Global Private Networks and International Public Institutions

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The rapid growth and diversification of private networks in recent years presents a wide array of intellectual challenges for analysts and policy-makers that can be approached from many different angles. The papers in this project have focused primarily on the economic, technical and legal aspects of public network disaggregation in order to consider the optimal size and stability, interconnection and access rules, privacy and security protections, corporate strategies and so on that might be suitable for the evolving network of networks. In parallel, the overwhelming majority of papers have focused on conditions in the United States, where the phenomena of private networking has most deeply taken root.

This paper takes a different path on both scores. Theoretically, its approach derives from the disciplines of political science and communication studies and their common sub-field of political economy. I will not attempt to develop abstract models of market behavior and then offer suggestions about what optimal solutions to the challenges of network disaggregation might be in the future. Instead I will look backward to show how international private networks have been regulated at the international level. More specifically, the paper will situate the regulation of private networks in the context of the changing international telecommunications regime. For 120 years, member governments of the International Telecommunication Union (ITU) maintained a stable regime that was designed not only to facilitate cross-border transmission, but also to buttress the power and interests of national administrations. But in the post-World War II era, forces unleashed by the information control revolution in the United States began to progressively undermine the foundations of both national monopolies and the international regime they created. The key causal factors here were pressures from an expanding and influential coalition of transnational corporations (TNCs) seeking the liberalization of supply markets and usage conditions in order to maximize control over their operations, and the spread of new ideas about how telecommunications should be governed in a dynamic global information economy. By the late 1980s, the globalization of these forces resulted in a transformation of the regime's overarching principles and of the detailed rules and decision-making procedures through which they were operationalized.

It is interesting that complexity of private networking issues has led participants in this project to begin their inquiries from varying definitional baselines. For example, Eli Noam distinguishes between privately owned facilities and private use networks; the latter are "private in the sense of being separate from the public or general network [and] not open to all in the way that the public network is."[1] To this criteria of ownership and access, Milton Mueller adds a third definitional dimension of "sharing," or "whether the facilities used by a network are dedicated to a particular user or shared by other users." However, Mueller goes on to argue that none of these dimensions fully captures the essential features, and

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1 Eli M. Noam, "Private Networks and Public Objectives," in *Universal Telephone Service: Ready fro the 21st Century? Annual Review of the Institute of Information Studies* (Queenstown, MD: The Aspen Institute, 1991), p. 2.

proposes that "The crux of the public/private distinction is that in private networks, a firm takes over the network management function for itself. Although it may order facilities, service, and equipment from outside suppliers, the real responsibility for assembling and operating a network is internalized. Instead of purchasing telecommunications service as an end user, the firm itself combines intermediate inputs into a final product."[2]

Alternatively, Tony Rutkowski provides a more complex formulation by suggesting that, in line with the current "object oriented" thinking in computer science, a network should be defined as "an interoperating array of information objects whose prime function is to allow the sharing of information or information processes among multiple objects."[3] Rutkowski maintains that any network should thus be treated as varying along five indices of publicness or privateness: provision, access, ownership, control and payment for services. Hence, trying to say definitively whether a network is "private" or not is, in his view, a rather absurd task. Finally, Scott Frederick proposes a less unbundled definition by distinguishing between intra-building (eg. LANs) and inter-building networks, the latter comprising either private facilities, carrier owned but dedicated use circuits, and carrier owned but shared use circuits (eg. VPNs).[4]

Clearly, it might be useful to have a more sustained dialogue to arrive at a shared taxonomy of private networks and hence facilitate a focused investigation of their different dynamics. Pending the resolution of these existential dilemmas, I would suggest that for my purposes, delineating the boundaries of public and private on the bases of access, management, provision and payment would seem to needlessly complicate matters, especially when considering hybrid cases. The key dimensions of "privateness" relevant to multilateral regulation thus far have been ownership of underlying facilities vs. customer control of leased circuits on the one hand, and whether the networks are established to supply external customers or to satisfy internal user requirements on the other. Taking these into account, I would simplify matters and distinguish between the following four types of international private networks:

1) privately owned supplier networks
2) privately controlled supplier networks
3) privately controlled use networks
4) virtually privately controlled use networks

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2 Milton Mueller, "Quantifying Private Networking: Definition and Measurement Problems," paper presented to the May 15, 1992 CITI seminar, pp. 5 and 7. This definition would seem to exclude cases of outsourced management, and is later oddly operationalized in the paper in terms of ownership, usage confined to the owner and control across both ends of a leased channel.

3 Anthony M. Rutkowski, "A Taxonomy of Networks: Is it Public or Not?" paper presented to the October 25, 1991 CITI seminar, p. 3.

4 Scott Frederick, "Defining the Network Environment: A Taxonomy of Networks," paper presented to the October 25, 1991 CITI seminar.

This draft paper will concentrate on the first two categories, and leave the others to a later revision. I will attempt to show that the two have been treated differently and have played sharply contrasting roles in the larger battle over regime change. Privately owned supplier networks have effectively been brought into the framework set by governmental administrations, and have not been a major force for liberalization. Alternatively, private use networks have been the scene a tense power struggle between governments and large corporate users, a struggle that has in broad outline effectively been won by the latter.

1. The International Telecommunications Regime.

International regimes can be defined as "sets of implicit or explicit principles, norms, rules, and decision-making procedures around which actors' expectations converge in a given area of international relations. Principles are beliefs of fact, causation and rectitude. Norms are standards of behavior defined in terms of rights and obligations. Rules are specific prescriptions or proscriptions for action. Decision-making procedures are prevailing practices for making and implementing collective choice."[5] (Krasner, 1983, p. 2) The international telecommunications regime is one instance in a large set of cases wherein governments negotiate to establish multilateral "rules of the game" for issue-areas ranging from trade, monetary, and environmental policies to arms control, human rights and beyond. Hence, like domestic political institutions, regimes have been analyzed as dependent variables either singularly or on a comparative basis in terms of their institutional attributes (eg. their scope, domain, strength, distributional biases and compliance mechanisms) and historical evolution (eg. creation, maintenance and adaptation, transformation or decay), or of the types of collective action problems they involve (eg. in game theoretic terms, public goods, coordination, prisoner's dilemma). In parallel, scholars have developed and attempted to test a number of theories employing different independent variables in order to explain variations in regime outcomes (eg. neorealism, which stresses the role of state power and the anarchic structure of the global polity; neoliberal institutionalism, which stresses market incentives and functional demands to reduce transaction costs; and cognitive evolutionism, which stresses the causal role of shared conceptual frameworks and knowledge).

These efforts, which have occupied many international relations specialists since the early 1980s, have yielded a fairly rich range of insights. However, there is still very little theoretically oriented and historically informed literature on the international telecommunications regime.[6] While it would be beyond the scope of

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[5] Stephen D. Krasner, "Structural Causes and Regime Consequences: Regimes as Intervening Variables," in Krasner, ed., *International Regimes* (Ithaca: Cornell University Press, 1983), p. 2.

[6] For two efforts to fill that gap, see Peter F.Cowhey, "The International Telecommunications Regime: The Political Roots of Regimes for High Technology." *International Organization* 44 (Spring 1990):

this paper to go into much detail on the many different issues involved in the telecommunications regime, it remains true that the multilateral rules on international private networks can only be understood as a key part of its larger complex of interrelated injunctions. As such, we will begin our account with a very brief overview which, while necessarily schematic, provides the essentials necessary to situate our case.

In terms of its guiding principles, the origins of the telecommunications regime antedate the formation of the ITU. The first multilateral agreement was the Treaty of Dresden of 1850, which joined Austria, Prussia, Bavaria and Saxony in the Austro-German Telegraph Union. The treaty codified some essential principles and norms that remained in place for well over a century. Of greatest relevance here were the following points:

Article 2: "...the provisions of the Union Treaty shall govern only international correspondence, namely, that telegraphic correspondence in which the originating and the terminal station belong to different Union administrations..."

Article 3: "Each government is at liberty to choose any system of transmission and equipment for its telegraph lines; accordingly, a message passing from one line to the other will normally be transferred at the point where the telegraph lines of two Union Governments meet...."

Article 6: "The use of the telegraphs of the Union Governments shall be open to all, without any exception..."

Article 15: "...a distinction shall be made between: a) State messages, b) railway messages; c) private messages..."

Article 19: "The telegraph offices...are required to refuse to accept or transmit those private messages whose content offends against the laws or which are deemed to be unsuitable for communication on grounds of public good or morality..."

Article 20: [in order of transmission] "...precedence shall be given at all times to State messages....precedence shall be given to railway messages over private messages..."

Article 36: "The established transmission charge for each message shall, pending further agreement, be shared among those Union Governments..."[7]

169-199; and William J. Drake, "Asymmetric Deregulation and the Transformation of the International Telecommunications Regime," in Eli M. Noam and Gerard Pogorel, eds., *Asymmetric Deregulation: The Dynamics of Telecommunications Policies in Europe and the United States* (Norwood, NJ: Ablex, forthcoming).

[7] *State Treaty Between Austria, Prussia, Bavaria and Saxony of 25 July 1850 Concerning the Establishment of the Austro-German Telegraphic Union* (Geneva: unoffical and unpublished translation in the ITU Archives, no date): pp. 2, 3, 5, 6, 10.

The international telecommunications order established by these and related provisions was one in which national governmental administrations each retained exclusive control over their mutually exclusive markets, established mechanisms for sharing the costs and revenues from service provisioning, and enjoyed the freedom to employ disparate technologies within their public networks. Moreover, while the general public had a right to communicate via their facilities, in terms of transmission precedence governments treated that right as secondary to their own communication requirements; as we will see below, the same norm was subsequently adapted to fit the case of private leased circuits. Relatedly, administrations also had the right to serve as gatekeepers regarding what types of messages the circuits were used to send, which would become indirectly relevant for private networking.

In 1855, Belgium, France, Sardinia, Spain and Switzerland formed the parallel West European Telegraph Union along essentially the same lines. After some subsequent efforts to coordinate between the two expanding groups, it was finally decided to undertake a formal merger in the name of limited harmonization and reduced transaction costs. This led twenty continental governments to sign the Convention of Paris in 1865 which launched the International Telegraph Union.[8] After the accession of many new members from other continents and the development of telephony and radio, governments agreed to merge the ITU with the International Radiotelegraph Union launched in 1906 to form the International *Telecommunication* Union in 1932.[9] In 1947, the ITU was restructured and new organs were added to create the organization that exists today.

Of the ITU's many constituent parts, three organs and accompanying regime instruments are most relevant here: the Plenipotentiary Conference, which is the supreme diplomatic-level body that negotiates the International Telecommunication Convention; the World Administrative Telegraph and Telephone Conference (WATTC), which sets the International Telecommunication Regulations; and the International Consultative Committee on Telegraph and Telephone (CCITT), which designs the International Telegraph and Telephone Recommendations.[10] The Convention is a binding treaty that, *inter alia*, establishes

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8 Britain was not admitted as a member until after it nationalized its domestic telegraph system in 1868 because, "Nationalization or complete control over telegraph was always an unwritten prerequisite for membership." George A. Codding Jr. *The International Telecommunication Union: An Experiment in International Cooperation* (Leiden: E.J. Brill, 1952), p. 42.

9 It should be noted that while both have been addressed in the post-1932 union, radio matters concerning the allocation of spectrum and standardization of system have always been politically, legally and (to a lesser extent) functionally separate from questions concerning network development and service provisioning. As such, we distinguish here between the radio regime pertaining to the former issues and the telecommunications regime covering the latter. The radio regime will not be discussed further in this paper.

10 A few quick points merit mention for the sake of accuracy: 1) since the 1989 Plenipotentiary at Nice, the Convention has been split off from a new Constitution comprising treaty provisions felt to require

the overarching principles and purposes of regime cooperation and the decision-making procedures to be used in ITU bodies. The Regulations are also a binding treaty, and they lay out a mix of principles and norms which, while rather general, more directly sets forth how international telecommunications shall be governed. In contrast, the Recommendations are voluntary, although most administrations have usually complied with them most of the time. The Recommendations comprise a highly detailed set of technical rules which operationalize the higher order principles and norms of the other instruments in the fields of technical standardization, operational procedures and tariff and accounting issues. In sum, the telecommunications regime is codified in three interrelated instruments characterized by a political and functional hierarchy of prescriptions and proscriptions.

The *ancien* regime rested on three overarching principles. First, each member state held absolute sovereignty over its domestic system and its international extensions. For the vast majority, sovereignty provided a justification for monopoly control over network and services under the aegis Ministries of Posts, Telegraphs and Telephones (PTTs). Upon achieving independence, most developing countries adopted some version of this European model by nationalizing or tightly regulating systems formerly run by colonial administrations or by TNCs such as Cable & Wireless. North America pursued two idiosyncratic alternatives: the United States opted for regulated private common carriers, with the American Telegraph and Telephone Co. (AT&T) eventually serving as a quasi-monopolist in most markets alongside local independents and a handful of international record carriers; while Canada chose a unique federalist mix of provincial government monopolies and regulated private firms. Perhaps a dozen other countries also had some regulated private common carriers operating in selected markets, but this did not undermine the overall pattern of state authority. These cases aside, the vast majority of ITU members took national sovereignty and monopoly control to be virtually synonymous, and regime policies justified in terms of the former served without explicit acknowledgement to preserve the latter.

However, their shared demand for sovereign control had to be balanced with measures to facilitate international communication. Hence, the second principle was the joint provision of services. End-to-end competition between national administrations was not provided for. Instead, the revenues from cross-border calls

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less periodic reexamination by the Plenipotentiaries, which meet every five to nine years. 2) Prior to the 1988 WATTC at Melbourne, the treaty was known as the International Telegraph and Telephone Regulations. Modern WATTCs have also been convened at irregular periods of ten to fifteen years. 3) The CCITT was formed in 1956 by the merger of two antecedent bodies: The International Consultative Committee on Telephone (CCIF), which was launched in 1924 and brought into the telegraph union in 1925; and the The International Consultative Committee on Telegraph (CCIT), which was formed in association with the union in 1926. The CCITT comprises a series of Study Groups which in turn comprise a further set of Working Parties, each of which is tasked with answering highly specialized Study Questions over the course of four-year Study Periods involving many meetings.

were to be shared equally by sending and receiving operators, with a percentage going to transit countries where applicable. The third and related principle was the need for interconnection between national networks via technical standardization. From these overarching objectives flowed a number of other principles, norms and rules of varying degrees of specificity which indicated how they were to be operationalized regarding particular issues. For example, to maintain their sovereignty, governments established regime principles and norms in the Convention and Regulations giving them broad rights to monitor, suspend or stop transmissions deemed contrary to their national security and public order, as well as to prevent the development of competitive message retransmission services. As we will see below, highly detailed rules, in the form of CCITT Recommendations, further buttressed their market positions. Similarly, in accordance with the overarching principle of joint service provisioning, other principles and norms gave governments broad rights to set their own access and collection charges, and to fix accounting rates between end points regardless of the route taken. Here too, highly detailed rules in the Recommendations spelled out the applicable systems of accounting and tariff guidelines in light of the basic objective. And to maintain interconnectivity while preserving sovereignty, the CCITT and its predecessor committees also developed a huge array of situationally specific regime rules or technical standards that were limited, whenever possible, the international segment.[11]

The bottom line is that the provisions of ITU instruments outlined below which pertain to private networks should be viewed as elements in a complex of measures designed to preserve the regime's most central general principle, namely the right of sovereign states to control their markets. But insofar as they were already sovereign under international law and exercised that constitutional authority at home, one might ask why they needed to repeatedly affirm this in the ITU context? The answer goes to the heart of the regime, and is two-fold: First, in formal terms, each member wanted codified commitments from its counterparts that they would not unilaterally undertake or authorize any actions contrary to its own interests. The regime ensured this by enshrining the need for mutual consent between administrations at either end of a correspondent relation and establishing uniform obligations and expectations about acceptable behavior. Unlike the regime for international trade, which has been prone to conflict and has decayed or collapsed at various times, the telecommunications regime precluded predatory behavior and distributional struggles between states and thereby enjoyed an unparalleled century of stability. Second, and less formally, the regime also provided collective legitimation for firm regulations vis. the private sector. There

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11 This careful delimitation, which was largely maintained for almost a century, became increasingly difficult to maintain with the advent of automatic dialing and advancing signalling. For a discussion of technical standards as international regime rules, see William J. Drake, "The Transformation of Telecommunications Standardization: European and International Dimensions" in Charles Steinfield, Johannes Bauer and Laurence Caby, eds., *Telecommunications in Europe: Changing Policies, Services and Technologies* (Newbury Park: Sage, forthcoming).

was an intersubjective understanding among administrations that corporate demands not specifically anticipated in the treaty-level instruments could none the less be rejected by citing their need to comply with the voluntary Recommendations. Indeed, it is precisely because administrations used the Recommendations in this way—to maintain a tightly bound and restrictive bloc—that TNCs spent so much effort trying to get them liberalized.

After World War II, the regime began to come under pressure from the private sector. In the United States, military procurement combined with unregulated and potentially vast commercial markets to spur computer and electronics firms into developing an expanding range of systems that could interwork with telecommunications. New service providers saw the possibility of carving out niches in untapped markets. Large corporate users saw that telephone circuits leased in bulk at flat rates could be upgraded via the new systems to provide advanced services linking their plants and offices. But as institutional barriers stood in the way of their ability to realize such technological possibilities, a concerted assault on the domestic regulatory regime of the Federal Communications Commission (FCC) and the market dominance of AT&T was essential. Beginning in 1959, the FCC incrementally responded to the call for deregulation, not only because of pressure from this highly mobilized new interest configuration, but also because of its own process of adaptive learning. That is, the traditional consensus on natural monopoly conditions was looking antiquated in light of the emerging technological abundance, and telecommunications could serve as a strategic business resource rather than a "mere public utility" in an increasingly information-based economy. Preserving structures demonstrably skewed to the advantage of a single firm now seemed contrary to its vision of the national interest, a view echoed by many academic and industry analysts.

By the mid-1970s, the new interest configuration was taking its act on the road and pressing foreign administrations for regulatory "flexibility" akin to what had been attained in the United States. At the turn of the decade, the Reagan Administration jettisoned the often awkward compromise of the past between diplomatic and commercial objectives and threw its weight behind the demand for global liberalization. Soon thereafter, this corporate/government alliance implicitly teamed up with an influential expert community in calling for the establishment of a trade in services regime connected to the General Agreement on Tariffs and Trade (GATT) to include telecommunications. "The shift to a trade discourse was a revolution in social ontology: it redefined how governments thought about the nature of services, their movement across borders, their roles in society, and the objectives and principles according to which they should be governed."[12] Indeed,

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12 For an extended discussion, see, William J. Drake and Kalypso Nicolaïdis, "Ideas, Interests and Institutionalization: 'Trade in Services' and the Uruguay Round," in Peter Haas, ed., *Knowledge, Power and International Policy Coordination*, a special issue of *International Organization* 45 (Winter 1992): 37-100.

the multilateral discussions that would later lead to drafting of the GATS treaty in the Uruguay Round talks lent considerable weight to the world-wide rethinking of international telecommunications regulation. But in this propitious intellectual environment, the most direct force for change became large corporations in Europe and other industrialized countries which, after some initially varied and hesitant reactions, made the Americans' agenda their own and pressed their respective national governments for liberalization. For new service suppliers, manufacturers and users alike, competing globally with American-based counterparts which were already benefitting from institutional change at home required comparable freedoms. And over the next ten years they progressively achieved many of their key objectives, first in the industrialized world, and then in the developing world.

These events had ramifications within the ITU. In the 1980s, the CCITT's regulatory Recommendations on private leased circuits and networks, value-added networks and resale, customer premise equipment (CPE), switching and routing, tariffs and a host of other issues all came under heavy attack from ardent multinational business lobbies and individual TNCs. Some PTTs attempted to dig in their heels, especially in the special preparatory group tasked with drafting a new set of International Telecommunication Regulations for the World Administrative Telegraph and Telephone Conference (WATTC) due in 1988. There they attempted to insert into the Regulations, one of the regime's two governing treaty documents, language that could provide a legal rationale not only to preserve their dominance in their existing markets, but also expand it into new domains of network-based service provisioning.[13] But by the time the conference was held, a corporate groundswell against such maneuvers had necessitated a further rethinking, and the meeting produced an agreement which actually undercut the intellectual and political foundations of continued monopoly control. Two years later, CCITT members took the process further by substantially liberalizing the Recommendations on both leased circuits and on accounting and settlements procedures and tariff rules in light of a virulent American/corporate campaign.

The message of this necessarily truncated overview is that the international regime is undergoing a profound transformation. While sovereignty as a constitutional concept remains intact, the assumption that it must be operationalized via measures that preserve the dominant positions of national administrations has been jettisoned. Regardless of whether one agrees with their conclusions, there is unquestionably a broad, intersubjective consensus among ITU members that monopoly control is no longer the singular solution to national commercial and social objectives; varying mixes of public and private control are widely seen as viable alternatives. In parallel, joint provisioning by administrations is no longer viewed as the sole means for organizing services markets, as end-to-end carriers have proliferated in advanced services and are now seeking entry in basic

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13 For a discussion see, William J. Drake, "WATTC-88: Restructuring the International Telecommunication Regulations," *Telecommunications Policy* 12 (September 1988): 217-233.

services. Finally, the third overarching regime principle of inter-national interconnection via standardization has also been reconstituted with a decidedly different spin, ie. as involving the complex interconnection of a wide variety of public and private networks and equipment.

2. Privately Owned Supplier Networks Under the Regime.

The *ancien* regime began as a pact among European governments and retained its essential features for over a century even as the membership expanded and the technology changed. In the era of the telegraph union, member administrations were expected to be governmental entities capable of taking on treaty obligations not only to each other, but also to the general public. Nevertheless, it was clear early on that in some relations, especially between continents, they would have to deal with private carriers as well. In the 19th century, the vast majority of submarine cables were controlled by a small cartel of private firms based largely in the United Kingdom. Even after governments got into the business, these firms still controlled 89.6% of the total cable length as late as 1892.[14] In some cases administrations and private carriers like Western Union leased circuits from the cable companies, while in others they devised operating and accounting agreements to hand off traffic between their respective facilities. Either way, governments wanted to bring the cable companies into a uniform and predictable relationship.

At the same time, important countries outside Europe and its colonial spheres had no governmental administrations. The United States, Canada and a number of Latin American countries never joined the telegraph union because they did want to nationalize or impose treaty obligations on their private carriers. They eventually did join the union after its reformulation in 1932, but to varying degrees continually issued reservations to certain provisions of the Convention and in some cases refused to sign the Regulations.[15] To the extent that major firms and markets remained outside the cooperative mechanisms, this made planning and operating international facilities a more difficult and costly affair.

To address such concerns, ITU members had to evolve mechanisms to deal with the inconveniences of private carriers. The founding Paris conference of 1865 decided that "The High Contracting Parties pledge to impose, as far as possible, the rules of the present Convention on licensed terrestrial or submarine telegraph companies, and to negotiate with them a reciprocal reduction of tariffs...Not

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14 Daniel R. Headrick, *The Invisible Weapon: Telecommunications and International Politics, 1851-1945* (New York: Oxford University Press, 1991), p. 38.

15 The United States did not sign both the Telegraph and Telephone Regulations until 1973, when they were "deformalized," ie, the majority of their detailed provisions were transferred to the non-binding Recommendations. For a discussion of the American role and impact, see Drake, "Asymmetric Deregulation," forthcoming, pp. 5-10.

included, in any case, in the international tariff are...The telegraphic bureaus of States and of private companies who have not to this point accepted the uniform regulatory dispositions and obligations of the present convention..."[16] Hence the PTTs took a dual approach to bringing such firms into compliance with the regime by generally imposing its behavioral standards on them at the national level and by denying certain economic benefits to any refuseniks. These provisions were strengthened at the Vienna conference of 1868, where the Convention was amended to allow that "These companies will be admitted to the advantages stipulated by the Convention, by means of accession to all its obligatory clauses and on the notification of the State which has granted the concession...," but that the Regulations will be "invariably applied" to correspondence in the countries where they operate.[17] Of course, they could not be imposed directly on non-signatory governments like the United States, but American-based carriers "were forced to transmit messages to the telegraph systems of other countries, [and so] were forced to accept the rules laid down by the Telegraph Union."[18]

To make such provisions more palatable, the Rome Telegraph Conference of 1871 decided that henceforth private carriers would be admitted to participate in all the conferences' discussions, albeit without a right to vote. Thereafter, the meetings were sometimes animated by heated discussions between the cable companies and PTTs, especially over tariff and routing questions. Nevertheless, on the whole the regime was generally supported by the cable cartel, which found financial benefits in a stable and harmonized framework for handing off the expanding traffic and splitting the revenues with administrations.

After the birth of the telecommunication union, the regime's decision-making procedures were further amended to ease the participation of countries with private common carriers while simultaneously limiting the latter's autonomy. On the one hand, the ITU developed the designation, "Recognized Private Operating Entity" (RPOA) to cover any private carrier "which operates a public correspondence or broadcasting service and upon which the obligations provided for in....the Convention are imposed by the Member in whose territory the head office of the agency is situated, or by the Member which has authorized this operating agency to establish and operate a telecommunication service on its territory."[19] Hence, to receive "recognition," a firm was bound to act as a common carrier providing services to all customers on a non-discriminatory basis and be subject to the regime's instruments. In effect, this conferred upon RPOAs a measure of

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[16] *Documents Diplomatiques de la Conférence Télégraphique International de Paris* (Paris: Imprimerie Impériale, 1865), p. 34. My translation.

[17] *Documents de la Conférence Télégraphique International de Vienne* (Vienne: Imprimerie Impériale et Royale de la Cour et de L'Etat, 1868), p. 37. My translation.

[18] Codding, *TheInternational Telecommunication Union*, 1954, p. 43.

[19] *International Telecommunication Convention: Final Protocol, Additional Protocols, Optional Additional Protocols, Resolutions, Recommendation and Opinions--Nairobi 1982* (Geneva: ITU, 1982), p. 149.

"publicness" parallel to the that of government administrations, at least as far as customer access and participation in international correspondence were concerned. The PTT coalition was saying to them, "you can join our club if you act like us and play by our rules," and they have. And in exchange for accepting these obligations, RPOAs were granted the right to participate more fully in the ITU's decision-making organs. But on the other hand, they no longer could independently accede to the relevant treaties as the cable companies of old had, and could participate in the Plenipotentiaries and WATTCs only as members of government-led delegations.

RPOAs became important players in the ITU. Most notably, American Telegraph and Telephone (AT&T) has been a major force in the development of technical standardization, operating and accounting and tariff regime rules in the CCITT and its predecessors, the CCIF and CCIT. In the main, RPOAs bought into the regime and had largely the same stakes in preserving it as the PTTs, even if they sometimes disagreed with some of its most rigid provisions. Deregulation and liberalization has changed that to some extent, insofar as these firms have been forced to shift to a more competitive posture. But compared to the roles of corporate users and new service suppliers, they have not been a major force for international regime change in the contemporary era.

Of course, not all facilities-based service providers have been regulated as common carriers at the national level and "recognized" in the ITU. These "Private Operating Agencies" (POAs) are defined by the Convention as, "Any individual or company or corporation, other than a governmental establishment or agency, which operates a telecommunication installation intended for an international telecommunication service or capable of causing harmful interference with such a service."[20] POAs are not bound to provide universal service or to comply with the regime's provisions, but of course a government may impose the latter in accordance with its national laws. POAs also have no stated right of individual participation in ITU deliberations, although governments may appoint their representatives to conference delegations. Being outside the regime's formal dictates regarding routing, tariffs and other issues, POAs' ability to gain market access is dependent on the mutual consent of governments involved in a given relation.

Such operating agreements are in legal terms treated as "special arrangements." This concept dates back to the 1865 Convention, which held that, "The High Contracting Parties respectively reserve the right of making separately, between them, special arrangements of all kinds, on service points that are not of interest to the generality of States...." including, *inter alia*, tariffs, equipment and

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[20] *International Telecommunication Convention*, 1982, p. 149.

special telegraph vocabularies.[21] Since then, this provision has served as a broad exemption from public service and related obligations to allow specialized provisioning and to foster the unrestricted development of new services prior to their full standardization, eg. phototelegraphy, telex, automatic switching and leased circuits. It thereby also made the participation of the United States easier to the extent that some carriers did not want to be "recognized," with all that entails. The significance of special arrangements greatly increased with the computerization of telecommunications, the onset of global liberalization and the expanded entry of value-added service vendors. At WATTC-88, the special arrangements provision was greatly expanded to cover all information processes and networks, recast in an affirmative, pro-liberalization manner, and placed in the new Regulations. This explicitly opened the regime doors to competitive provisioning of advanced services; the matter will be taken up in a later revision of this paper.

Finally, it should be noted that ITU instruments have long contained provisions pertaining only to public utilities such as railway, electric and gas companies. In some cases these firms have relied on leased circuits for at least some of their connections, while in others they have actually constructed their own facilities. Either way, administrations and RPOAs have attempted to maintain a certain flexibility to meet the specialized needs of these services, while at the same time imposing on them certain obligations common to other networks, eg. a ban on the resale of capacity to third parties and on interconnection with public switched networks.

3. Private Use Networks Under the Regime.

Insofar as they were drawn into a nexus of relations in which they functioned similarly to PTTs in international connections, the private network operators above do not present an especially interesting story in the politics of global liberalization and regime change. But private use networks are another matter entirely. In my view, it was pressure from large corporate users in particular and the spread of policy ideas favorable to their interests which have been the most direct and effective force in the contemporary transformation. These two factors fundamentally recast the global discourse about how telecommunications should be governed in society: as a public utility regulated to preserve the narrow interests of monopoly providers, or as a dynamic resource that firms should be able to flexibly apply, like computers, in order to maximize information-intensive activities and generate new wealth in every sector of the economy. Rightly or wrongly, this vision of whom should be served by the policy process has revolutionized the social and cognitive construction of telecommunications. And insofar as the rise of users'

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21 *Documents Diplomatiques de la Conférence Télégraphique International de Paris*, 1865, p. 33. My translation. After the development of radio, this article was amended to include a requirement that special arrangements not cause harmful interference.

expectations and demands and their subsequent political mobilization was intimately connected to their experience with leased circuits, one could reasonably argue that private use networks were the trojan horse through which the beginning of the end was smuggled past the fortress gates in national capitals and at the ITU.

Despite their centrality, the growth of private use networks around the world is not easily documented, and so it is not surprising but arguably unfortunate that the task has not been tackled in this project. Absent good historical and empirical evidence, analysts are left to proffer competing causal explanations based on theoretical assumptions that are difficult to comparatively test with any rigor. Taking cover behind that proposition, I would argue that the corporate demand for use networks and the attendant political struggle to liberalize the regulatory conditions on them is best understood as a wedge issue in a larger battle between the state and business for control over telecommunications and information resources.

I emphasize the dimension of control because some observers have argued that the driving force in the development of use networks has been the desire of powerful groups to leave the public switched network so as to avoid paying above-cost "value of service" rates levied in order to cross-subsidize other users.[22] While the demand for lower rates has certainly been a constant in corporate pronouncements on international telecommunications regulation, what historical evidence is readily available suggests neither that this was their dominant concern, nor that a theory of public network disaggregation can therefore be based on this variable alone. Indeed, TNCs undertook the development of private use networks in an era when the rates for leased circuits were quite high, and continued to prefer them even after the rates were reduced and service offerings were upgraded on public switched networks.

In my view, the driving force behind use privatization and network disaggregation has been the desire of corporate decision-makers to be able to closely manage their telecommunications and information resources on their own terms. In the decades when the primary service offerings were telephony, telegraphy and telex, large corporate users sought to make telecommunications an extension of their internally controlled technical bases, and private circuits offered reliable connections separate from the congested and fault-prone switched networks. With the subsequent merging of telecommunications and information technology, the range of options in terms of strategic applications was radically increased. Firms now sought to upgrade and integrate their circuits into advanced information

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22 "The breakdown of monopoly is due to the very success of the traditional system in advancing telephone service and making it universal and essential. As the system expands political group dynamics take place, which lead to redistribution and overexpansion. This provides increasing incentives to exit from a sharing coalition, and to the eventual 'tipping' of the network from a stable single coalition to a system of separate sub-coalitions." Eli M. Noam, "Network Tipping and the Tragedy of the Common Network: A Theory for the Formation and Breakdown of Public Telecommunications Systems," *Communications and Strategies* 1 (1st trimester, 1991), p. 46.

processing systems that exceeded the capabilities of switched networks, and that could be flexibly customized to coordinate their geographically dispersed intra- and inter-corporate relationships. As an earlier contribution to this project asserts, systems "architecture can be defined as the conceptual embodiment of a world view...based on the available set of technologies."[23] The point can be generalized beyond architecture: managers demanded the same measure of control over telecommunications that they enjoyed with in-house computers. But to get it, they had to wage a protracted political war against regulatory policies at both the national level and in the ITU. This section briefly outlines the main contours of the latter half of that process.

As noted earlier, network operators had from the earliest days of telegraphy occasionally leased circuits to other operators as a means of completing a route. Since the object was to provide services to the public, such agreements would be treated either under the standard accounting principles or as special arrangements; they did not occasion any specific provisions in the regime instruments. It appears that in the 19th century, some banks based primarily in the United Kingdom sought to have international circuits set aside from the switched networks to connect fixed stations, and that the press---especially the developing wire services---were also interested. It is not yet clear to me to what extent these were granted or how they were treated from a regulatory standpoint, although one imagines they were treated by the ITU in the same manner as inter-carrier leases. What is clear is that neither the diplomatic plenipotentiary or administrative conferences of the telegraph union undertook the development of regime provisions on the matter.

The post-World War I era witnessed a notable growth in direct foreign investment, especially across industrialized countries. A number of TNCs were granted leased circuits at the national level, and some began to request the right to extend these internationally. To ensure that the granting of such circuits occurred in an orderly manner that did not contradict existing arrangements or put administrations in a semi-competitive position vis. one another, the newly formed CCIF undertook the develop rules applicable to the European context, which was its primary concern. In 1927 it agreed to a Recommendation that is a landmark in the development of multilateral rules, and hence is quoted in full:

CCIF Recommendation No. 13, 1927

Rental of international communications circuits for the private service not including submarine sections.

The international consultative committee, considering:

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23 Terrence F. and Sara J. McGarty, "Information Architectures and Infrastructures Value Creation and Transfer," paper presented to the October 25, 1991 CITI workshop.

That in many relations, there are circuits available in the international cables;
That, although rentals of circuits have not been been accepted up to here in the international service, several administrations have already some experience in the rental of circuits for the internal service;
That several Administrations have already received some requests for international telephone circuit rentals for the private service;
That, therefore, it is now necessary to organize the eventual permanent rental of international telephone communication circuits in a manner that permits Administrations to organize this new service on uniform a basis;
That however, we have to avoid this rental causing discomfort in the general service or allowing abuse on the part of renters of circuits;

Unanimously puts forward the recommendation:

That the Administrations who admit the permanent rental of international telephone communication circuits provisionally base their actions on the following principles while waiting for the benefit of practical experience on this question:

1. International telephone communication circuits should not be lent for a given relation unless the number of circuits serving this relation makes it feasible.
2. The leasing of the international telephone communication circuits having been agreed, the connection will be established once for all in such a way that the central bureaus do not have to intervene, but it should possible for them to have the technical possibility of controlling the calls exchanged.

The stations so linked cannot in any case be stations normally made available to the public.

The conversations exchanged should concern exclusively the personal affairs of correspondents or those of their establishments. The lines cannot be in any manner be made available to third parties.

3. The rental should last for a minimum of one year; then it can be renewed every three months by tacit agreement, the termination being announced by on or the other party one month before the end of the rental period at the time.
4. The Administrations reserve entirely the right to withdraw the availability of the rented communication circuit if it is demanded in the interest of the general service, observing the delays of the third point mentioned above.
5. The subscription is payable in advance and by trimester.
6. In case of interruption of the telephone service, the originating Administration will proceed to reimburse the subscriber on demand. The reimbursement is fixed at three percent of the annual amount of the subscription for as many days as the interruption lasts. If the duration of the interruption is less than one day, there is no reimbursement; the period between nine am and three pm counts as a day.

The international consultative committee, considering:

That the rental of a international telephone communication circuit gives renters the possibility to obtain at any moment communication without waiting, having also the character of very fast communication, and constituting for the renters a very important privilege;

That, however, it is necessary to take into account the fact that the services of Administrations must not be interfered with by the establishment of these communications;

Issues unanimously, minus one voice, the recommendation:

1. That the subscription tariff corresponds to 120 units of tax for the same relation per day, but counting just 300 days per year.
2. That in every case and even in the case of frontier relations the rental receipts should be included in the international accounts.[24]

Already in 1927 we see a shared concern among PTTs that corporate circuits should in no way detract from the revenues of switched services, and the resulting fixing of a fairly high tariff rate. Similarly, by stipulating that messages must directly pertain only to the business of the customer and that third party access is prohibited, the Recommendation effectively banned the setting up of inter-corporate systems that might later evolve into a cream-skimming alternative to the switched network. Leased circuits were to be solely for intra-corporate messages, for example between a firm's home office and branch plants. In the 1930s, this language was amended to further require that any private equipment connected to the circuits must be approved by the administrations at either end and must not be used in any fashion not explicitly provided for in the original contract. These provisions were paralleled by telegraph Recommendations adopted in the CCIT, and remained essentially unchanged until after World War II. And while the great depression seems to have slowed the pace of leased circuit allocation, the service continued to expand despite the high tariffs because of the corporate demand for circuit reliability and desire to integrate their dispersed operations.

Corporate users had a constrained role in the development of the Recommendations over this period. There were and are no provisions in the ITU decision-making rules for participation by individual firms on a par with RPOAs or even manufacturers.[25] However, in the modern ITU there is the possibility of

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[24] Comité Consultatif International des Communications Téléphoniques a' grande distance, *Assemblée Plénie're de Côme, 5-12 Septembre 1927* (Paris: CCIF, 1927), pp. 117-119. My translation; emphasis added.

[25] In the ITU context, manufacturers are dubbed Scientific and Industrial Organizations (SIOs), and may participate solely in the consultative committees on a non-voting, advisory basis.

participation in the WATTCs and consultative committees by international organizations (IOs), such as the specialized agencies of the League of Nations and later the United Nations, as well as broadcast organizations, alliances of public utilities, etc. In this context, IO status was given to the International Chamber of Commerce (ICC), the telecommunications committee of which became the primary business advocate until after the war. In its pronouncements, the ICC took a fairly cautious and accommodative stance, urging lower tariffs and more flexible conditions while scrupulously avoiding any attack on the monopoly system itself. This caution may be partially attributable to the mixed interests of its membership, which included manufacturers with stakes in the existing system. It arguably was also due to the fact that in most of the world, monopoly provision and technical scarcity was the known universe, and there was no presumption that users could more fully manage the circuits on their own.

That changed after the war, for three reasons. First, the post-World War II era witnessed a dramatic expansion of foreign investment and a concomitant increase in leased circuit usage. As a wider variety of firms in different markets--especially banks, oil companies and commercial airlines--became reliant on in-house systems, the coalition of users interested in flexible regulations correspondingly became broader and yet more differentiated. The International Air Transportation Association (IATA), the International Civil Aviation Organization (ICAO) and the International Press Telecommunications Council (IPTC) joined the ICC in the ITU bodies, and their homogeneous member interests seems to have facilitated agreement around more clear (and often strident) positions vis administrations and the ITU. IATA in particular repeatedly lobbied for greater freedom to employ and customize telephone, telegraph and telex circuits to meet its constituents requirements. Of particular importance, ICAO and IATA sought permission for the airlines to be able to go beyond fixed connections in bilateral relations: it wanted the right for individual firms to connect their circuits into full blown private networks, and for such firms to be able to link those networks together for inter-corporate coordination on such matters as routings, passenger and freight hand-offs.

These demands became the subject of substantial controversy at the 1949 WATTC. The airlines' cause was probably helped by the fact that in most member countries they too were owned by the government, and they were joined in this regard by the European broadcasters. But administrations were torn by the fear of setting a precedent they would later regret and by their desire to have most traffic routed over public networks. In a non-binding Resolution, the implicit right of airlines to leased circuits was recognized, but they were encouraged to opt for public networks where possible and to work with the consultative committees on further studies of the matter. In another and more generic Resolution, members stipulated that in the European tariff system, users could have "joint leases," but with an increasing scale of charges for each user added. Moreover, "A circuit may be leased jointly by two or more users only when these users are *directly* engaged in the same or correlated type of undertaking...correspondence passed over such circuits may be transmitted only by a user sharing in the lease...it must concern only the

undertaking or undertakings for which the circuit has been granted...The number of operating stations belonging to the same user shall not be taken into consideration in reckoning the number of users participating in the lease."[26] This acknowledgement of corporate demands facilitated the development of inter-firm networks by such closed user groups as Eurex, the Society for Worldwide Interbank Financial Telecommunication (SWIFT) and the Société internationale pour la télécommunication aéronautique (SITA).

A second factor raising the stakes was the information control revolution. The merging of computing and telecommunications in government sponsored research in the United States and United Kingdom (eg. IBM's SAGE project) created possibilities for distributed data processing and strategic information management.[27] A learning process began as large users looked to these innovations and recognized the potentials of enhancing and integrating their geographically dispersed information-based functions, and this in turn fed a reevaluation of their interests vis telecommunications regulations. To the extent that those regulations limited their ability to purchase and deploy sophisticated equipment and network links, users in a variety of industries saw the need for a political campaign. They began to forge links with powerful computer manufacturers like IBM and later with potential competitive service suppliers to form what Eli Noam has called "the second electronics coalition." This new interest configuration converged around the common causes of liberalizing both the supply and usage of new equipment and services, and began to mobilize significant pressure at both the national and international levels. At the same time, their arguments were lent a measure of support and legitimacy by the development of new thinking among regulatory economists and other analysts who began to argue that the technological scarcity formerly cited to justify monopoly control was decaying, and that government policy should favor the ability of firms throughout the economy to engage in dynamic innovations and new forms of wealth creation.

Third, these arguments found a receptive audience in the United States. Beginning with the Above 890 decision in 1959, the FCC began to grant users progressively greater rights to control and customize their leased circuits while attaching more sophisticated equipment from a wider variety of systems vendors.[28] As users and new entrants began to consolidate their gains in the United States, they increasingly recognized the need to achieve at least some measure of liberalization abroad in order to construct optimal international networks. This unilateral

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26 Resolution No. 9, in *Telegraph Regulations (Paris Revision, 1949) Annexed to the International Telecommunication Convention (Atlantic City, 1947); Final Protocol to the Telegraph Regulations* (Geneva: ITU, 1949), pp. 191-192.

27 For a discussion of the government/corporate alliance in the development of computer networking, see Kenneth Flamm, *Creating the Computer: Government, Industry and High Technology* (Washington DC: The Brookings Institution, 1988).

28 For a discussion of the role of users in the deregulation process, see Dan Schiller, *Telematics and Government* (Norwood, NJ: Ablex, 1982).

liberalization was the primary means by which the United States government affected the global scene, as it altered incentive structures in the market and raised corporate expectations. A close examination of ITU history does not support the premise that American diplomacy and state power in multilateral bargaining was by any means the principal driving force in the global liberalization to follow.[29] Instead, American deregulation gave United States-based users in markets from banking and tourism to automobiles and energy greater capabilities to operate globally than were available to their competitors based in more tightly regulated markets. By the 1980s, the latter began to join the pressure campaign, while the new thinking about regulation in the information economy took deeper root overseas. This transnational convergence among firms and policy experts would eventually spell the end of the old order.

All these forces began to play out in the CCITT, which was charged with elaborating the Recommendations desired by administrations and RPOAs to cope with the expanding corporate demands. For 25 years following the committee's founding in 1956, IOs representing the private sector and the PTTs were locked in an increasingly tense struggle over the rules for private use networks. Particularly divisive were issues concerning the the demand for expanded formation of inter-corporate networks, access to the public switched networks, access to commercial data processing bureaus, tariffs, potential competition with PTT and RPOA offerings, resale, equipment attachments and circuit reliability. For most of this periods the carrier coalition attempted to meet users' demands at least half way without relegating themselves to mere providers of facilities. But by the mid-1980s the multilateralization of the new interest configuration, the spread of new ideas and the concomitant expansion of asymmetric deregulation at the national level rendered maintenance of a uniform and restrictive regulatory coalition increasingly difficult. And after the Commission of the European Community (EC) entered the fray and the 1988 WATTC effectively blessed liberalization, the coalition was finally pushed over the edge.

In the CCITT's 1956-60 study period, much of the controversy centered on the question of multiple-user leases, emerging data applications and the tariff thereof. IATA declared that its members required, "Ability to pass over these circuits all types of information, be it speech, conventional telegraphy and data...Ability to interconnect circuits, networks and data processors of different airlines...Ability to share such circuits between groups of airlines...The application of a uniform, simple and logical tariff structure covering the entire length of the international circuit.[30] WATTC-49 had provided for inter-corporate telegraph circuit leases, but the the prospect of multiple telephone leases and data transmission generated concern that

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29 Although that premise has been advanced by at least one neorealist theorist; see Stephen D. Krasner, "Global Communications and National Power: Life on the Pareto Frontier," *World Politics* 43 (April 1991): 336-366.

30 International Air Transport Association, "Airline Requirements for Leased Telecommunication Circuits---Contribution AP 50," December 7 1960, p. 3.

these might blossom into an alternative to the switched networks while limiting the financial gains administrations needed to develop their own advanced services.

As the German delegation noted, "A solution must be sought for them with all possible speed, because companies are branching out into fresh telecommunication fields all the time. Because in these conditions an Administration can only exert an influence on future developments if it clearly realizes in advance what possibilities are offered and can assess what the effect will be on existing services....In principle, Administrations will be unable to refuse requests from lessees to use circuits of particular kinds (especially telephone circuits) as the see fit." Hence it suggested, the existing Recommendations should be amended to allow that, "Leased circuits can be used for non-telephonic purposes...providing always that the circuit meets CCITT transmission requirements and that the terminal transmission equipment has been approved by the Administrations concerned. If customers intend to provide the same kind of facility as is provided for customers by Administrations themselves (for example, ordinary telegraph circuits), such approval should in general be refused...we think the [non-telephonic use] surcharge should be at least 50%, that is to say, that instead of 6,000 minutes of call per month [the existing flat rate at the time], 9,000 minutes should be counted for multiple-purpose circuits...this surcharge should tend to be prohibitively high, so as to protect the public telex service."[31]

The CCITT held confidential meetings without IO participation to discuss the tariff and other questions, and eventually decided that, "Hitherto, collective or multiple lease, while allowed for telegraph circuits, has not been allowed for telephone ones. At either end of the circuit the telephones connected to a leased circuit must belong to the same company or enterprise...Sub-Group 2/2 feels it would be undesirable if enterprises with associated activities were to band together to lease a circuit to their own advantage. Things must, it considers, be left as they are. It would not be wise to introduce collective lease for several users all active in a common field."[32] Hence, while Recommendation F.70 as approved by the 1960 Plenary Assembly allowed for multiple-use telegraph circuits if administrations preferred, Recommendation E.60 on telephone circuits remained largely unchanged from the 1927 text, save the inclusion of more elaborate accounting rules. Moreover, Recommendation E. 61 prohibited, except in exceptional cases, the simultaneous use of leased circuits for telegraph and telephone.

In the 1961-64 study period, IATA and other user groups upped the ante by pushing for direct interconnection with the public switched network and a discount for leases of groups of circuits. At the same time, the CCITT was concerned with developing a more uniform set of rules applicable to all types of circuits. Accordingly, it established a new Study Group III with responsibility for all

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31 Sub-Group 2/2, "Contribution No. 52," CCITT Study Group II, pp. 6-7.

32 Sub-Group 2/2, Contribution No. 58--Report of the Sub-Group's Meeting at Geneva, 11 to 16 July, CCITT Study Group II, 1960, p. 22.

accounting and tariff questions, including for leased circuits, and unified the telegraph and telephone provisions into the widely know D Series Recommendations. The new D. 1 laid down rules that nominally met some of the corporate demands, but did so in a manner designed to discourage unwanted activity. For example, it retained the provisions requiring that messages relate solely to a given line of business, allowed retransmission between circuits only when these were leased by the same customer, prohibited their interconnection with the switched network, and provided multiple-use with the addition of a surcharge of 37.5% of the single use rate. Under the section on single users, it also set for the first time a series of coefficients based on 6,000 monthly minutes of telephony by which more specialized offerings would be multiplied. For example, a telephone circuit used alternately or simultaneously for different types of traffic was to be tariffed at 4/3 the normal flat rate. This approach of differentiated tariffs for different services was retained for the next quarter century.

The IIIrd Plenary also approved another landmark Recommendation which elaborated a rationale for above-cost pricing in the name of covering social cross-subsidization and other PTT/RPOA expenses. This codified the notion that tariffs for switched or leased services could be set based on the "value of service" to customers. This was anathema to the TNCs, as they would obviously be judged to obtain substantial "value" from leased circuits, and the level of that value was left to the judgement of the carriers. This Recommendation, which remained essentially unchanged into the 1990s, is worth quoting in full:

CCITT Recommendation D.5
Cost and Value of Services Rendered as
Factors in the Fixing of Rates

1. The income from the totality of services provided by a telecommunication organization should cover all the costs incurred by that organization, namely:
   a) operating expenses;
   b) interest on capital involved;
   c) fiscal charges;
   d) depreciation of equipment;
   e) cost of research and development;
   f) capital investment (as required).

   For political or social reasons the rates for certain services may be so arranged that they do not cover all the costs involved. In addition, the rates applied should not create harmful competition among the various telecommunication services.

2. The CCITT therefore considers that the rates for the various telecommunication services should be such that the cover the items of expenditure listed above.

However, in view of the difficulty of applying rates based on these criteria, in certain cases, for the political or social reasons mentioned above, the CCITT considers that the over-all balance in the telecommunication services required should be achieved *by applying an increase factor to the rates of other telecommunication services* in the same telecommunication organization which will compensate for the deficit incurred by services run at a loss.

In determining this increase factor, the value of service rendered to the user should be taken into consideration.

In any case the rates adopted should be such as *to avoid harmful competition among the different types of service* provided by the organization concerned. Recognizing that a telecommunication service is of the greatest importance for the economic and social life of every country, the CCITT recommends that the surplus income form the telecommunication services considered as a whole should not be greater that the amount required for the efficient running of these services.[33]

Things began to heat during the 1965-68 study period. With its expanding product line, IBM wanted to get further into the operation of information processing centers to which users could send raw data for processing and retransmission. However, it judged that the 4/3 coefficient applied to data transmission was suppressing the development of the business and of applications, a position seconded by the World Meteorological Organization. Daring to tangle with Big Blue, the PTTs rejected this argument and kept the rate intact. Similarly, the IPTC attacked the 37 1/2% surcharge on multiple-use networks, but to no avail. But there was one major success for partisans of private networking: the United States argued that a flat prohibition on access to the public network was impractical, if for no other reason than that it was now allowing such connections; this placed the world's largest market in violation of the Recommendations. Moreover, the Americans argued that as long as resale was prohibited and users were constrained to send messages relating solely to their own business, interconnection would not only not undermine PTT control or revenues, but could also lead to more paid traffic.

The 1968 Plenary accepted these arguments and opened the door a bit. Rather than flatly prohibiting interconnection, D. 1 now allowed that, "In countries where interconnection between national leased circuits and the public network is not permitted, the interconnection of an international leased circuit with the public network is generally not permitted...In countries where interconnection between national leased circuits and the public network is permitted, the interconnection of an international leased circuit with the public network shall in principle be admissible, subject to the following conditions: a) The Administrations and RPOAs

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33 CCITT, *IIIrd Plenary Assembly, Geneva, 25 May-26 June 1964---Blue Book, Volume II* (Geneva: ITU, 1965), pp. 14-15. Emphasis added.

concerned will take all steps necessary to ensure that the traffic is restricted to the user's own business; b) interconnection with the public network will, except where otherwise agreed by all Administrations and RPOAs concerned, be restricted to installations within the terminal country's national boundaries."[34] The Plenary also split out separate Recommendations on continental (European) and intercontinental tariffs for leased circuits, with no coefficients listed and special arrangements endorsed in the latter.

The 1969-72 study period was a turning point in the emerging conflict. The CCITT was barraged with numerous submissions from pro-liberalization forces seeking to win affirmative language on the expansion of private use networks. Some of these used vociferous language to strongly challenge the PTTs in their own club house. For example, the ICC read the riot act to the CCITT, declaring that "An embargo on access to the international public network by communications computers would be ineffective when the same access can currently be obtained by manual tape relay methods....the very large sums of capital invested in such systems should not be jeopardized by restrictive measures...The concept of surcharging the customers for standard facilities provided by the Administrations which are utilized in a way which is different from that originally envisaged, but which do neither cause extra cost nor present a technical hazard, appears to be an *unwarranted application of monopoly power.*" [35]

The IPTC went further, lecturing the CCITT on the wonders of international interdependence among peoples, and suggesting that the D Recommendations "...tend to discourage the use of message data switching computers and the lease of private circuits. Furthermore, this discouragement would seem to stem less from any reluctance to appreciate the potentialities of private use networks as the servants of society than from a fear that their proliferation constitutes a threat to the revenues or even to the status of administrations....the comprehensive responsibilities of administrations to society at large has impeded their ability to meet the highly specialized requirements of principal users....[The development of]...unrealistic tariffs and a maze of loosely worded Recommendations, against whose restrictive interpretation users would have little redress, is to disregard the canons of social justice and of conventional business conduct. Furthermore, it is retarding the development of telecommunications in the service of man."[36] This was followed by a point-by-point attack on the Recommendations' provisions. For its part, IATA weighed in with multiple representations justifying the expanded interconnection of private networks between firms *in different lines of business.* Its members now had "a realistic requirement to interface between airline systems and

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34 CCITT, *IVth Plenary Assembly, Mar del Plata, 23 September-25 October 1968---White Book, Volume II-A* (Geneva: ITU, 1969), pp. 2-3.

35 International Chamber of Commerce, "Customer Private Networks—Contribution No. 26," CCITT Study Group III, July 1971, p. 3. Emphasis added.

36 International Press Telecommunications Council, "Revised Drafts of Recommendations D.1 and D.2--Contribution No. 35," CCITT Study Group III, March 1972, p. 2.

hotel reservations systems, car rental systems, etc., and wherever feasible, the airline want to interconnect their 'data banks' with those systems."[37] For its part, IBM insisted that data processing centers were an essential business tool that the CCITT could not responsibly suppress through restrictive regulations.

In response to these and similar pressures, the CCITT decided to develop new language more explicitly laying out the conditions for private networks. To the extent that it formally acknowledged certain activities that had once been ignored in the instruments, it provided TNCs a wedge with which to apply further pressure in the future. But at the same time, some of the provisions laid down were regarded by those same firms as being more restrictive than they would like.

For example, section 1 of D. 1 now required only that "When the circuit is used to route communications from (to) one or more users other than the customer, these communications must be concerned exclusively with the activity for which the circuit is leased." The possibility of inter-firm transmissions was thus accepted. Moreover, D.1 had three very notable new sections which read in part as follows:

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5. Private Use Networks

5.1 Recognizing the principle that *transmission and switching circuits and messages are the exclusive responsibility of Administrations,* the establishment of a private use network *may be authorized* to meet special requirements of certain users *if requirements cannot be met by the public network or by specialized networks set up by Administrations* as in 5.2 below.

5.2 In this connection, Administrations *reserve the possibility of setting up specialized networks in order to satisfy the needs of private customers* in a form of telecommunications which may be specially required by certain groups or categories of users.

5.3 Prior to authorization as in 5.1 above, the Administrations concerned shall confer and agree on the extent to which the network will conform to the provisions stateed herein.

5.4 The establishment of a private use network is subordinated to the supply of all Administrations concerned of the following information:
a) technical equipment used and the manner in which the network is to be operated;
b) the list of international circuits leased by the customer;
c) the scope of usage for which the leased circuits are requested.

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[37] International Air Transportation Association, "Airline Leased Circuit Requirements---Contribution No. 15," CCITT Study Group III, July 1970, p. 3.

5.5 No substantive change may be made to the basic equipment installed or to the manner of operation of a private use network without the concurrence of Administrations leasing the circuits on which such changes are made. A substantive change is one which results in the reconfiguration of a private use network, involving an alteration in the extent of use of its circuits or in an increase in the transmission speed relative to the information originally supplied by the customer...

5.6 In certain circumstances, Administrations *may require that the switching equipment necessary to meet a customer's private use network requirement be provided by and located on the premises of the Administration concerned.*

5.7 *The interconnection of two or more private use networks shall not be permitted prior to the agreement of the Administrations concerned.*

6. Public Network Access

6.1 The access of an international leased circuit to the public telex network or the public telephone network may be allowed subject to the condition that, prior to the access, the Administrations concerned shall consult and agree to the extent that such access may be permitted.

6.2 If the national law or established practices of an Administration participating in the provision of the service does not allow access, the relevant Administration has *a right to refuse* such access on its side.

6.3.1 A leased international circuit may be allowed access to the public telex network, provided that:

a) the end of the international leased circuit terminates on the customer's premises except as provided in 5.6;

b) all communications must be strictly limited to the customer's own business;

c) such communications may be exchanged only with telex *subscribers nominated by the customer and approved by the Administration* concerned.

6.3.2 In principle, access to the public telex network is allowed *at only one end* of the leased circuit. Nevertheless, by agreement among the Administrations concerned, connection to the public telex network may be extended to both ends of a leased circuit...

6.4.1 A leased international telephone-type circuit may be allowed access to the public telephone network for voice communications provided [largely the same as 6.3 above]

6.4.2 Access to the public network is allowed at one or the other of the terminals of the circuit *but not simultaneously at both terminals and is strictly confined to subscribers of the domestic public network of the country in which the circuit terminates.*

6.5 In addition to the charge for the leased circuit, customers must pay for the use of the public network.

6.6 Administrations reserve the right to make *special charges* for giving the customer access to the public network.

7. Systems using leased circuits intended to be connected to data processing centres (time sharing and reservations systems)

7.1 If a leased circuit terminates at one end in a computer, the other end may be allowed access to the public networks or to other leased circuits provided that:
a) leased circuits connecting users with a data-processing centre *may not be used for direct exchange of information between different users;*
b) *the transmission of messages between users having access to a data-processing centre shall not be permitted* through the data-processing centre;
c) the list of subscribers thus connected must be communicated to the Administrations of the countries of residence of these subscribers for their agreement; and
d) *the customer shall not be permitted to operate in the manner of an Administration by providing a public telecommunication service.*

7.2 However, it should be recognized that functions of a data-processing centre may depend upon the receipt of information partly from one user and partly from another.

7.3 It should also be recognized that the computer at a data-processing centre might be used to transmit to one user intelligence which has been derived from the processing of basic data received from the same or from another user....[38]

[Note to the discussants: The last few pages need to be reworked, but I wanted to get at least 95% of the text to you today so you could begin reading if your schedule allows. My apologies for doing so at the 11th hour. The complete text will be waiting for you at the hotel on Thursday.]

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[38] CCITT, Fifth Plenary Assembly, Geneva, 4-15 December 1972—Green Book, Volume II-A (Geneva: ITU, 1973), pp. 9-11.

6.6 Administrations reserve the right to make *special charges* for giving the customer access to the public network.

7. Systems using leased circuits intended to be connected to data processing centres (time sharing and reservations systems)

7.1 If a leased circuit terminates at one end in a computer, the other end may be allowed access to the public networks or to other leased circuits provided that:
a) leased circuits connecting users with a data-processing centre *may not be used for direct exchange of information between different users;*
b) *the transmission of messages between users having access to a data-processing centre shall not be permitted* through the data-processing centre;
c) the list of subscribers thus connected must be communicated to the Administrations of the countries of residence of these subscribers for their agreement; and
d) *the customer shall not be permitted to operate in the manner of an Administration by providing a public telecommunication service.*

7.2 However, it should be recognized that functions of a data-processing centre may depend upon the receipt of information partly from one user and partly from another.

7.3 It should also be recognized that the computer at a data-processing centre might be used to transmit to one user intelligence which has been derived from the processing of basic data received from the same or from another user....[38]

Here then was the sort of careful drawing of problematic boundary lines attempted by the FCC in Computer I and generally typical of the period. The underlying carriers were to have control over switching and transmission, retain a right of authorization or refusal, and circumscribe what sort of informational activities transpired in which pipes between which firms. At the same time, the industrialized country PTTs that wrote these provisions were also attempting to launch their own public data networks, and sought to reserve the right to determine whether their new offerings were sufficient for the TNCs' specialized needs. In some cases, such as France's TRANSPAC system, that would evolve into a viable option. But more often users preferred to hold onto the leased networks they were developing under their own control---service quality was not the only issue here. To discourage rampant private networking and recoup potential revenue losses in the switched services, the CCITT also acted on a German suggestion and changed the D. 2 rate structure for the European system. Telephone-type circuits applicable to all uses rather than just telephony were now taken as the basis for fixing tariff coefficients, and the monthly minimum for these flexible circuits was raised from

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38 CCITT, *Fifth Plenary Assembly, Geneva, 4-15 December 1972--Green Book, Volume II-A* (Geneva: ITU, 1973), pp. 9-11.

6,000 to 9,000 minutes of service per month. For users with more limited needs, this was offset by the development of decreasing coefficients of .667 and .833 for certain types of transmission. On the whole, these moves seem to have stimulated the further development of private use networks, albeit probably not at the rate that would have occurred with consistently lower tariffs and more flexible conditions.

The 1973-76 study period saw an increasing divergence of opinions between the new interest configuration and the PTT majority. Even though the D. 1 in no way mandated the setting up of private networks, some of the more recalcitrant administrations feared that the compromise language previously agreed was being interpreted by TNCs a matter of rights. A number of proposals were made to recast the provisions to underscore that circuits were to be granted only exceptionally, but strong opposition from ICC, IATA, IPTC, IBM and increasingly the United States made this difficult. More fundamentally, the cohesion of the coalition was beginning to show strains, as some continental administrations were becoming more permissive in order to satisfy the demands of their domestically-based firms for flexible applications. As a result, no major modifications of the general principles in D. 1 could be agreed. The United States won recognition that account should be taken of "the desirability of facilitating the advance of technology and the use of modern methods of operation and management," and that "Administrations should recognize the requirements for leased circuits in their planning." On the other side, certain PTTs insisted on underscoring their sovereign prerogatives with the clause that, "In the event of a violation of these provisions, Administrations reserve the right to cancel the lease."[39] In the next period, that fall-back provision evolved into a more permissive formulation: administrations could withdraw circuits whenever they deemed it to be in the public interest, but evidence of such instances is difficult to come by.

The 1977-80 study period also witnessed a new and bruising fight. Italy and a few other administrations proposed that henceforth, circuits should be charged for on a volume-sensitive rather than flat-rate basis, as was the case with the new public data networks the PTTs were trying to promote. Some countries already had volume-sensitive tariffs for certain specialized applications, and they wanted their practice to be accepted as the universal norm. Generalization of this rule would have shifted the cost burden for large users, and was vehemently denounced in a wide range of submissions from the new interest configuration. It should be added that this was also the period in which the CCITT was beginning to develop the basic concepts for Integrated Services Digital Networks (ISDN), and that there had been some loose talk from representatives of the Deutche Bundespost of eventually forcing users to migrate off their leased circuits. In this heated environment, the suggestion was put off for further study and never acted upon. Private networks were by now an established part of business practice, and attempting to formally endorse measures that would have greatly impeded them was now recognized to be

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39 CCITT, *Sixth Plenary Assembly, Geneva, 27 September-8 October 1976--Orange Book, Volume II.1* (Geneva: ITU, 1977), pp. 3-4.

tantamount to starting a religious war with the business community. The primary exception was for closed user groups where the lease was to a single customer operating a network for many users. In these cases, it was agreed that volume-based tariffs were both practical and far less controversial.

While no other major changes to the Recommendations were agreed, two political developments were notable. In 1974, the International Telecommunications Users Group (INTUG) had been launched in Brussels to serve as a more coherent focal point for pan-industry lobbying. After a delay, the ITU finally granted INTUG the status of an IO with observer rights in 1978. INTUG representatives immediately made their mark by enunciating a strong pro-liberalization position on a wide variety of issues. And toward the end of this period, the increasingly deregulatory United States began to line up much more firmly behind the users and computer service vendors seeking more flexibility regarding message retransmission by data processing centers. This new assertiveness was not always effective. For example, in 1980 the FCC circuits, despite the facts that almost every administration restricted these functions in accordance with the Recommendations. CCITT Director Leon Burtz promptly sent a strongly worded letter noting the "surprise" and "deep disappointment" within the ITU, stating further: "It seems to me an extremely dangerous situation when one country, and what is more, the leading country with regard to the number of subscribers, the extent of its services and its telecommunications technology, can help to undermine the work of the CCITT."[40] Many PTTs sent similar messages, some of them declaring that if the FCC proceeded, they would in turn revoke TNCs' access to leased lines. Frantic, American businesses bombarded the commission with calls to reconsider, and it retreated with egg on its newly extended profile.

While neither the 1981-84 or 1985-88 study periods produced major changes in the key provisions of the general leased circuit Recommendations, the political ground began to shift dramatically under the CCITT's feet. Despite their restrictive language, the Recommendations were beginning to lose some of their bite. By mid-decade, changes in the political equations at home and the spread of new thinking about the information economy were leading many of the key regime-making states to reevaluate their positions regarding both national and international institutions. Frustration with weak macroeconomic performance and a conservative political wind set a larger context in which these pressures became doubly compelling. Two in particular merit brief mention here.

First, corporate demands for deregulation were taking on a truly international profile. Firms abroad which had initially been either lukewarm or hostile to the American agenda, especially large users, were reconsidering their positions. TNCs, especially those in financial and other services, found themselves competing with American-based counterparts which were benefitting from the efficiencies and enhanced range of choice in systems and applications associated with liberalization.

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40 Quoted in Dan Schiller, *Telematics and Government*, 1982, p. 185.

Market incentives therefore pointed to the desirability of achieving similar gains with their home PTTs, and of extending these gains to cross-border services. Further, a conceptual realignment accompanied these users' shift to more globally oriented profiles. They now saw themselves to have similar interests as American users in relation to states, insofar as they were more concerned with accessing the best resources than with buying nationally. If foreign-based services were more appropriate than those of local suppliers, they wanted lower tariffs and easier interconnection. If foreign CPE was better for their customized needs, they wanted open standards and liberalized attachments. Hence, the regulatory preferences, negotiating agendas and intellectual orientations of large users across the industrialized world began to converge around imported focal points, which substantially broadened the support for and impact of the efforts of INTUG, ICC and similar industry alliances.

A parallel shift was occurring on the market's supply side. The rapid globalization and differentiation of demand generated new opportunities which could be realized best in a liberalized international market. Traditional telecommunications manufacturers and new entrants, whether medium-sized start-ups or large computer and electronics firms crossing market niches, could not recover the rising R&D costs of advanced CPE and network equipment without foreign sales. Potential private service suppliers could not lure customers to their new offerings unless they could ensure end-to-end connectivity. As locally-based users began to procure more widely, success at home necessitated resources and expertise not attainable solely through monopsony purchases. National competitiveness therefore required international competitiveness. Where states were slow to change, TNCs devised novel solutions to access barriers, such as joint ventures and other resource sharing arrangements. These were piecemeal responses to an uneven transition in which some suppliers still clung to their PTT patrons. But those companies seeking international profiles wanted the predictability of a "flexible" and liberalized multilateral framework.

Second, the emerging reconceptualization of telecommunications' role in economic activity raised the question of whether PTTs should retain their exclusive jurisdictions. If indeed it was not merely a public utility, but was now the nervous system and catalyst for the full range of user industries, other state agencies whose turf was affected by telecommunications wanted a say in national policy. By virtue of their professional training and organizational objectives, the personnel of such agencies were more receptive to liberalization than those of the PTTs. Key trade ministries thought that many cross-border transactions constituted trade and were under their jurisdiction; industry ministries wanted to support national firms, but that held for users as well as producers; competition ministries saw the possibility to extend their antitrust policies; finance ministries wanted to cut expenditures through privatization; and so on. Moreover, such ministries had ties to different social constituencies than the PTTs, and were the targets of effective lobbying by the new interest configuration. While the resulting inter-agency divisions over regulation paled in comparison to tradition of turf wars in the United States, they

did render telecommunications policy a contested intellectual and bureaucratic terrain, which in turn added to the reform pressure. PTTs no longer had an automatic claim to exclusive and unquestioned jurisdiction over the field. Hence a changing configuration of corporate and intra-state interests and ideas was taking root. These pressures were forcing administrations to reexamine the efficacy of the regime, and would probably have been sufficient to catalyze change in the ITU. However, two further initiatives added supporting external pressures to the mix.

One was the GATT's launching of the Uruguay Round in 1986. The notion that international services exchange had trade-like properties first emerged in the early 1970s, and by the early 1980s the United States was pressing other governments to negotiate services rules as part of a larger trade package. This decision reflected both new corporate interests and ideas about the global economy and national welfare. The new interest configuration in the United States supported strongly the government's position, and indeed played an important role in its formulation. After all, the principals and agents involved in GATT negotiations were more pro-competitive than those in the ITU. Trade policy tended to receive greater attention from central governments and mobilize broader corporate constituencies which lacked stakes in the postal industrial complex. Moreover, the concepts and terms of reference employed in GATT discussions were more congenially loaded. Trade policy was about establishing rules of fair competition, opening up market access to a multitude of players, and circumscribing narrowly the conditions under which access may legitimately be constrained. The very act of viewing telecommunications as part of a larger category of services transactions to be "traded" according to common rules created a strong conceptual bias toward openness, and set a new yardstick for evaluating telecommunications regulations as simple non-tariff barriers to be removed. Hence the GATT was an attractive venue in which to push for an a new multilateral framework that would deal with the economic dimensions of international correspondence, as well as a means of pressuring administrations in the ITU to reform the extant regime.

When the United States first raised the issue in 1982, most GATT members were reluctant or hostile. At this point, the suspicion was widespread that the Americans wanted negotiations for their own particularistic ends. But over the next four years, an interesting process took place. After undertaking studies of their national capabilities in services, the EC and many key countries learned that they were not helpless before the American threat, and could in fact fare well in freer competition.[41] In the years since the round's launching, opposition in principle to some type of telecommunications trade deal has virtually evaporated, although governments continue to fight over precisely how open the market should be in accordance with which rules and commitments. At the time of writing, negotiations on a General Agreement on Trade in Services (GATS) and its Telecommunications Annex are stalled along with the rest of the round. While the

41 For a discussion of the relearning of national interests regarding trade, see Drake and Nicolaidis, "Ideas, Interests and Institutionalization," 1992.

particulars of the Annex cannot be examined here, the key point is that its impact is not entirely dependent on its final form. A treaty would be important in codifying and reinforcing change, but the negotiation process itself had already altered the world of telecommunications policy by the mid-1980s. It was becoming clear that telecommunications would increasingly be thought of and bargained over in trade terms, and that corporate demands for market access would become politically difficult to ignore. As with contested markets among firms, a contested market among policy-makers helped lead to anticipatory action. To avoid being swamped with criticism and legal challenges, PTTs needed to get out in front of the wave and prepare for the eventuality of trade by injecting some competitive advantage into their operations; deregulation was in part a response to that need. Simply by taking up services, the GATT had already played a supporting role in laying the seeds of change in the ITU.

The other contributing factor was the launching, also in 1986, of the EC's 1992 program of internal market unification. For over a century, it had been European PTTs which provided the dominant orientation of ITU instruments regarding regulation and standardization. But with the commission's conversion to the cause of a single market in telecommunications and information, those PTTs now found themselves confronted with a higher pro-liberalization force backed by substantial legal and political authority. In the past five years, the commission has undertaken a wide range of initiatives to push institutional and policy change which have impacted heavily the major national markets and the ITU's internal politics.

As a result of these factors, deregulation and liberalization have become a global movement since the mid-decade. It took root first and most deeply in the domestic systems of the advanced capitalist world, where the pressures and capacities for change were strongest. But it has recently begun to spread rapidly to LDCs and formerly communist countries, as well as to international connections. The characteristics of national deregulation need not be recited here. What is important is how they affected the politics of international private use networks.

From 1985 through 1987, preparation for the upcoming WATTC in 1988 occupied much of the CCITT's attention. Without recounting all the details of this process, we can recall that the initial effort by a number of PTTs to strengthen their sovereign prerogatives in an age of rapid liberalization generated an unprecedented controversy for the ITU. Most notable were draft provisions for the new Regulations that seemed to expand their reach to include all types of service providers, not just administrations and RPOAs. After a massive mobilization of corporate pressure and American threats to return to its previous status of non-signatory, the preparatory process reached an impasse. The Secretary General submitted a text that eventually served as the basis for a compromise at the Melbourne meeting which, while preserving states' right to authorize service providers if they wish, also contained language endorsing the expanded development of many different special arrangements outside its restrictions. Although the United States adopted a strident posture and was isolated at the

meeting, TNCs recognized that the agreement was nevertheless a major watershed in the shift to liberalization.[42]

Against that backdrop, the United States and its corporate allies now saw that the political coalition for restrictions on private use networks was rapidly unravelling. Accordingly, a new push was launched in the 1989-92 study period to gut the D Series of its more restrictive provisions. Crucially, the EC Commission sent representatives from the Competition Directorate to visit CCITT and inform administrations of the twelve that certain aspects of the D Series were in possible violation of the Treaty of Rome and recent Directives on telecommunications liberalization. European PTTs were thus forced to abandon the last outpost of the *ancien* regime of which they had been the primary architects. Meetings held in October 1989 and May 1990 examined various proposals, and a draft text was ready by November 1990. After some language changes to mollify certain PTTs, the March 1991 meeting endorsed the text by consensus and submitted it for full CCITT approval under the new accelerated procedures, which it received in the summer of 1991.

The new D.1 essentially derives use-specific rules from the WATTC's general principles. It allows basically unfettered access to and control over internal leased circuits; accepts liberal attachments to and modifications of lines, subject to easier type approval and avoidance of technical harm to facilities; accepts the provision of telecommunications services to third parties; allows the expanded interconnection of private leased circuits and networks between each other and with public networks; and accepts the resale of excess capacity. On charges, "circuits should be cost oriented and generally established on a flat-rate basis," and any access charges must be "cost-related" and dependent on the administration's own additional expenses from providing the specific mode of interconnection or special routing requested by a customer. Changes in conditions such as cancellation or temporary withdrawal of lines are to be done only after substantial consultations. And many of the restrictive sections in the 1988 text were simply dropped from mention, eg. the rules giving administrations exclusive control over switching, limiting communication with data processing centers, etc. In parallel, D. 2 was revised to eliminate the coefficients TNCs had long viewed as onerous.

In short, the regime provisions on private use networks have undergone a substantial transformation. Administrations may designate certain services like public telephony as their exclusive domain, and can also choose to retain restrictions under their national laws. But there will no longer be specific prohibitions in the regime to cite as justifying or requiring such actions in either domestic or international planning. As such, the current international framework provides the leeway needed by TNCs to undertake more substantial development of increasingly global private use networks beyond the control of individual nation-

42 For extended discussions, see Drake, "WATTC-88, 1988;" and Drake, "Asymmetric Deregulation," forthcoming.

states in the coming years. The GATS Telecommunications Annex, the EC Directives and other non-ITU arrangements may become central to how, if at all, these networks can be shaped to maintain public objectives.

Conclusion.

This paper has attempted to show how two types of private networks have been regulated in the context of the multilateral framework of the ITU-based regime. I have argued that the wider regime has undergone a significant transformation in its overarching principles as well as the rules used to operationalize them, and that an important part of this story is the liberalization of private use networks. In a subsequent revision (and streamlining!) of this paper, I will also touch briefly on the regulations pertaining to the other two private network types mentioned at the outset, and will develop some observations about the possibilities for future international public cooperation in a rapidly privatizing world.