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INTRODUCTION

A revolution in information exchange is underway. The convergence of computer and communication technologies, sometimes called “telematics,” “comunications,” or “teleinformatics,” ¹ is making it possible for information in many forms to be transmitted instantly and cheaply between any two points on the globe. The technological means to establish a universal, international communications network linking all mankind are within reach. Indeed, many pieces of this network already exist.

The international exchange of data and information through this global communication network constitutes an increasingly important element of world trade and a major source of future economic growth. This rising international flow of data and information is also increasingly a preoccupation of governments concerned about privacy, national security, cultural independence and domestic industrial development. ² The challenge that faces national policymakers is to maximize the benefits derived from the free exchange of information while at the same time guaranteeing the national security and the social and cultural integrity of their countries. Finding the proper balance between openness and regulation is difficult but crucial.

Because restrictions on trade in communication and information services distort trade, impair growth, and hamper innovation, we believe that,

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as a general rule, countries should try to promote free trade in telecommunications, data processing, and information services to the greatest extent possible. Our aim in this article is to outline an approach that could help minimize protectionist barriers that threaten the free flow of information across national borders. To do so, we suggest ways to distinguish between protectionist and "legitimate" reasons for imposing policy measures that may impede trade in communication and information services.

Our argument unfolds in three parts. Section one highlights some of the changes that the revolution in information exchange is producing. It also argues that transborder data flows could help faciliate international economic adjustment. Section two analyzes the types of reasons used to justify policy measures that inhibit the integration of the world communication network or prevent information from flowing across national borders. It also discusses the implication of restrictions on transborder data flows for the world trading system and for world economic growth. The final section discusses strategies for halting the proliferation of barriers to trade in communication and information services and for reducing existing obstacles.

THE NEW INFORMATION ECONOMY

Before telegraph and telephones, information had to be manually transferred from one place to another. Diplomacy and commerce were transformed by the capability to transmit information over wires. The introduction of radio and television accelerated the pace of change still further. In the past forty years, communication possibilities have multiplied as modern technology has brought down the cost and increased the speed and reliability of communications and as computers revolutionized storage, processing and retrieval of data. Computing and communication costs have fallen dramatically as computational power and ease of communications have increased. New breakthroughs continue to transform the communication network and speed the exchange of information worldwide. Some examples follow:

(1) In print journalism, articles can be written in one country, edited and mocked up in a second, typeset by computers in a third, and then transmitted by satellite for printing halfway around the world. Ultimately, it may be unnecessary for publishers to print books, magazines, or newspapers. Updated information could be entered into data banks with access gained instantly from home or office terminals.

(2) As for education, lessons can be transmitted, live or taped, by short-wave or television, to rural areas lacking qualified teachers. Even the need
to gather for classes might in many cases be eliminated when students can "tune in" to prerecorded classes.

(3) The existing global data processing network also permits engineers in Pakistan to produce architectural drawings, Indian computer programmers to write computer software, and coders and keypunch operators working in Barbados all to transmit their work to companies in North America almost instantaneously.

(4) Consumer data bases have markedly changed commerce and tourism. In 1959 Bankamericard (now Visa), the first universal system for providing consumer credit, was introduced in California. Today, American Express, Visa, Master Charge, and other charge cards are accepted as means of payment for goods and services throughout the world. We will soon be able to verify the availability of funds and transfer them between the accounts of buyers and sellers wherever the funds may be held.  

(6) Finally, innovations in banking, such as the introduction of Electronic Funds Transfer Systems (EFTS), and the creation in 1973 of the Society of Worldwide Interbank Financial Telecommunications (SWIFT) have speeded the transfer and reduced the cost of moving information and funds between domestic branches and across national borders. Both of these systems have transformed the business operations of banking and other financial institutions. International banking on its present scale could not exist without them.

Developments such as these will speed economic growth, create new jobs, spread education, and make more information available to more people. But the new technologies also appear threatening to many. Change in itself tends to be upsetting. Beyond that, governments fear the loss of national control. As technical barriers to the international movement of information fall, all countries become more interdependent and some national control is lost. Governments are trying to grapple with the problem of managing the new abundance of information. They want to adapt, but not too quickly. To slow the process of change and adaption, some countries are imposing new regulations to control information flows.

Most government officials also recognize that telematics and high technology-based industries will be important to future economic vitality. Many industrial countries, France and Japan being prominent examples, are trying to promote their future prospects by subsidizing and in some cases protecting industries of the future. Several advanced developing countries, such as Brazil, hope to insure that they do not fall too far behind in developing these new industries. Both types of countries are thus tempted to try to stimulate and protect the development of their own domestic information industries.
REGULATION OF TRADE IN INFORMATION
AND COMMUNICATION SERVICES

One way in which governments attempt to control the rate and kind of change is by limiting electronic access to computer data banks abroad or by limiting the extent to which foreigners can use communication channels for providing information or communication services. Actions of these two types slow change and hamper economic growth. Assessing the costs and benefits is the job of politicians, but, to make such decisions sensibly, politicians must balance the need to protect political, social, and cultural values against economic benefits.

It is useful first to describe the main types of obstacles to transborder data flows and the reasons articulated for imposing them before judging the economic and trade implications of these actions.

Types of Regulations

Regulation of International Data Flows

Many countries have adopted policy measures that either prohibit the inflow or outflow of certain kinds of information or effectively raise the cost of transmitting information across national borders to such a high level that the flow is reduced. Regulations or taxes can limit the transmission of data across borders, either by purposeful design or as an unintended result. By raising the cost of doing business or by increasing the uncertainty associated with doing business, transmission of information across existing communication lines will be curtailed. For example, the French have suggested that they might tax the value of data that is imported into France. This would require expensive modifications of encoded data which would make the price for foreign enterprises doing business with France prohibitive. Similarly, several European Postal, Telegraph, and Telephone (PTT) monopolies have, from time to time, suggested that they might charge for the use of private leased lines on a volume-sensitive basis instead of at a flat rate. Users calculate that this could increase the cost of transmitting data by as much as 700 percent, making many current operations uneconomical to maintain.

Competition with Communication Monopolies

Friction often develops between government authorities choosing to operate through government owned or controlled PTTs and foreign providers of data services or value-added communication services. Governments sometimes choose to limit the number of foreign suppliers of information services as well as the scope of services that may be provided. For example, many countries restrict or ban the shared use and resale of private
line for fear that foreign companies would divert business from the government PTT.\textsuperscript{13} Such measures may increase the cost and reduce the flexibility of international telecommunications operations and significantly hamper trade in goods and services.

A parallel concern, particularly for the United States, is that foreign PTTs might use their monopoly power to take anticompetitive steps to the detriment of foreign providers of value-added telecommunication services and information services not covered by the PTTs' existing monopoly. Already, the Nordic and Benelux telecommunication authorities have suggested limiting the number of providers of certain new international communication services.\textsuperscript{14} United States providers of these services are concerned that they could be "whipsawed" by foreign PTTs, which might play foreign suppliers off against each other, thereby shifting the economic benefits in their favor. There is also concern that foreign PTTs might secure operating privileges in the United States for their subsidiaries and then exclude all American competitors from competing for the business of transmitting information between the United States and their home countries.\textsuperscript{15}

**Discriminatory Standards**

A number of governments have established standards for telecommunication-related services that depend on public communication facilities. The establishment of standards can be extremely useful in encouraging the growth of new types of information and a value-added communication services. Standards can also be designed to impose an indirect barrier to foreign companies, or, alternatively, they may be administered in what appear to be purposefully discriminatory ways. For instance, several countries have established protocols which cover the bit sequence of the introductory portion of digital messages.\textsuperscript{16} In some cases the choice of sequences required has greatly impaired the efficiency of foreign as compared to local equipment.

Many governments regulate the extent to which privately-owned equipment can be connected to the public telecommunications network. Such regulations can severely limit the type, make, or design of equipment acceptable for "interfacing" with the domestic communications system.\textsuperscript{17} This in turn limits the types of communication and data services that can be provided on a cost-effective basis to users. Restrictive policies with respect to the type of equipment which can be plugged into the public communication network, restrict transborder data flows and distort the logical development of efficient telecommunication networks. Combating this trend, several international and regional organizations are currently engaged in activities that have as their goal the harmonization of telecommunication equipment standards.\textsuperscript{18}
Restrictions on the Use of Foreign Data Processing Facilities

A number of countries have adopted or are considering legislation that would restrict the use of computer facilities located in other countries, either for data processing or for information retrieval. International economies of scale and technical considerations are such that when foreign concerns must duplicate their equipment and data processing facilities in each processing center, many of the benefits that telematics breakthroughs have provided are lost, and costs to users rise significantly. At the extreme, of course, governments could require that publicly-available data services must be provided domestically. Foreign competition then would effectively be shut out.

In reviewing the types of measures that can restrict the flow of information across national boundaries or prevent the integration of communication systems, it should be emphasized that all of these regulations can, at least theoretically, be justified on many grounds. One critical challenge for international policymakers is to develop procedures for distinguishing regulations meant to hamper trade from measures designed for legitimate purposes which have an unavoidable effect on trade. This task will become somewhat easier if countries are convinced that, from the perspective of growth and economic efficiency, everyone benefits from the free flow of information and communication services.

First, however, we need to examine the explanations countries give for regulating the international flow of information.

Reasons for Imposing Regulations on Information Flows

Six sometimes overlapping reasons for regulating the use of the international communication network and transborder data flows are frequently articulated.

Data Protection and Privacy

Most countries have adopted data protection laws to safeguard the privacy of their citizens. Some countries go even further and insist on their right and duty to protect the privacy of their legal citizens such as corporations and associations. During the 1970s, data protection to ensure privacy was the most frequent reason given for regulations affecting transborder information flows. The enactment of such regulations created considerable concern that they might be used by some governments to restrict transborder data flows.

The rapid expansion of computer capacity to store and manipulate extensive data files on individuals has provoked concerns about the potential for extensive intrusion into personal privacy. Governments, particular-
ly in Europe, have reacted by instituting laws designed to protect personal privacy and to ensure that privacy protection is not diminished by the export of the information. The new OECD privacy guidelines and the Council of Europe Treaty are attempts to harmonize differing national approaches to this issue. 24

*Actions to Ensure Cultural and Societal Integrity*

A number of countries including France, Canada, and a host of Lesser Developed Countries (LDCs) have also expressed concern about the dilution of indigenous culture caused by the dissemination of foreign books, magazines, films, and other materials as well as through the delivery of television programs via satellite. Governments have adopted a wide variety of policies to reduce foreign cultural penetration, by limiting the access of foreign advertising, broadcasting, and publications to their markets. In recent years advances in modern video and information retrieval techniques have extended considerably the possibility for delivering information to people. These advances, in turn, have prompted many governments to extend their regulation of information flows to the newest technologies.

The seemingly pervasive concern that the spread of foreign data processing may subject potentially large sectors of societies to excessive influence from dominant, alien cultures tacitly underlies these regulations. This argument has been raised repeatedly by developing countries in the councils of UNESCO and also by the Canadians and other industrialized countries with reference to the United States.

*Actions to Safeguard National Security and Sovereignty*

Most governments, including the United States, maintain measures to prevent public disclosure of information related to national security. In general, such laws seek to prevent public disclosure of vital information and do not seek specifically to prevent its international transfer. In some cases, however, the result is that the outward flow of technical data is restricted.

Some governments also argue that consideration of their economic security requires them to restrict the international transfer of information about their domestic economic resources. For example, Brazil and other developing countries have opposed the use of remote sensing systems or other advanced detection techniques which might provide foreign countries or companies with oil production data or with better information on potential deposits and distribution than is available to local authorities. 25

Some governments also restrict the international transfer of certain types of economic information in order to protect the sovereignty of economic activity of their citizens. By denying foreign entities such information, governments in general try to make it more difficult for other
governments to assert extraterritorial regulatory authority over them or over those operating within their borders.

Laws to Ensure Access to Data Vital to the Public Interest

Many countries require that information necessary to the functioning of their economies be stored or processed domestically. Government officials fear that for economic, political, or technological reasons they might be cut off from critical data or they could be vulnerable to the threat of such a cut off. Two examples of such measures are frequently cited. First, in banking, Canada and Germany, for different reasons, require data about the accounts of their nationals to be stored and processed domestically. Such measures, however, force foreign banks to duplicate at substantial cost their record processing hardware and software in each country. The second example is that of the Malmo, Sweden fire department-computer program. Malmo computerized the plan of the city to help the fire department act efficiently during emergencies. The information was stored in a computer in Cleveland, Ohio and accessed by satellite. Great concern arose, however, when an electrical failure in Cleveland and a fire in Malmo occurred simultaneously, preventing Malmo from tapping its data. The data file was subsequently transferred to Amsterdam.

Protection of User and Consumer Interests Through Public Monopolies

Many governments regulate the access of foreign telecommunications entities to their market to ensure the provision of reasonably priced, reliable service to their private citizens and corporate users. The United States is nearly unique in its reliance on market forces to provide not only information services but also, to an increasing degree, a wide variety of telecommunication services: e.g., long-distance calls or data links. Elsewhere, the full range of telecommunication services are provided exclusively by government owned, or controlled telecommunication monopolies (PTTs) empowered to establish fair prices and to provide reliable services. Often, this mandate requires regulators to distinguish clearly between the regulation of domestic and international services. Previously, the variety of telecommunication links between countries was more limited, with the result that the distinctions between domestic and international regulation of services were less significant. With the merger of computer and communication technologies, however, disparities between domestic and international regulatory structure have affected transborder data flows.

Rapid advances in technology, and the corresponding decline in the capital investment required to establish new communication services, have improved the prospects of smaller firms more efficiently providing specialized, international telecommunication services. Some governments fear that if too many providers of new services gain access to their markets, it
will be more difficult for them to protect the public interest or to protect the economic position of their public telecommunication monopolies. For example, a number of countries are concerned that the international application of the Federal Communication Commission's (FCC) deregulatory efforts under the so-called Computer II Inquiry will subject them to America's free market competition and undermine their planned communication market. Some of these countries see this FCC action as threatening the domestic authority of their own PTTs. They have stated that they may retaliate to prevent the deterioration of government control of their national telematic services. By contrast, Britain, Japan, and Australia have reduced regulation and they are experimenting with greater market competition in an effort to lower costs to users while still providing reliable services.

Protectionist Actions to Shield Domestic Industries
Countries also erect barriers to transborder data flows and resist integration with some parts of the telecommunication network to protect domestic industries from foreign competition. Classic arguments for infant industry protection are raised to justify restrictions on telecommunications, data processing, and information services. Countries argue that they must protect and promote industries which will be central to their future economic prosperity. Often domestic manufacturers of communication and computer equipment, for example, are protected from foreign competition. Brazil and some industrial countries attempt to protect their industries by placing barriers on imports of telecommunication and information equipment and services.

Most industrial countries have largely agreed to limit the establishment of new tariff barriers. However, most of these countries maintain non-tariff barriers on the exchange of goods and services, thereby distorting world trade flows. Ultimately, such barriers may be more damaging to world trade than explicit impact barriers at the border because when the transportation, communication, and financial underpinnings of trade are damaged, all trade, not just the activity of specific sectors, is disrupted.

In some cases, the protectionist motive for regulation of trade in communication and information services is explicit; in other cases, governments claim that their actions fulfill one or more of the other non-economic goals described earlier. One responsibility of trade policy officials is to find ways to distinguish measures that serve purely protectionist purposes that distort world trade from those that advance legitimate social or security goals, so that efforts can be made to limit the enactment of new obstacles and to remove those currently in force.
Possible Effects of Regulation on Information Flows

Having reviewed the most common types of regulations and the reasons normally given for imposing them, we can now analyze the likely impact of these measures on transborder data flows and on the functioning of the international communications network.

It is prudent to note, however, that despite the increased attention devoted to restrictions on information and communication flows, the establishment of such barriers has not already become a critical situation. Indeed, as policy officials we are trying to promote adjustment to the new communication and information technologies and strengthen the bases for free trade in value-added communication and information services to prevent a crisis from arising. To date, companies have managed to continue their operations with only minimal dislocation of their preferred communication and data-processing activities. New market opportunities have been somewhat curtailed, though they probably have not been severely restricted. Unless some sound steps are taken soon, however, at least four types of negative economic consequences could result.

Disruption of Existing Economic Activities

The most fundamental impact of the continued proliferation of barriers to trade in communication and information services would be the disruption of existing international commercial and financial relations. The breakdown of the charge card network or of the SWIFT system used by the banks would, for example, seriously affect the day-to-day functioning of world commerce. Similarly, the logistics of the world's air and marine transportation systems would be threatened by major communication disruptions or breakdowns.

Impact on Growth of Domestic Economies

Specific cases suggest that government regulation of information flows has forced many firms to make suboptimal decisions, particularly from a cost standpoint, regarding information, data processing, and telecommunication services. For example, some firms have been forced to develop separate facilities in different countries, thereby increasing their costs, reducing their efficiency, and perhaps diverting their investments from more productive uses. Moreover, restrictions on communication and information services may influence the operations and planning of other industries which use them in providing their services or producing their products.

Business concerns about future actions by governments have probably had a more adverse economic impact than the actual measures taken by governments to date. Concern about future restrictions, enhanced by in-
tense debate in government circles, has induced some enterprises to postpone investments in data processing and telecommunication systems and facilities to the detriment of international trade and economic growth in general. These reactions to anticipated restrictions have had a real, although difficult to measure, impact on the domestic as well as the international structure of industry. Inefficiency which need not have occurred has crept into the system because of political and protectionist concerns.  

**Impact on Growth of the World Economy**

Growth of the world economy depends on trade: As goods and services related to information and communication are among the most dynamic sectors of our economies, restricting trade in this area particularly affects growth opportunities. Barriers to selected international communications, such as data on market opportunities, on the creditworthiness of individuals or commercial enterprises, on debts and assets, or on sales and expenditures, could disrupt future trade and investment. Most countries are currently experiencing sluggish growth, and limitations on new telematics trade and investment opportunities could sidetrack efforts to stimulate domestic and international growth and recovery.

Protective actions taken by a few governments also might start a chain reaction of restrictions, with governments competing with one another to defend and promote their perceived interests. Such steps could create serious political friction among countries and could further disrupt world trade during a time of tension over issues such as European agricultural export subsidies, Japanese industrial targeting practices, and widespread subsidization of exports by developing countries.

**Impact on PTT—Private Sector Competition**

Communication services between the United States and foreign countries are provided jointly by private firms on the United States side and national monopolies on the foreign side. Until recently the Federal Communications Commission allowed only AT&T to provide international voice service, while several International Record Carriers (IRCs) competed to provide international “enhanced” information services. In 1982, FCC deregulation permitted for the first time AT&T and the IRCs to compete head-to-head by deregulating enhanced services and permitting AT&T to compete to supply these services.

Historically, foreign PTTs have negotiated operating agreements with several American IRCs to provide the same enhanced services along the same route. To discourage the PTTs from playing one IRC off against others (“whipsawing”), the FCC maintained a “uniform settlements” policy, which required all American IRCs providing the same service to the same foreign point to specify the financial arrangements that were agreed
upon. To alter the financial arrangements with the PTT, all of these IRCs had to make the same change simultaneously. American users are concerned, however, that as the FCC has given up some of its regulatory powers, they may now be more vulnerable to PTT whipsawing on both new and existing services. In the past, whipsawing of American firms by foreign PTTs was more difficult to engineer because the IRCs were less numerous, maintained a large technological edge, and were therefore in a better bargaining position. The proliferation of new companies and services, however, has weakened their bargaining position.

In upholding the Computer II Inquiry in August 1982, the FCC chose to continue to regulate basic communications services, but to relinquish its authority to regulate enhanced communications services. The Computer II decision would permit any person or firm to enter into an operating agreement with a foreign PTT to provide a specific enhanced service without seeking permission from the FCC. Although the FCC maintains that its continued authority over the basic services will allow it to respond to unfair competitive practices by foreign PTTs regarding enhanced services, the users remain nervous. The United States continues to seek ways to ensure that American private companies will be able to compete fairly abroad for new markets.

**STRATEGIES FOR PRESERVING TRADE**

What can we do about the growth of barriers to international trade in communication, information and data processing services? As we have pointed out, most barriers are intertwined with legitimate regulatory activities of governments, and in order to eliminate these barriers you have to find a way of separating them from those legitimate regulatory activities. Moreover, in order to develop the international consensus necessary to tackle these issues, one has to make it clear that one is not questioning the legitimacy of the regulatory activity *per se*, but the avoidable protectionist elements of such regulation.

A second point to bear in mind is that the level of restrictions on transborder data flows that has emerged is still relatively modest as compared to the potential restrictiveness of many proposed regulatory actions. At the same time, current regulations covering communications activities in many countries have retarded, but generally not prevented, the introduction of new value-added communication services. It is probably more important at a governmental level, at least initially, to try to slow down the introduction of new barriers than to embark on comprehensive negotiations to remove existing barriers. In most cases, individual firms have proven themselves capable of working out acceptable accommoda-
tions with the host governments involved, with occasional support from their home government on a case by case basis.

Negotiations aimed at the objective of slowing down or preventing the introduction of new barriers to trade in information and communication services must take account of the rapid pace of change in the technology, and the considerable uncertainty faced by government officials concerning future social issues that might emerge from the introduction of this new technology. There is a very real danger, that, in the face of rapid change and uncertainty, any comprehensive agreements that might be negotiated prematurely could end up creating more restrictions than would exist in the absence of any agreements. The challenge is to devise a set of negotiating objectives that will reduce the creation of new barriers, and reduce the uncertainty now faced by the business community with respect to future government actions, while not forcing governments to hedge the uncertainty they face through restrictive provisions.

The negotiating strategy the United States government has adopted in the trade area is to aim initially for agreements on general principles and procedures to sort out individual cases and to seek to develop, over time, more comprehensive agreements. An agreement on general principles would establish a clear direction for government policy, and provide a basis for sorting out bilateral issues over regulations that have restrictive effects on trade. It would remove business uncertainty, while not forcing governments to commit themselves in detail on specific future situations that are difficult to foresee.

Proposed Data Declaration

The United States has proposed that the industrial countries belonging to the Organization for Economic Cooperation and Development (OECD) agree to minimize the disruption of international information flows, while recognizing the legitimacy of regulations aimed at social, cultural, and security objectives. More specifically, the United States has called for a “Data Declaration” that would be patterned after the 1974 OECD Trade Pledge.44

The draft data declaration proposed by the United States reads as follows:

Recognizing that information, computer and communications policies are fundamental to economic progress and well-being;

Having completed guidelines for the protection of personal data and having initiated an examination of the economic and legal aspects of non-personal information flows;
Considering that rapid technological advances in this area are transforming the nature of the world economy, leading to uncertainty as to how governments might pattern future laws and regulations to keep pace with progress;

Understanding that governments have a special responsibility for taking measures to provide the public with reliable communications services and in this respect different countries may have different approaches in discharging this responsibility;

Recognizing that in pursuing legitimate social goals, governments should avoid developing laws, policies and practices which would create unnecessary obstacles to international trade and information flows;

Recalling the principles and objectives contained in the OECD Convention and referred to in the Declaration on Trade policy;

AGREE: That the above mentioned state of affairs calls for wide cooperation in the area of telecommunications, data processing, and information policy;

That current and possible future problems in this area can be significantly reduced through close consultation among governments regarding issues raised and the measures that could be adopted to resolve differences;

That the desire to meet the communication and data needs of Member Countries can best be achieved through an environment which encourages and rewards innovation.

In addition, these governments would declare their determination: A) To maintain and improve an open system of international information flows; B) To avoid restrictive measures which would disrupt the international flow of data; impede international trade in telecommunications, data processing and information services; and inhibit economic growth, productivity, and technological innovation; C) To continue efforts to consult with each other on issues covered by this Declaration in order to further the achievement of its objectives.

Multilateral Negotiations on Trade in Services

Over the long term, the United States has proposed the preparation of future multilateral negotiations on trade in services. This proposal was put forward by the United States at a meeting last November of Trade Ministers representing the eighty-eight contracting parties of the General Agreement on Tariffs and Trade (GATT). After considerable debate, the Ministers agreed to initiate national studies of the issues involved, with the objective of reaching a decision in 1984 on future negotiations on trade in services. 45 While the United States government has not decided what its objectives might be with respect to negotiations covering trade in communication and information services, the possibilities include a regulatory
code based on the GATT standards code negotiated during the Tokyo Round of Multilateral Trade Negotiations, an agreement covering the "Right to Plug Into" global communication systems, an agreement on fair terms of competition between government communication monopolies and private firms in the area of value-added communication services and data/information services, and procedures for the negotiated reduction of specific barriers.

The Standards Code negotiating during the Tokyo round of GATT may provide a model for an international agreement designed to assure that domestic regulations are transparent and administered fairly. The Standards Code provides some basic principles and a set of domestic and international procedures to implement them. In brief, it establishes an obligation to minimize the restrictive effects on trade of domestic standards by seeking the least distortive design and implementation procedures. It also provides for transparency and due process in the administration of standards and establishes an international dispute settlements mechanism. In keeping with these obligations, several signatories to the code have indicated an interest in multilateral negotiations on the issue of access to the interconnect market.

The "right to plug" equipment into the public telecommunications network could be covered by another type of agreement. To protect the reliability and integrity of the communication system, it is necessary to establish technical standards for equipment designed to be plugged into the public telephone system. Governments may elect to negotiate an international agreement which establishes a "right to plug in" for equipment that meets agreed technical standards and allows firms to sell services that can be provided by using such equipment. Such an agreement might be complementary to work done in the Consultative Committee on International Telephone and Telegraph (CCITT) and the International Standards Organization (ISO) or might even take place under the auspices of these organizations.

Competition between government-owned communication monopolies and privately-owned firms in the area of value-added communication services and information services could be covered by another agreement. The key principle underlying such competition could be that government-owned or controlled communication monopolies should deal with foreign, private firms on an arms-length, competitive basis.

Foreign suppliers of domestic or imported telematic services should be treated on the same basis as domestic firms. In general, the interactions between private firms and national telecommunication monopolies raise four main issues. First, policymakers need to consider on what basis domestic PTTs should sell or provide services to others, including foreign buyers. PTTs might agree to sell or provide their services to foreign and
domestic-owned purchasers or users on an equivalent basis. Discriminatory practices would arise only if government sellers and providers failed to treat all purchasers or users identically.

Second, PTTs might agree that when they purchased services they would allow foreign providers or importers to compete on an equal footing with domestic suppliers of the service for that particular sale. While continuing to preserve some portion of the business to satisfy domestic security concerns, PTTs might nonetheless encourage competition for contracts from foreign-owned suppliers of information and communication services. This idea is roughly analagous to the principles embodied in the Government Procurement Code negotiated during the Tokyo round trade negotiations, which could also be applied to telematic services in addition to goods.

Third, to the extent that PTTs compete directly with domestic and foreign suppliers of services, they might agree to do so on an arms-length, commercial basis. PTTs could conceivably agree to conduct their business to the extent possible in a manner compatible with Article XVII of the General Agreement on Tariffs and Trade (GATT). In practice, this would mean that PTTs would agree to forego their monopoly bargaining position in most cases in order to allow competition to produce efficient, effective service for users and consumers.

Fourth, in pricing public telecommunication services, PTT’s might agree not to discriminate among users, except when justified by differences in the costs of providing such services. PTT’s would also agree to set rates on international communication services that reflected the costs of providing such services. In other words, PTT’s would agree not to use exorbitantly high rates as a means of discouraging the international flow of data.

Barriers to trade in communication and information services might also be liberalized by inclusion in a broader negotiating framework for trade in services. Such an overall approach has been outlined in articles by Ambassador William E. Brock, the current United States Trade Representative. Under these proposals, governments would agree (1) to notify all regulatory measures which were designed to protect domestic industries; i.e., all barriers would be made transparent; (2) to accept the application of the national treatment principle to all regulations not notified as barriers; i.e., all domestic and foreign companies covered by the regulations would receive equally favorable treatment; and (3) all regulations notified as barriers would be subject to negotiated reductions or removal.
CONCLUDING THOUGHTS

Our hope is that sometime in the present decade the United States and other trading countries will have proceeded far enough in creating a trade regime covering services to permit them to reduce multilaterally existing barriers to trade in services, including telematics services. The United States will, of course, continue to work on a case-by-case and bilateral basis to remove the most serious obstacles to trade in services but, ultimately, if the trading system is to grow dynamically, countries will have to address barriers to trade on a multilateral basis for the full range of services. A considerable amount of work still lies ahead before we can develop concrete proposals on how to approach future negotiations or before we know precisely what part telematics services will play in those negotiations. The most desirable structure for negotiations will emerge only once we have made progress in building a conceptual base for trade in services. Progress toward ensuring continued free trade in telematics services is particularly important because the coming years will be the most important for the evolution of the world trading system since the creation of the GATT. Countries need to improve international cooperation on trade in goods, but they also need to focus on trade in services before it becomes the crisis of tomorrow. Telematics services may well be the foundation for the long-term stability of the trading system. Industrial nations already entering the information era have a special stake in making sure that trade in telematics services expands and continues to contribute to world economic vitality. Improved international economic cooperation depends on the international financial, transportation, and above all communication systems. It is imperative that these systems remain integrated. So long as national leaders commit themselves to support the international trading system, including the new trade in telematic and other services, the prospects for growth, prosperity, and cooperation will be stronger than ever.

NOTES

1 "Hélémétique" is the term favored by the French. See e.g., S. NORA & A. Minc, The COMPUTERIZATION OF SOCIETY: A REPORT TO THE PRESIDENT OF FRANCE (1980). The term "compuni- cations" has been most widely used by those involved with the Program on Information Resources Policy of the Center for Information Policy Research at Harvard University. "Te- leinformatics" is the term adopted by the authors in 14 CORELL INT'L J. (1981), a volume devoted to international communications. All three terms are used interchangeably in the literature and refer to the merging of computer and communications technologies.

2 Within the developing world Brazil has the most elaborate set of regulations on communications and data flows. See Special Secretariat of Informatics (Brazil), et al., Transborder


4 The Wall Street Journal and Financial Times have been leaders in these areas. See, e.g., Reuters’ scoop in financial news, Bus. Week, Jan. 17, 1983, at 93.


11 The Association of Data Processing Service Organizations and its members calculate this jump in prices from information announced by governments talking about switching to volume-sensitive pricing.

12 Sometimes economies of scale arguments convince governments to limit the number of suppliers of specific services. Smaller numbers also make regulation easier. For an argument that PTTs may prefer to deal with each other rather than private competitors, see P. Cowhey, J. Aronson, T. Ramsey and J. Markoski, *The Dilemmas of Regulating the Telematics Market in the Third World* (April 19, 1983) (paper presented at the 1983 Annual Meeting of the American Society of Public Administration) (on file with the Mich. Y.B. Int’l Legal Stud.)

13 Most countries other than the U.S. ban resale. Britain has recently begun to explore lifting this restriction, however. See, e.g., Association of Data Processing Service Organization, *The Problem of International Telecommunications* 3 (unpublished manuscript available from ADAPSO, Arlington, Virginia) (“Many PTTs have promulgated stringent rules and regula-
tions that restrict the manner in which private line circuits may be used. Chief among these is a general requirement that such circuits not be used by a customer to offer any type of international telecommunications services, enhanced or otherwise, unless the customer is officially classified as an RPOA (Recognized Private Operating Agency).

14 NORDTEL, an association of the Telecommunications Administrations of Denmark, Finland, Iceland, Norway, and Sweden sent identical letters to seven U.S. International Record Carriers (IRCs) at the end of June 1982. The letter proposed procedures for establishing operating agreements between the Nordic Administration and the U.S. IRCs for joint provision of new communication services. NORDTEL proposed that it would "enter into an operating agreement with one, or a limited number of carriers," to be selected on the basis of competitive bids.

Between late August and early September 1982, the Belgium, Luxembourg, and Netherlands Telecommunications Administration sent the same seven U.S. IRCs similar letters proposing negotiations for new services that raised the specter of competitive bidding and exclusivity.

The Nordic and Benelux proposals explicitly linked their letters to concern over U.S. deregulation of enhanced international communications service. The U.S. carriers were concerned that these initiatives could leave them open to whipsawing by foreign PTT monopolies and would lead to anticompetitive actions in these countries and elsewhere. The U.S. Government was concerned that these initiatives might affect the competitiveness and profitability of the U.S. telecommunications industry; the price and availability of international communications services available to U.S. government agencies and private consumers; and that this could create a bad precedent for the handling of our international trade in services.

After some months of positioning on both sides, the Nordic and Benelux Administrations assured the U.S. that they would not seek exclusive arrangements or abandon the uniform settlements policy and whipsaw U.S. carriers. They did not in any way, however, acknowledge that their letters were inappropriate or beyond their rightful scope of activities. See Foreign Bid for Exclusive International Data Arrangements Draws U.S. Ire, COMM. DAILY, Sept. 30, 1982, at 4-5.

15 Two cases are particularly relevant. First, in 1977 General Electric Company entered into negotiations with Cable and Wireless (a British concern which operates Hong Kong's telecommunications) to secure private line service for its data processing network between the United States and Hong Kong. They made no progress. At the same time Cable and Wireless was seeking to negotiate agreements with three U.S. IRCs to provide usage-sensitive public data service between the U.S. and Hong Kong. These negotiations succeeded. However, when the three IRCs petitioned the FCC for authority to initiate services, GE through ADAPSO petitioned the FCC to deny the application unless it received access to their private lines services to Hong Kong. Cable and Wireless suddenly did grant these services. The problem was resolved. But uses of the data lines point out that under new deregulation the FCC would not have needed to approve the IRCs petition and there would have been no leverage to persuade Cable and Wireless to allow GE into Hong Kong. See Markoski, supra note 10, at 305-11.

The second case involves an application by PACNET, a foreign owned carrier ultimately owned by Cable and Wireless, for a DNIC (Data Network Identification Code) which would allow foreign telecommunications users to select PACNET as the network the dialer wished to access. If PACNET were granted a DNIC, it might be possible in the wake of the Computer II decision, see infra note 28, for PACNET to provide in the U.S. virtually any internationally switched service without requiring FCC authorization. This might eventually allow PACNET to link with its foreign parent to dominate some international communication services because it would control both ends of the line. PACNET under such an arrangement would have significant advantage over U.S. entities providing the same international communication services. For a complete review, see The request of PACNET Communications Corporation
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that it may be assigned a Data Network Identification Code, Comm'n mem. (F.C.C. Aug. 25, 1982).


17 In addition, countries may limit the number of data bases to which a company may interconnect. This was the problem faced by Control Data and Tymshare in Japan. These two companies sought leased channel services from KDD between the U.S. and Japan. After a delay of over a year KDD granted the requests but insisted that interconnection could only be made at one specific U.S. computer center. KDD also demanded that the circuit not be connected to any U.S. public network. These restrictions prevented the marketing of the full line of services of Control Data and Tymshare. After bilateral discussion involving the Office of the U.S. Trade Representative and Japanese officials, Japan relaxed its regulations, permitting U.S. data base vendors to offer switched access to several different data bases. Nevertheless, some problems remain. See Markoski, supra note 10, at 311-17.

18 Efforts are underway in a number of international and regional organizations, such as the Conference of European Postal and Telecommunications Administrations (CEPT), the International Standards Organization (ISO) and the International Telecommunications Union (ITU). See Long Range Goals, Commerce Dept. Rep., supra note 10, at App. B.

19 For example, new West German regulations prohibit users connected with the West German public network from transmitting all raw data over private leased lines to foreign private data networks for processing. Some processing must be performed in West Germany.

20 Not surprisingly, we remain skeptical of complaints that free flow arguments are the refuge of the rich and powerful. In following infant industry protectionist strategies LDCs cut themselves off from new developments and make it more difficult to integrate their systems into the world system later. If LDCs adopt incompatible standards they may condemn themselves to permanent backwardness in telematics. For some of the reverse arguments, however, see United Nations Centre on Transnational Corporations. Transnational Corporations and Transborder Data Flows: A Technical Paper, at 22-41, U.N. Doc. E/C.10/1982/12 (1982). For the U.S. view, see generally International Data Flow: Hearings Before a Subcomm. of the House Committee on Government Operations, 96th Cong., 2nd Sess. 488 (1980).

21 The Swedes were the first to raise this issue in the early 1970s. See Ganley & Ganley, To Inform or Control? The New Communication Networks (1982).

22 Austria, Denmark, Luxembourg and Norway have adopted, and others have proposed, provisions designed to protect the privacy of legal entities such as corporations or associations. Moreover, the Council of Europe Treaty on Privacy may be applicable to legal persons if countries specifically choose to include them.

23 In addition, privacy received considerable attention in the U.S. See W. Ware, Aspects of Privacy and Access (March 21-22, 1983) (unpublished paper presented to the workshop on policy issues for computers, communications and information sponsored by the National Science Foundation, Dedham, Massachusetts).


25 See Bortnick, supra note 2, at 345-48; Transborder Data Flows and Brazil, supra note 2. But see also The jockeying to build the first Latin Satellite, Bus. Week, August 24, 1981, at 45. The reverse problem is bothering developed countries. Satellite broadcast of television signals cannot easily be kept out of a neighboring country's market. Programming and commercials are received whether one wants them or not. See European States Face Problem of Controlling Their Neighbors' TV, Wall Street Journal, March 22, 1982, at 1.

26 The Office of the U.S. Trade Representative has assembled a list of barriers to trade

27 See Eger, supra note 24, at 226-27.

28 See Second Computer Inquiry—Final Decision, 77 F.C.C.2d 384 (1980), afd sub nom. Computer and Communications Industrial Ass’n v. F.C.C., 693 F.2d 198 (D.C. Cir. 1982). Messages from foreign telecommunications administrations concerned about unilateral actions by the United States under Computer II were submitted as an attachment to a petition for reconsideration filed by Western Union International before the Federal Communications Commission. See GTE Teletnet Communications Corp., FCC No. I-T-C-81-274 (Sept. 24, 1982). The responding administrations were those of Austria, Belgium, Fiji, the Federal Republic of Germany, Italy, South Korea, Norway, Singapore, Spain, Sweden, Switzerland, and the United Kingdom. For an assessment of the potential benefits and problems of deregulation in the telecommunications sector, see Muller, Potential for competition and the role of PTTs, 1981 TELECOM. POL’Y 18-23.

29 See LONG RANGE GOALS, COMMERCE DEP’T REP., supra note 10, at 136-37. NTIA commissioned a study on telecommunications deregulation that focused on Australia, Austria, Belgium, Brazil, Canada, France, the Federal Republic of Germany, Hong Kong, Italy, Japan, Mexico, Philippines, Singapore, Sweden, Switzerland, the United Kingdom, and Venezuela.

30 In order to develop its own computer industry, Brazil restricts computer imports and limits the number of foreign manufacturers that may build computers of various sizes in Brazil. Japan has also been slow to purchase foreign components, preferring to rely on sometimes more expensive domestic suppliers. See High-Technology Gateway: Foreigners demand a piece of NTT’s $3 billion market, Bus. Week, August 9, 1982, at 38-44.

31 Seven rounds of multilateral trade rounds between 1947 and 1979 reduced average tariff levels from over 50 percent to less than 5 percent.

32 When tariffs were removed existing government measures that acted as nontariff barriers to trade became more obvious. In addition, when governments have chosen to hamper trade flows during the 1970s and 1980s they have generally erected nontariff rather than tariff measures to do so.

33 See Brock, Trade in Services and Economic Cooperation, to be published in a volume in honor of Wilhelm Haferkamp (available from U.S.T.R.) [hereinafter referred to as Brock, Trade in Services ].

34 Trade in services, and particularly trade in communication services, is one of those rare areas where governments are moving to create rules that clearly will be needed even though trade distortions to date have not crippled world trade. For a U.S. view of what is needed, see id. See also Brock, A Simple Plan for Negotiating on Trade in Services, 5 THE WORLD ECONOMY 229 (1982).

35 An earlier threat to SWIFT was resolved by having the bank agree to higher charges. See Marksoski, supra note 10, at 298-99.

36 One bank is said to fly computer tapes via the Concorde to New York for processing rather than send the data by satellite or cable. There are numerous cases of multiple processing centers for the same data.

37 Cowhey, Aronson, Ramsey, and Marksoski, supra note 12, suggests that new patterns of joint ventures and alliances are developing in part as a result of this.

38 Some segments of the telematics market are expanding at rates of over 15 percent per
annum. Experts estimate that the global communications market, excluding much of the equipment business, will be somewhere between $150 and $500 billion by 1990, depending on what is included.

39 See Overseas Communications Services, F.C.C. 82-547 Mimeo No. 32476 at ¶53 (Dec. 22, 1982). The U.S. makes a distinction between “basic” and “enhanced” communications services. Basic services involve the unmanipulated transmission of voice and data. These remain regulated. Enhanced services involve some manipulation of what is transmitted. This is now deregulated. Foreign PTTs object strenuously to this division, contending that the line between basic and enhanced services is fuzzy at best and nonexistent at worst. See supra note 28 and accompanying text.


41 Uniform settlements assured that all private foreign firms linked with a PTT received identical financial deals. This was needed because the international lines are almost always owned 50-50 by the two countries’ operators. However, when a number of private firms each provide services to the same PTT the opportunity for the PTT to use its monopoly power as leverage to forge a better deal exists. The PTT could, for example, direct a disproportionate amount of outbound communications to the foreign IRC that took the smallest cut. However, so long as the FCC enforces a uniform settlement deal this type of action would be averted.

42 See supra notes 28, 39 and 40 and accompanying text. The FCC claims that its continued control over basic services will be sufficient to prevent this kind of activity. Some IRCs disagree, and are worried that PTTs will keep activities simple by treating AT&T either consciously or unconsciously as America’s PTT, to the IRCs disadvantage.

43 The U.S. Trade Representative’s Office is assessing the impact of U.S. deregulation on American competitive positions in the telecommunications and other service sectors. The USTR is examining whether (1) U.S. deregulation allows foreign concerns greater access to the American market, without gaining comparable concessions for U.S. firms in foreign markets; (2) U.S. deregulation allows foreign governments or monopolies to play American companies off against one another because the U.S. Government has unilaterally relinquished its statutory ability to intervene to protect the rights of American business; and (3) American companies’ competitive position deteriorates because foreign governments promote and/or subsidize their companies in ways that the United States is unwilling to match.


45 The GATT Ministerial Statement issued at the close of the meeting of Trade Ministers in Geneva in late November 1982 stated that:

The CONTRACTING PARTIES decide:
1. To recommend to each contracting party with an interest in services of different types to undertake, as far as it is able, national examination of the issues in this sector.
2. To invite contracting parties to exchange information on such matters among themselves, inter alia through international organizations such as GATT. The compilation and distribution of such information should be based on as uniform a format as possible.
3. To review the results of these examinations, along with the information and comments provided by relevant international organizations, at their 1984 Session and to consider whether any multilateral action in these matters is appropriate and desirable.

46 The Standards Code was negotiated as part of the MTN negotiation. Agreement on Technical Barriers to Trade, April 12, 1979, 31 U.S.T. 405, T.I.A.S. No. 9616,—U.N.T.S.—.

47 The United Kingdom in particular has been moving toward liberalization and privatization of their telecommunications system. The Thatcher government has granted a license to a consortium for the launching of Project Mercury, a private concern that will be allowed to compete with British Telecom. See Morgan, supra note 7, at 1.

48 The United States and the United Kingdom are conducting talks on telecommunications interconnect equipment with the aim of reaching a bilateral understanding that will ensure nondiscriminatory access to products from either country to each country’s interconnect markets. The understanding is likely to include provisions relating to approval processes.

49 Issues surrounding the desirability of a services monopoly code were raised in a U.S. paper submitted to the OECD Trade Committee. See United States Delegation to OECD Trade Committee, Developing a Conceptual Framework for Trade in Services (October 4, 1982) (unpublished paper available at Office of U.S. Trade Representative).

50 The Procurement Code was negotiated during the MTN negotiation during the 1979 Agreement on Government Procurement, April 12, 1979,—U.S.T.—, T.I.A.S. No. 10403,—U.N.T.S.—. The code applies to services insofar as such services relate directly to trade in goods, and account for less than 50 percent of the purchase price. It is worth examining whether the Procurement Code could be extended to services traded in their own right. However, European nations specifically excluded their telecommunications monopolies from the applicability of the Procurement Code when it was originally negotiated.


52 Brock, supra notes 32 and 33.

53 Transparency refers to the ability to receive full information concerning trade restrictions, regulation or actions that governments take in the trade field. In the United States, for example, all such measures are publicly notified in the Federal Register. If countries do not publish or make readily available such information, this would constitute a nontariff barrier to trade.