Direction of Traffic: International Telephone Traffic*, 1996 (Geneva: ITU, 1996).

26. "We at no time in this Order assert that we have the authority to compel directly a foreign carrier to charge a certain rate for terminating U.S.-originated traffic. Instead, the rules we adopt here apply only to the settlement rates that carriers subject to our jurisdiction may pay for termination of U.S.-originated traffic. We recognize that our settlement rate benchmark may over time reduce the settlement revenues that many foreign carriers receive from U.S. carriers, and this in turn could lead some foreign carriers to change the rates they charge their customers. However, our responsibility must be to address the inequity and inefficiency of an accounting rate system that subsidizes foreign carriers at the expense of U.S. consumers." Federal Communications Commission, *In the Matter of International Settlement Rates—Report and Order*, 142, at <http://www.fcc.gov>.
27. International Telecommunication Union, *International Telecommunication Regulations—Final Acts of the World Administrative Telegraph and Telephone Conference, Melbourne, 1988* (Geneva: ITU, 1989): 31.
28. During the GBT negotiations, Australia floated a proposal that separated "termination services" be scheduled, but the idea was not endorsed by other governments that felt that enhanced competition would reduce accounting rates over time. Moreover, after five governments placed MFN exemptions on accounting rates in their national schedules, a "gentleman's agreement" was reached not to submit accounting rate issues to the WTO dispute resolution mechanism. This understanding is to be reviewed no later than the launching of the next multilateral trade negotiation in the year 2000.
29. Tyler and Joy, *1.1.98—Telecommunications in the New Era*, 44-45 and 57.
30. See Federal Communications Commission, *In the Matter of Rules and Policies on Foreign Participation in the U.S. Telecommunications Market—Market Entry and Regulation of Foreign-Affiliated Entities*, FCC 97-398, IB Docket No. 97-142 and 95-22, adopted November 25, 1997, at <http://www.fcc.gov>. The FCC has, among other things, eliminated the ECO test for applications by carriers from WTO-member countries to provide facilities-based, resold switched, or resold non-interconnected private line services; for authorizations of U.S. carriers to provide switched, basic services over facilities-based or resold private lines between the United States and WTO countries; and, in a revision of the 1996 "Flexibility Order" on accounting rates, when determining whether to allow a U.S. carrier to enter into an alternative settlement arrangement with carriers from WTO countries. These measures can be regarded as encouraging the development of new modes of operation, albeit within certain limits.
31. Without delving into the details of the TSLRIC methodology, the FCC used foreign carriers' publicly available tariffs (recognizing that these rates may still be well above actual costs) to determine the cost of the three major components—international half-circuits, international switching exchanges, and national extensions—that are bundled together to set rates, and set prices that are supposed to cover a risk-adjusted return on capital and a contribution to foreign carriers' common costs.
32. For example, "the average cost of installing a new line varies from a few hundred dollars in economies such as China to several thousand dollars in parts of Africa." Tim Kelly, "Ten Propositions for Accounting Rate Reform," paper presented at the ITU 's Asia Telecom 1997, June 1997, 6. Available at http://www.itu.int/ti/papers/10_props/10_props.doc.
33. Tim Kelly, "Ten Propositions for Accounting Rate Reform," 6.
34. Federal Communications Commission, *In the Matter of International Settlement Rates—Report and Order*, 1997, 6-7.

35. ITU-T study groups organize their work into four-year study periods, at the conclusion of which recommendations are formally adopted at the sector's World Telecommunication Standardization Conference. Since 1989, recommendations deemed a priority by 70 percent of responding members have been subject to accelerated approval procedures; this approach has improved time to market in many cases. Decisions are taken on the basis of consensus, which often slows the process and, when participants are divided in their interests, can result in least-common-denominator compromises. In addition, Study Group 3 currently meets only twice a year, which also slows the pace of the reform process.
36. Recommendation D.140 lays down general accounting rate principles for international telephone services, whereas Recommendation D.150 establishes more specific mechanisms for such accounting, and D.155 deals with the apportionment of rates (and, parenthetically, endorses revenue sharing on bases other than 50:50 if both administrations agree—which is rare). These recommendations are available on the ITU's web site (<http://www.itu.int>). The ITU-T also adopts separate accounting Recommendations for specific types of services (e.g. mobile services, record services, and so on). Because very few members were willing to accept an obligation to make their rates truly transparent, the recommendation called on members to provide the sector's director with aggregate data on rates for international telephony so that at least general trends could be tracked.
37. In a 1996 report, the Study Group's leadership stated that between 1991 and 1995, accounting rates had fallen by about 70 percent between Europe and North America, 30 percent within Europe, and 40 percent between Europe and Asia/Oceania (settlement rates presumably would have decreased by half these amounts). Proponents of rapid reform, however, questioned the veracity of these figures and noted that there was thin evidence of similar progress in other relations, for example, between the United States and developing countries.
38. ITU Secretary General, "Consultation Document on Accounting Rate Reform: Study Group 3 Contribution," September 1996 (available at <http://www.itu.int>).
39. "Recommendations of the Informal Expert Group on International Telecommunication Settlements," April 9, 1997, (available at <http://www.itu.int>).
40. Quoted in Susan Carroll Schorr, "Settlements Issue Nearly Swamps ITU Policy Forum," *Telecommunications Reports International*, March 27, 1998 (available at <http://www.tr.com>).
41. William J. Drake and Eli M. Noam, "Assessing the WTO Agreement on Basic Telecommunications," in *Unfinished Business: Telecommunications After the Uruguay Round*, ed. Gary Clyde Hufbauer and Erika Wada (Washington, D.C.: Institute for International Economics, 1998): 27-61.
42. For a discussion see Organization for Economic Cooperation and Development, "Information Infrastructure Convergence and Pricing: The Internet," OCDE/GD(96)73 (Paris: OECD, 1996), at <http://www.oecd.org>. Among other things, the study empirically demonstrates that in the OECD region, competition in telecommunications infrastructure leads to lower prices for ISPs using leased circuits, lower prices for consumers using dial-up access services, and a greater level of Internet hosts than is the case in monopoly markets. Similar points are made regarding the developing world in Ben Alfa Petrazzini, "Explaining Variations in Internet Deployment Across Developing Countries," paper presented at INET 98, Geneva, July 21-24, 1998 (available at <http://www.isoc.org>).

43. For an exceedingly useful overview of the issues, see Organization for Economic Cooperation and Development, "Internet Traffic Exchange: Developments and Policy," DSTI/ICCP/TISP(98)1 (Paris: OECD, 1998), available at <http://www.oecd.org>.
44. For an excellent discussion of some of the issues raised, see Organization for Economic Cooperation and Development, "Webcasting and Convergence: Policy Implications," OCDE/GD(97)221 (Paris: OECD, 1997), available at <http://www.oecd.org>.
45. See, for example, David R. Johnson and David G. Post, "The Rise of Law on the Global Network," in *Borders in Cyberspace: Information Policy and the Global Information Infrastructure*, ed. Brian Kahin and Charles Nesson (Cambridge, Mass.: MIT Press, 1997): 3-47.
46. The White House's "A Framework for Global Electronic Commerce" and related materials are available at <http://www.ecommerce.gov/framework.htm>.
47. The European Commission's report, "A European Initiative in Electronic Commerce," and related documents are available at <http://www.ispo.cec.be/infosoc>.
48. The documents from the Bonn Summit on "Global Information Networks" are available at <http://www2.echo.lu/bonn/conference.html>.
49. A useful overview of the problem is presented in Kenneth Neil Cukier, "Rich Man, Poor Man: The Geo-Politics of Internet Policy Making," paper presented at INET 98, Geneva, July 21-24, 1998.
50. Sharon Eisner Gillett and Mitchell Kapor, "The Self-Governing Internet: Coordination by Design," in *Coordinating the Internet*, ed. Brian Kahin and James H. Keller, (Cambridge, Mass.: MIT Press, 1997), 3.
51. This estimate is from Organization for Economic Cooperation and Development, "Internet Domain Names: Allocation Policies," OCDE/GD(97)207 (Paris: OECD, 1997), 12, (available at <http://www.oecd.org>).
52. The text and many related documents are available at <http://www.gtld-mou.org>.
53. For a sample of such sentiment from a leading critic of the plan, see Anthony M. Rutkowski, "The Internet: Governance Up for Grabs?" February 26, 1997, at <http://www.wia.org/pub/forgrabs.html>. See also the criticisms of the Domain Name Rights Coalition at <http://www.domain-name.org>.
54. The Commerce Department policy papers and related materials are available at <http://www.ntia.doc.gov>.
55. See the documents at <http://www.ifup.org> for more on the current process.
56. See, for example, David R. Johnson and David G. Post, "The 'New Civic Virtue' of the Internet," in *The Emerging Internet—1998 Annual Review of the Institute for Information Studies* (Queenstown, Md.: Aspen Institute, 1998): 23-57.
57. See, for example, the keynote address by Secretary General Pekka Tarjanne, "Internet Governance: Towards Voluntary Multilateralism," delivered at the meeting of signatories of the gTLD MoU, Geneva, April 29, 1997 (available at <http://www.itu.int>).

58. Milton L. Mueller, "The Battle Over Internet Domain Names: Global or National TLDs?" *Telecommunications Policy* 22 (1998): 103.
59. International Telecommunication Union, *Challenges to the Network: Telecoms and the Internet* (Geneva: ITU, 1997), 4; emphasis in the original.
60. World Trade Organization, "Declaration on Global Electronic Commerce," WT/MIN(98)/DEC/2, May 20, 1998, at <http://www.wto.org/wto/anniu/ecom.btm>.
61. World Trade Organization, *Electronic Commerce and the Role of the WTO—Special Studies 2* (Geneva: WTO, 1998).
62. The Information Technology Agreement was signed by Australia; Canada; the European Union (15 countries); Hong Kong, China; Iceland; Indonesia; Japan; Korea; Liechtenstein; Norway; Separate Customs Territory of Taiwan, Penghu, Kinmen, and Matsu; Singapore; Switzerland; Turkey; and the United States. These 28 signatories—which include some in the process of acceding to the WTO—represent approximately 93 percent of world trade in information technology products. Since the ministerial conference, 14 more countries have signed the agreement: the Czech Republic, Costa Rica, El Salvador, Estonia, India, Israel, Macau, Malaysia, New Zealand, the Philippines, Poland, Romania, the Slovak Republic, and Thailand. Signatories have bound themselves to eliminate customs and other duties and charges on a range of information technology products, which at least indirectly can be viewed as constituting rules for e-commerce.
63. See "Electronic Commerce in Goods and Services—Communication from the Delegation of Egypt," Committee on Trade and Development, World Trade Organization, WT/COMTD/W/38, March 3, 1998.
64. Prior to the WIPO negotiations, major corporate owners pushed—with the support of a compliant U.S. Patent and Trademark Office—for a variety of measures that would have allowed owners to lock up public domain materials and damage fair use, impede encryption research, claim copyright over facts and materials in databases where no independent intellectual creation is involved, and essentially outlawed legitimate and non-infringing use of reproduction technologies. These efforts were defeated after a hard-fought campaign on the part of a diverse coalition of educators, librarians, researchers, and companies in the computer and Internet industries. Unhappy with the outcome, "Big Content" is pushing to regain lost ground with the implementation legislation. For background, see the website of the Digital Futures Coalition (<http://www.dfc.org>).
65. For an overview of these and related initiatives, see United Nations Conference on Trade and Development, "Electronic Commerce: Legal Considerations," UNCTAD/SDTE/BFB/1, May 15, 1998.
66. The OECD's work and reports on e-commerce issues are available at <http://www.oecd.fr/dsti/sti/it/ec/index.btm>. The materials from the Ottawa ministerial conference are available at <http://www.oecd.fr/dsti/sti/it/ec/news/ottawa.btm>.
67. The apt term, "distributed information revolution," was coined in Peter F. Cowhey, "Building the Global Information Superhighway: Toll Booths, Construction Contracts, and Rules of the Road," in *The New Information Infrastructure: Strategies for U.S. Policy*, ed. William J. Drake, (New York: Twentieth Century Fund, 1995): 175-204.
68. See Kenneth G. Robinson, rapporteur, *Building a Global Information Society: Report of the Aspen Institute Roundtable on International Telecommunications, July 26-30, 1995*

(Washington D.C.: Aspen Institute, 1996) available at <http://www.aspeninst.org/dir/polpro/CSP/Abstracts/BGIS.html>.

69. See Kenneth G. Robinson, rapporteur, *Bits Across Borders: Policy Choices for International Multimedia and Digital Services—Report of the Second Aspen Institute Roundtable on International Telecommunications, June 19-22, 1996* (Washington D.C.: Aspen Institute, 1997) available at <http://www.aspeninst.org/dir/polpro/CSP/C%26sPubs/airit96/airit96-front.html>.

APPENDIX



The Third Annual Aspen Institute
Roundtable on International Telecommunications

*Sustainable Competition in Global Telecommunications:
From Principle to Practice*

Conference Participants

September 14–17, 1997
Aspen, Colorado

Mr. Donald Abelson	Chief Negotiator Communications and Information Office of the U.S. Trade Representative, United States
Dr. Walter S. Baer	Deputy Vice President RAND Corporation United States
Dr. Jeremy Beale	Policy Analyst and Administrator Organisation for Economic Cooperation and Development France
Mr. Carlos Braga	Principal Economist Telecommunications and Informatics Division Acting Program Manager Development Program The World Bank United States

Note: Titles and affiliations are as of the date of the conference.

- Mr. Stuart N. Brotman** Lecturer
Harvard Law School
- President
Stuart N. Brotman
Communications
United States
- Mr. Peter Cowhey** Professor
University of California at
San Diego
United States
- Mr. Ron Cross** Vice President
Regulatory Policy
Nortel Networks
United States
- Mr. Jacob Davidson** Chairman
Delta Three
Israel
- Dr. William Drake** Associate Director
Communications, Culture,
and Technology Program
Georgetown University
United States
- Mr. Charles Firestone** Interim Executive
Vice President,
Policy Programs; and,
Director, Communications
and Society Program
The Aspen Institute
United States
- Mr. James E. Graf II** President
British Telecommunications
North America
United States
- Mr. Frank Gumper** Vice President
Long Range Public Policy
Bell Atlantic
United States

Note: Titles and affiliations are as of the date of the conference.

Dr. Heather Hudson	Director Telecommunications Management and Policy Program McLaren School of Business University of San Francisco United States
Mr. John Jensik	Director International Regulatory Policy GTE Service Corporation United States
Mr. Michael J. Kleeman	Vice President The Boston Consulting Group United States
Mr. Larry Lafaro	General Attorney AT&T United States
Mr. Stephen Liddell	President Asia-Pacific Region WorldCom International Hong Kong
Mr. Neil McMillan	Director International Communications Department of Trade and Industry England
Mr. Allen Miller	Executive Director Office of Government Affairs EDS United States
Mr. Michael Niebel	Deputy Head of the Cabinet of Mr. Martin Bangemann The European Commission Belgium

Note: Titles and affiliations are as of the date of the conference.

- Dr. Eli Noam** Professor of Finance and
Economics
Columbia Institute for Tele-
Information
Columbia University
United States
- Mr. Kenneth G. Robinson, Jr.** Telecommunications Attorney
United States
- Mr. Jean-Paul Simon** Directorate of Public Affairs
National and European
Regulation
France Telecom
France
- Mr. Eric Spivey** President
Netcom International
United States
- Mr. Hiroyuki Tanaka** Advisor, Ministry of Posts and
Telecommunications
Japan
- Ms. Lee Tuthill** Counsellor
Trade in Services Division
World Trade Organization
Switzerland
- Mr. Herbert Ungerer** Head of Telecommunications,
Postal Services and
Information Society Issues
The European Commission
Belgium
- Mr. Chris Wailoo** Director
Government Affairs
American Express Company
United States

About the Author

William J. Drake is a senior associate and the director of the Project on the Information Revolution and World Politics at the Carnegie Endowment for International Peace (<http://www.ceipt.org>). Dr. Drake is also a research associate of the Institute for Tele-Information at Columbia University; a member of the Editorial Board of the journals, *Telecommunications Policy* and *Info: The New Journal of Policy, Regulation, and Strategy for Telecommunications, Information and Media*; and a consultant to businesses, think tanks, governmental organizations. From 1996 to January 1999, he was associate director of the Communication, Culture and Technology Program at Georgetown University in Washington D.C. (<http://cct.georgetown.edu>); he is now adjunct professor in the program. Previously, he was an assistant professor of Communication at the University of San Diego. His research is on the political economy of communications and information, with particular emphasis on the role of international regimes and institutions in the global information economy and on the impact of the information revolution on international affairs. He is the editor of *The New Information Infrastructure: Strategies for U.S. Policy* (New York: Twentieth Century Fund Press, 1995) and *Communications in the Information Age* (Washington, D.C.: U.S. Information Agency, 1998). Dr. Drake received his Ph.D. in political science at Columbia University.

The Aspen Institute

Communications and Society Program

The overall goal of the Communications and Society Program is to promote integrated, thoughtful, values-based decision making in the fields of communications, media, and information policy. In particular, the Program focuses on the implications of communications and information technologies on democratic institutions, individual behavior, instruments of commerce, and community life.

The Communications and Society Program accomplishes this goal through two main types of activities. First, it brings together leaders of industry, government, the nonprofit sector, media organizations, the academic world, and others for roundtable meetings to assess the impact of modern communications and information systems on the ideas and practices of a democratic society. Second, the Program promotes research and distributes conference reports to decision makers in the communications and information fields, both within the United States and internationally, and to the public at large.

Topics addressed by the Program vary as issues and the policy environment evolve, but each project seeks to achieve a better understanding of the societal impact of the communications and information infrastructures, to foster a more informed and participatory environment for communications policymaking, or to promote the use of communications for global understanding. In recent years, the Communications and Society Program has chosen to focus with special interest on the issues of electronic democracy, lifelong learning and technology, electronic commerce, the future of advertising, and the role of the media in democratic society.

The Program also coordinates all of the activities of the Institute for Information Studies, a joint program with Nortel Networks, and engages in other domestic and international Aspen Institute initiatives related to communications and information technology and policy.

Acronym List

ARIN	American Registry for Internet Numbers	ISOC	Internet Society
AIRIT	Aspen Institute Roundtable on International Telecommunications	ISP	Internet Service Provider
APEC	Asia Pacific Economic Cooperation	ITU	International Telecommunication Union
APNIC	Asia Pacific Network Information Centre	ITU-T	ITU Telecommunications Standardization Sector
CCITT	Consultative Committee on Telegraphy and Telephony (ITU)	MFN	most-favored nation
CEPT	la Conférence Européenne des Administrations des Postes et des Télécommunications	MoU	Memorandum of Understanding
CIX	Commercial Internet eXchange	NSF	National Science Foundation
CTD	Committee on Trade and Development (WTO)	NSI	Network Solutions, Inc.
CTU	Caribbean Telecommunications Union	NTIA	National Telecommunications and Information Administration
DNS	Domain Name System	OECD	Organization for Economic Cooperation and Development
EC	European Commission	PoP	Point of Presence
EDI	Electronic Data Interchange	PTO	Public Telecommunications Operator
EU	European Union	PTT	Post, Telegraph, and Telephone
FCC	(United States) Federal Communications Commission	RBOC	Regional Bell Operating Company
FDI	Foreign Direct Investment	RIPE NCC	Réseaux IP Européens Network Coordination Centre
GATS	General Agreement on Trade in Services	SDR	Special Drawing Right
GATT	General Agreement on Tariffs and Trade	SMEs	Small and Medium-Sized Enterprises
GBT	Group on Basic Telecommunications (WTO)	TABD	Trans-Atlantic Business Dialogue
GIIC	Global Information Infrastructure Commission	TRIPS	Agreement on Trade-Related Intellectual Property Rights
GODs	General Obligations and Disciplines	TSLRIC	Total Service Long-Run Incremental Costs
gTLD	Generic Top Level Domain	UNCTAD	United Nations Conference on Trade and Development
IAB	Internet Architecture Board	VPN	Virtual Private Network
IANA	Internet Assigned Numbers Authority	WATTC-88	World Administrative Telegraph and Telephone Conference
ICC	International Chamber of Commerce	WIPO	World Intellectual Property Organization
IETF	Internet Engineering Task Force	WITSA	World Information Technology and Services Alliance
IFWP	International Forum on the White Paper	WTO	World Trade Organization
infoDev	Information for Development Program (World Bank)	WTPF	World Telecommunication Policy Forum
IHAC	International Ad Hoc Committee	WWW	World Wide Web
INTUG	International Telecommunications Users Group	W3C	World Wide Web Consortium
IP	Internet Protocol		

