United States General Accounting Office

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Report to the Chairman, Committee on Commerce, Science and Transportation, U.S. Senate

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TELECOMMUNICATIONS

Competition Issues in International Satellite Communications

GAO/RCED-97-1

GAO

United States
General Accounting Office
Washington, D.C. 20548

Resources, Community, and
Economic Development Division

B-271956

October 11, 1996

The Honorable Larry Pressler
Chairman, Committee on Commerce,
Science and Transportation
United States Senate

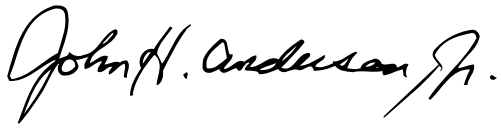
Dear Mr. Chairman:

In response to your request, this report (1) describes the institutional framework for providing international communications satellite services, (2) identifies elements of that framework that appear to hinder competition, and (3) discusses some of the key options that could resolve the competitive issues identified.

As agreed with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 21 days after the date of this letter. At that time, we will send copies to other congressional committees; the Chairman of the National Economic Council; the Director of the Office of Science and Technology Policy in the Executive Office of the President; the Secretaries of State, Commerce, Justice, and the Treasury; the Chairman of the Federal Communications Commission; and other interested parties. We will also make copies available to others on request.

This work was performed under the direction of Phyllis Scheinberg, Associate Director, who may be reached at (202) 512-9696 if you or your staff have any questions. Other major contributors to this report are listed in appendix III.

Sincerely yours,



John H. Anderson Jr.
Director, Transportation and
Telecommunications Issues

Executive Summary

Purpose

When the first manned spaceship landed on the moon on July 20, 1969, 500 million people around the world were able to watch Neil Armstrong take "one giant leap for mankind." It was the most widely viewed event in history as a result of the global commercial communications satellite system completed that year with the launch of a third satellite by the International Telecommunications Satellite Organization (INTELSAT). That satellite system was developed and implemented by governments that joined together in INTELSAT and another intergovernmental organization, the International Mobile Satellite Organization (Inmarsat), which was organized to provide maritime communications, including services for the safety of life and rescue at sea. The success of those systems helped foster rapid advances in satellite technology.

In recent years, several private companies trying to establish international communications satellite systems have expressed concerns about the existence of competitive disadvantages that inhibit their entry into the market. Because of his interest in fostering competition in telecommunications, the Chairman of the Senate Committee on Commerce, Science and Transportation asked GAO to (1) describe the institutional framework for providing international communications satellite services; (2) determine if any elements of the framework may hinder competition and, if so, how; and (3) identify some key options for resolving any competitive issues identified.

Background

Communicating through satellites is based on the transmission of radio signals on specified frequencies between stations on earth and satellites orbiting the earth. These specified frequencies, or segments of the radio spectrum, provide for different uses of the airwaves. Satellites receive the signals, amplify them, and return them to one or more receiving stations on earth. Each country regulates who can provide satellite services to, from, and within it and thereby controls access to its telecommunications markets.

Satellites can provide any kind of telecommunications service—from basic telephone service; to AM and FM radio and television/video broadcasts; to computer networking; to video conferencing. As shown by the broadcast of the moon landing in 1969, satellites are a useful vehicle for transmitting special events, live and worldwide. The advent of small earth stations (for example, satellite "dishes") less than 3 feet wide has enabled affordable television/video transmissions from satellites directly into the home. Satellites have also fostered the development of planned international

mobile personal communications services, which aim to provide an individual with a single telephone number for voice, data, and facsimile transmissions worldwide.

While looking at the difference between the prices charged to consumers and the costs that companies incur is the most appropriate method for analyzing the degree of competition in a market, price and cost data for satellite services are not generally available or readily usable. Therefore, in examining competition, GAO interviewed representatives of (1) current and potential alternative providers of communications services and (2) the U.S. representative to and representatives of the intergovernmental organizations. GAO also used other information, namely, the availability of alternative providers of services and the difficulty or ease with which new firms could begin providing services—important indicators of competition. GAO did not, however, do a country-by-country evaluation of regulatory authorities' access policies for alternative satellite systems.

Results in Brief

With the Communications Satellite Act of 1962, the United States initiated the creation of a framework for providing a commercial satellite system that would serve the nations of the world. The United States joined other countries to form the intergovernmental organizations INTELSAT and Inmarsat and establish their respective satellite systems for basic telecommunications services and safety at sea. Each country names a signatory, usually a telecommunications entity, to participate as an investor in the systems. The signatory for the United States is COMSAT Corporation, a private corporation that was created by the 1962 act and whose Board of Directors includes some presidentially appointed members. Three U.S. agencies—the State and Commerce departments and the Federal Communications Commission (FCC)—have primary responsibility for overseeing U.S. membership in the organizations and for instructing the U.S. signatory in its representational role. The FCC also regulates commercial U.S. satellite companies. At the international level, member countries of the International Telecommunication Union (ITU) agree to procedures to coordinate the technical compatibility of satellites and the use of radio frequencies by satellites worldwide.

This institutional framework creates an array of factors that may hinder competition in the market for commercial international satellite services. For example, many of the signatories to INTELSAT and Inmarsat are also the regulatory authorities that decide which satellite systems will have access to their domestic markets. At the same time, many signatories of INTELSAT

and Inmarsat believe that their obligations to provide universal service at nondiscriminatory prices, as well as their intergovernmental structure, hinder their ability to compete in a rapidly changing market. GAO's analysis showed that the development of competition differed in two primary markets for international communications services. In the market for international telephone service, where separate U.S. satellite systems were largely restricted from providing service, competition emerged primarily from an alternative medium: fiber-optic cables. In the market for certain types of international television/video service, such as regional broadcasting, U.S. satellite companies, as well as other international, regional, and domestic systems, have become viable competitors. However, for other types of television/video service, such as transoceanic transmissions, INTELSAT remains dominant because of its extensive network and capacity and its access to many markets. Inmarsat is currently the dominant provider of global mobile satellite communications services, with 70 percent of its business providing maritime services. Some other companies, including an Inmarsat affiliate, plan to begin offering global "land-mobile" services in just a few years.

A variety of options for resolving the concerns about competition have been suggested, and many are being pursued. Changes that would eliminate the intergovernmental organizations could potentially resolve many competitive issues but are not likely to be adopted because such proposals lack the support of many of the signatories or member governments. More likely are changes in the role of the intergovernmental organizations, such as the creation of one or more private companies, or affiliates, with little or no intergovernmental ownership. These proposals have the potential to address many of the concerns about competition held by both the other satellite companies and the intergovernmental organizations, particularly with regard to competition with the affiliates, but may only indirectly improve market access for other satellite companies—ultimately, the key to enhancing competition. Other international and domestic approaches, such as pursuing multilateral trade negotiations to open markets or using access to the U.S. market as leverage for gaining access to others' markets, might more directly improve market access.

Principal Findings

The Institutional Framework for Telecommunications Worldwide

The actual operation of INTELSAT's and Inmarsat's satellite systems is the responsibility of entities designated by member governments as their signatory to the organizations. Signatories, many of which are wholly or partially government-owned, manage the systems, are responsible for their financial needs, and share in the earnings. The U.S. signatory, COMSAT, is subject to U.S. government regulation in its responsibilities as signatory. As the U.S. signatory, COMSAT is the only U.S. company authorized to purchase satellite capacity directly from INTELSAT and Inmarsat for resale in the U.S. market.

The Department of State's U.S. Coordinator for International Communications and Information Policy, the Department of Commerce's National Telecommunications and Information Administration, and the FCC share key responsibility for the policies, activities, and regulations concerning U.S. commercial international satellite communications. These three agencies are responsible for, among other things, issuing instructions to COMSAT in its role as the U.S. signatory. The agencies decide together, with input from COMSAT, what positions to pursue in the organizations' meetings and how COMSAT should vote. The FCC also regulates U.S. companies providing domestic and international satellite telecommunications services, including foreign companies' access to the U.S. market.

The FCC's policies have evolved over time from ones designed to ensure the commercial viability of INTELSAT and Inmarsat to ones in support of worldwide competition. Through a 1984 Presidential Determination, the United States permitted for the first time the operation of U.S-licensed international satellite systems besides INTELSAT's. In implementing the Presidential determination authorizing the new systems, the FCC initially precluded other companies from competing with INTELSAT's services that connected to a country's public telephone network. That restriction was intended to ensure that new companies did not cause INTELSAT significant economic harm. As a result, companies focused on those services they were allowed to provide, primarily international private communications networks and international television/video service. Over time, INTELSAT made a series of determinations that other satellite systems providing increasing levels of services would not cause it significant economic harm. In response to those determinations, the executive branch revised the

limitation on U.S. companies. Based on those revisions, the FCC has been incrementally lifting the restrictions on the services other companies may provide and, pursuant to the U.S. executive branch's goal, plans to remove—by January 1, 1997—all U.S. restrictions on services that connect to the public networks.

Concerns About Competition in International Communications Services

INTELSAT and Inmarsat have enjoyed a variety of benefits deriving from their intergovernmental status that may give them competitive advantages; in particular, they may enjoy preferential access to countries' markets because many signatories have governmental ownership, and many are the regulatory authorities that decide which satellite systems will have access to their domestic markets. According to satellite company representatives with whom GAO spoke, other countries' licensing authorities have imposed a variety of restrictions, including authorizing earth stations only if they serve INTELSAT satellites, assessing prohibitively high tariffs, prohibiting connection to the countries' telephone system, and denying access to necessary radio spectrum.

As intergovernmental organizations, INTELSAT and Inmarsat also enjoy simplified application procedures for scarce satellite orbiting locations above the earth's equator. The organizations' ownership structure may also give them advantages in obtaining financing for their satellite systems. Moreover, the INTELSAT and Inmarsat agreements include provisions specifying that other satellite companies consult with the organizations to ensure that any proposed satellite system causes no technical interference and no significant economic harm to the organizations—provisions that may help protect the organizations from competition. Finally, their intergovernmental status may bestow additional advantages such as immunities from taxation and lawsuits.

At the same time, according to COMSAT, many signatories of INTELSAT and Inmarsat believe that their obligations to provide universal service at nondiscriminatory prices force them to make business decisions that may make them less competitive than private companies not bound by such obligations. They also believe that the organizations are unable to respond quickly to changing markets because of their rigid intergovernmental decision-making structures, which frequently involve gaining consensus among numerous members with different interests.

In the two primary markets GAO examined, competition developed differently. In the market for international telephone service, various

policies by the FCC, INTELSAT, and other countries' licensing authorities impeded U.S. firms from providing service. The FCC's "separate systems" decisions implementing the executive branch's policy originally prohibited and later limited the amount of international telephone traffic that U.S. satellite firms could provide. These restrictions were imposed to ensure that no significant economic harm resulted for INTELSAT. In this market with restrictions on alternative satellite companies, competition emerged primarily from an alternative medium: fiber-optic cables. They provide a higher-quality voice service because they eliminate the echoes and time delays that are characteristic of geostationary satellite voice service. In 1988, only 37 countries were served by these cables, while in 1996 the number has grown to nearly 100.

In the international television/video market, the restrictions on satellite systems were less pronounced. The FCC did not impose significant restrictions, although regulatory authorities within other countries applied restrictions, some of which remain in place. In the segment of the market for regional broadcasts, competition from alternative systems is more developed. In general, representatives of companies that use satellite systems around the world for regional broadcasts told GAO that they have choices in contracting for service, and GAO identified a significant number of systems providing such service. It is important to note, however, that many of these systems are owned by governments or monopoly telephone companies that are signatories and therefore may not be fully distinct from INTELSAT. Additionally, with its excess capacity, INTELSAT may be the preferred option for short-notice usage.

In the segment of the market for international and/or transoceanic broadcasts, the competition remains more limited, with fewer providers. Several users told GAO that they are more likely to use INTELSAT when they are transmitting a broadcast internationally, that is, between regions and/or across oceans. INTELSAT remains dominant in this market sector with its strong advantage over competitors, who do not have the same satellite capacity or extensive network of earth stations in more than 136 countries. At the present time, there is only one U.S. company, with four satellites, that has achieved nearly global coverage.

Currently, Inmarsat is the only global provider of mobile satellite services. At this time, most of these are maritime services, but Inmarsat plans to introduce land-mobile capabilities. Other companies also plan to introduce land-mobile services in the near future.

Options for Addressing Issues Affecting Competition

A variety of options for addressing issues affecting competition in international telecommunications have been proposed by interested parties or considered at one time or another, and many are being pursued today by the United States. Ultimately, gaining global market access is the key to developing a competitive international satellite market. Therefore, a major goal of most of the U.S. efforts is to open access to foreign markets.

Changes in the intergovernmental status of INTELSAT and Inmarsat could potentially resolve many of the competitive issues, although some options are less likely to be achievable than others. Eliminating the organizations and selling off their assets or creating multiple private companies without retaining an intergovernmental structure are options that would alleviate most of the concerns about competition held by both potential competitors and members of the organizations. But none of these approaches appears to have enough support within either organization to be adopted, according to U.S. officials and COMSAT representatives. According to a State Department official, virtually all members of the organizations are interested in preserving some intergovernmental structure, primarily to guarantee the services the organizations were established to provide.

Options that involve restructuring the organizations by creating private companies that provide some services and retaining an intergovernmental structure appear to have more support among members than other options. The United States has proposed retaining a smaller INTELSAT, while creating a single affiliate that would not have intergovernmental status and that would be expected to concentrate on providing newer services rather than basic telephone service. For companies competing against the affiliate, such a restructuring could address many of the disadvantages they may face but may only indirectly encourage countries to open their markets to competing satellite systems. The proposal is designed to reduce signatories' financial incentive, as the telecommunications authorities in their own countries, to favor INTELSAT's affiliate over other new entrants when making decisions about access to their domestic markets. This restructuring could also alleviate some of the burdens the intergovernmental organizations see as hampering their efforts to respond to rapidly changing markets. However, the ownership of the proposed affiliate during the transition might provide an incentive for signatories to favor INTELSAT's affiliate over other companies at a critical development period for new systems. A coalition of private companies has proposed creating more than one affiliate with ownership structures intended to

encourage greater market access. However, this proposal is not formally under consideration by INTELSAT.

The United States has also filed a position paper on Inmarsat's restructuring for consideration by the organization. The principles supported in the U.S. position paper, such as the importance of external investment and nondiscriminatory market access, could potentially resolve many of the competitive issues, but the U.S. suggestions have not met with much support among other members of the organization. Competitors are concerned that Inmarsat's access to spectrum and markets will be transferred to an existing Inmarsat affiliate largely owned by Inmarsat and its signatories.

To the extent that restructuring retains intergovernmental organizations that provide services directly, any competitive advantages associated with the intergovernmental structure will likely remain for companies competing with them; any disadvantages the organizations experience will also likely remain. Pending several decisions by both organizations on the nature of any restructuring, the impact on competition is uncertain. Both organizations hope to adopt restructuring plans in 1997.

Market access may be addressed more directly through negotiations with other countries to remove impediments or through unilateral control over access to the U.S. market. The United States is currently engaged in multilateral negotiations through the World Trade Organization (WTO), an international forum for addressing issues on trade, to remove barriers to trade in basic telecommunications services. The United States has offered to open most of its basic telecommunications markets. The deadline for agreement has now been extended to February 15, 1997, because other countries participating in the negotiations have offered only limited market access. According to an FCC official, with multiple negotiations ongoing within the WTO and for restructuring the intergovernmental organizations, the results of one may affect the results of the others.

Unilateral action is also an option from the vantage point of using access to the U.S. market as leverage for encouraging access to other countries' markets. The FCC has proposed regulatory changes that would base the authorization of a non-U.S.-licensed company to serve the U.S. market on the extent to which U.S.-licensed systems are allowed to serve the applicant's home market and some or all of its other markets.

Recommendations

This report makes no recommendations.

Agency Comments

GAO provided a draft of this report for review and comment to the National Economic Council and the Office of Science and Technology Policy in the Executive Office of the President; the departments of State, Commerce, Justice, and the Treasury; the FCC, COMSAT, and the Alliance for Competitive International Satellite Services (ACISS). The executive branch, the FCC, and ACISS generally agreed with the report's findings and balance. They provided several clarifications and more current information, which GAO has incorporated in the report as appropriate. ACISS commended the report for its balanced and thorough treatment of the complex issues surrounding the proposed privatization of INTELSAT and Inmarsat. Comments from ACISS appear in appendix I.

COMSAT commented that the report accurately describes the importance and challenge to all new entrants of obtaining market access, the potential benefits associated with the U.S. proposal for restructuring INTELSAT, and the indications of competition in certain segments of the international telecommunications marketplace. However, COMSAT took issue with and questioned several of the factors cited in the report as creating competitive advantages and asserted that the information companies provide in the consultation process does not contain proprietary data that could benefit INTELSAT as a competitor. COMSAT was troubled by the report's discussion of (1) the potential impact of common ownership of satellite systems on competition and (2) the possibility of cross-subsidization between Inmarsat and its affiliate, ICO Global Communications Limited (ICO). In addition, COMSAT questioned the report's characterization of (1) the relative importance of creating more than one affiliate of INTELSAT and Inmarsat and (2) the potential impact of successful WTO negotiations on the U.S. influence in negotiations about restructuring the intergovernmental organizations.

GAO believes that the report's discussion of likely competitive advantages accurately reflects the potential impact of attributes of the institutional framework for providing international satellite services and that the discussion of selected satellite markets provides an accurate overview of competition in those areas. The report acknowledges that COMSAT does not believe that the factors GAO mentions lead to competitive advantages for the intergovernmental organizations. GAO has added data from the FCC showing that a majority of signatories are in a position to influence decisions about market access. Satellite companies that have undergone

INTELSAT's and Inmarsat's consultation processes told GAO that they consider the information they had to submit for these processes to be sensitive and proprietary. Furthermore, empirical studies have found that ownership ties between competitors can inhibit full competition between them. With regard to the potential for cross-subsidization, the departments of State and Commerce have also raised similar concerns that cross-subsidization between Inmarsat and ICO might create a financial opportunity not available to investors of competing systems.

GAO revised its discussion of the potential effect of creating more than one affiliate to reflect that the developing competition in two markets that were examined may imply that the marginal benefit of a second affiliate may not be great. GAO also revised its discussion of the WTO negotiations to reflect the FCC's clarification that because a number of different negotiations are ongoing, the results of one may affect the outcome of others. COMSAT's comments are addressed in chapters 3 and 4. The complete text of the comments and GAO's detailed evaluation of them are presented in appendix II.

Contents

Figures

Abbreviations

ACISS	Alliance for Competitive International Satellite Services
AT&T	American Telephone and Telegraph
COMSAT	COMSAT Corporation
FCC	Federal Communications Commission
GAO	General Accounting Office
GHz	gigahertz
ICO	ICO Global Communications Limited
Inmarsat	International Mobile Satellite Organization
INTELSAT	International Telecommunications Satellite Organization
ITU	International Telecommunication Union
LEO	low-earth orbit satellite
MEO	medium-earth orbit satellite
MHz	megahertz
WTO	World Trade Organization

Introduction

When the first manned spaceship landed on the moon on July 20, 1969, 500 million people around the world were able to watch Neil Armstrong take "one giant leap for mankind." It was the most widely viewed event in history owing to the global commercial communications satellite system completed that year with the launch of a third satellite by the International Telecommunications Satellite Organization (INTELSAT). That satellite system and one to provide safety and rescue at sea were developed and implemented by governments that joined together to form INTELSAT and the International Mobile Satellite Organization (Inmarsat). The success of these systems helped foster rapid technological advances that enhanced private companies' ability to successfully construct, launch, and operate commercial communications satellite systems of their own.

Basic Concepts of Satellite Communications Systems

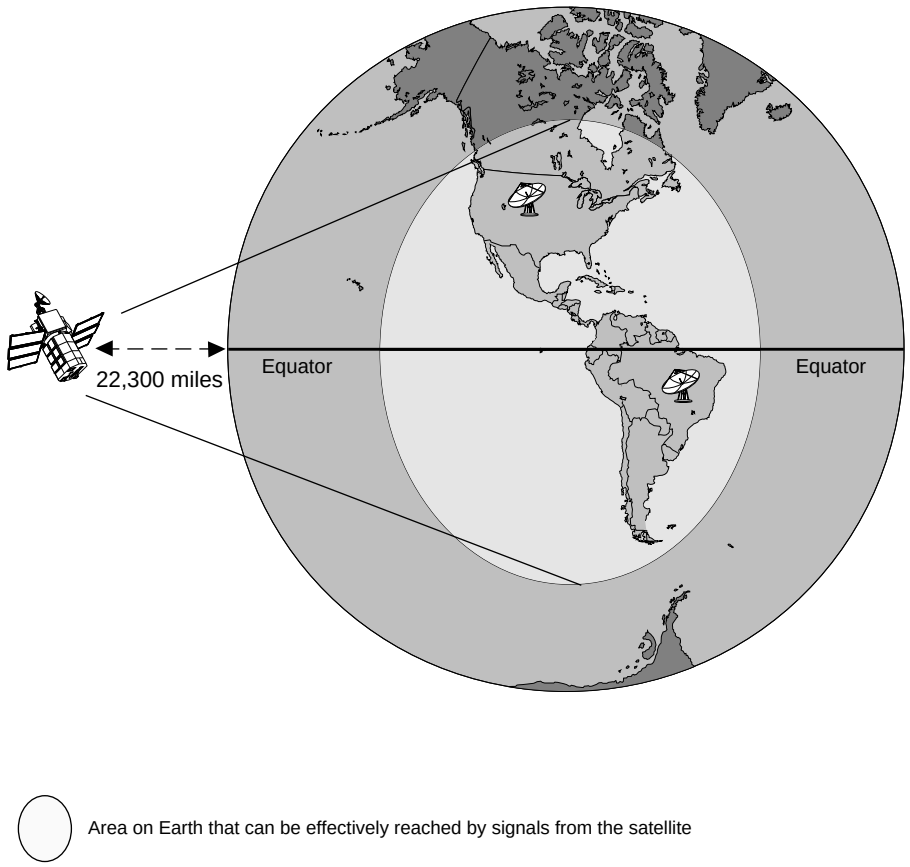
The world-famous physicist and science fiction author Arthur C. Clarke is credited with conceptualizing, in 1945, plans that showed how three objects orbiting the earth at different locations 22,300 miles above the equator could distribute radio signals that could reach anywhere on earth. A dozen years later, in the Cold War environment of the 1950s, the Soviet Union launched Sputnik I, to the amazement and concern of much of the rest of the world. Although the United States soon successfully launched its own first satellite—Explorer I, on January 31, 1958—it was not until the 1960s that establishing worldwide satellite communications became a major U.S. goal.

The process for communicating through a satellite is based on the transmission of radio signals on specified frequencies from a station on earth to a satellite orbiting the earth. These specified frequencies, or segments of the radio spectrum, are designated for different uses of the airwaves. The satellite receives the signal, amplifies it, and returns it to one or more receiving stations on earth. The sending and receiving earth stations may be fixed or mobile.

Satellites rotate around the earth at different heights and in different orbiting patterns. The most widely used practice today for commercial satellite communications is a geostationary orbit. (See fig. 1.1.) At a height of 22,300 miles and at a location above the earth's equator, a geostationary satellite orbits the earth at a rate that makes it appear stationary over the same location on the earth's surface; this positioning allows a ground station antenna to remain pointed at one location in the sky, and the satellite can be tuned into the same earth stations all the time. Current technology enables about 120 to 180 geostationary satellites to orbit the

earth using the same radio frequency without being too close to one another to cause technical interference.[1]

Figure 1.1: Geostationary Satellite in Orbit Above the Earth's Equator



Satellites enjoy some important advantages in comparison to other means of communicating. Because satellites do not rely on the use of land-based wire, cable, or microwave facilities, earth stations can be placed almost anywhere. Furthermore, the cost of satellite communications is the same regardless of distance—whether the transmission covers 200 or 10,000 miles. Another important characteristic of satellite communications is that

[1]Some proposed new systems will use satellites that rotate the earth at considerably lower levels than geostationary satellites and on a variety of rotation paths. "Low-earth orbit" and "medium-earth orbit" satellites (LEO and MEO) will orbit at about 400 to 800 miles and 6,000 miles, respectively, above the earth. Both LEOs and MEOs are generally referred to as "big LEOs."

one satellite can send signals to many different locations on earth at the same time; one geostationary satellite, for example, can send signals to as much as a third of the earth's surface all at once. This is particularly useful in television/video service.

However, satellites also have some disadvantages. For example, voice transmissions from a geostationary satellite are delayed about a half-second because of the distance the radio signals must travel. These delays may also produce an echo. Furthermore, the orbital slots and the radio frequencies available for different kinds of satellite services are limited. International coordination of the use of these resources is required to prevent technical interference among different satellites operating in the same frequency band. Finally, some risk is involved in achieving a successful launch and orbit.

International Telecommunications Services

Satellites can provide any kind of telecommunications service—from basic telephone service and mobile telephone service; to AM and FM radio and television broadcasts; to computer networking. They have played a significant role in video conferencing and private communications networks for multinational companies. As shown by the broadcast of the moon landing in 1969, satellites are a useful vehicle for transmitting special events and news stories, live and worldwide. The advent of small portable earth stations (for example, satellite "dishes") less than 3 feet wide has enabled affordable television transmissions from satellites directly into the home. Satellites have also fostered the development of planned mobile personal communications services. As with other satellite services, recent technological developments have reduced the size and cost of the mobile handsets and thereby increased their convenience and desirability. Personal communications service, which is similar to cellular phone service but has a global service area, aims to provide an individual with a single telephone number for voice, data, and facsimile transmissions worldwide.

While underwater cables have always competed against satellites in providing international telephone service, advances in the capacity and capabilities of fiber-optic cables in the 1980s have made this method of transmission increasingly more important. Fiber-optic cables, where available, have become the medium of choice for international telephone service because they provide, relative to satellites, a higher-quality voice service. Over the last decade, there has been a massive increase in the amount and capacity of transoceanic fiber-optic cables. Satellites,

however, currently can provide certain kinds of services not currently available with fiber-optic cables.

The Continuum From Government Regulation to Competition in Telecommunications

As telephone service developed in most countries, governments either operated the phone company or, as was the case in the United States, authorized one highly regulated firm to provide most domestic and international service. Because telecommunications was traditionally so closely aligned with governments, it was used as a vehicle for promoting a variety of social goals in many, if not most, countries. For example, in the United States and elsewhere, certain aspects of telephone service, such as long-distance service, were priced higher than the cost of producing them in order to price others, such as basic local service, below cost. Furthermore, in many countries, revenues from telephone service have been used to subsidize the postal service.

When INTELSAT and Inmarsat were established, the member governments put in place a number of protections to encourage the development of their satellite systems. In essence, the intergovernmental organizations were created as international monopolies, though domestic and other systems were allowed under certain conditions. Such an arrangement is unlike a competitive market, which typically involves a significant number of firms providing a product, prices based on costs, easy entry by new firms, and a lack of collusion among firms. Even when there are few firms operating in a market, the ideal competitive outcomes can be achieved if new firms can enter—or threaten to enter—easily.

The tight control of telecommunications by national governments has been easing in some cases. U.S. policymakers, for example, determined some time ago, that not all aspects of telephone service were best provided by one producer, so some markets were opened up to competitors. Recently, some other countries, too, began privatizing their telecommunications markets. However, there are still many countries, particularly in the developing world, that retain tight control over telecommunications.

In the United States, recent efforts to promote domestic telecommunications services include the enactment of major legislation that, according to the Federal Communications Commission (FCC), will lessen regulation in order to reduce prices, increase the quality of services, and encourage the rapid deployment of new technologies through more competition. The Telecommunications Act of 1996 (P.L. 104-104, Feb. 8,

1996) makes sweeping changes affecting all consumers and telecommunications service providers. The law aims to ultimately open all domestic telecommunications markets to competition.

Objectives, Scope, and Methodology

Interested in fostering competition in not only domestic but also international telecommunications, the Chairman of the Senate Committee on Commerce, Science and Transportation asked us to (1) describe the institutional framework for providing international communications satellite services; (2) determine if any elements of the framework may hinder competition and, if so, how; and (3) identify some key options for resolving any competitive issues identified.

To meet our objectives, we reviewed the relevant statutes, regulations, and intergovernmental agreements. We obtained additional documentation and information from representatives of the National Economic Council, the Office of Science and Technology Policy, the Council of Economic Advisors—all of which are in the Executive Office of the President; the FCC, the departments of State, Commerce, Justice, and the Treasury; COMSAT Corporation (COMSAT); INTELSAT; and Inmarsat. In addition, we reviewed the relevant literature on the history, institutional operations, legal aspects, and economic issues. We also obtained information from the industry coalition Alliance for Competitive International Satellite Services (ACISS),[2] as well as representatives of several other satellite companies operating, licensed to operate, or applying for licensing to establish their own satellite systems.

The most direct way of determining if a market is competitive is to look at the relationship between the prices that a firm charges its customers and the firm's costs, to determine if the company is charging large markups. Because price and cost data for satellite services are not generally available or readily usable, we used other important indicators of the competitiveness of this market, such as the number of firms providing the services and the difficulty or ease with which new firms can begin providing services. As a result, while we cannot firmly conclude that any particular market in which INTELSAT provides services is or is not competitive, we can offer indications of the degree of competition.[3] Still,

[2]ACISS comprises Columbia Communications Corporation, Motorola Inc., Odyssey Worldwide Services, Orbital Communications Corporation, Orion Network Systems, PanAmSat Corporation, and TRW Inc.

[3]Inmarsat currently faces no competition in global mobile satellite services, though other providers are expected to enter the market starting in about 2 years.

that information must be augmented by other important information, such as the degree to which owners of INTELSAT are also owners of some alternative systems.

In examining competition, we analyzed data, including ownership information, on domestic, regional, and other satellite systems, which we obtained from (1) Dailink Satcoms, Ltd., in Virginia, and (2) Design Publishers, Inc., in California. We also relied on discussions with a selection of U.S.-based companies that use international communications satellite services, including broadcasters and multinational corporate users. We did not, however, do a country-by-country evaluation of regulatory authorities' access policies for alternative satellite systems, and we did not talk with signatories who are users or with users licensed by other countries' signatories.

We provided a draft of this report for review and comment to the National Economic Council and the Office of Science and Technology Policy in the Executive Office of the President; the departments of State, Commerce, Justice, and the Treasury; the FCC; COMSAT; and ACISS. COMSAT's complete comments and our responses to them are presented in appendix II.

We conducted our review from November 1995 through September 1996 in accordance with generally accepted government auditing standards.

The Institutional Framework for Satellite Communications Worldwide

Spurred on by technological advances and Cold War pressures, the United States enacted the Communications Satellite Act of 1962 to establish a commercial communications satellite system that would serve the nations of the world. The risks involved in the untested technology encouraged many nations to join together first through INTELSAT and second through Inmarsat to implement global systems that would provide services on land, and for safety and rescue at sea, respectively. The actual operation of the satellite systems is the responsibility of entities designated by member governments as their signatory to the organizations. Signatories manage the systems, are responsible for their financial needs, and share in the earnings. The U.S. signatory, the private corporation COMSAT, is subject to U.S. government regulation in its responsibilities in this capacity. As the U.S. signatory, COMSAT is the only U.S. company authorized to purchase INTELSAT and Inmarsat satellite capacity directly for resale to the U.S. market. U.S. regulations have evolved from protecting and nourishing the intergovernmental organizations to increasing support of competition from separate satellite systems. Through another international organization—the International Telecommunication Union (ITU)—members coordinate the technical compatibility of satellites around the world and the allocation of radio frequencies for different kinds of satellite services.

Intergovernmental and Regulatory Framework for a Global System

With passage of the Communications Satellite Act of 1962, the United States set a goal for the nation, and the world, to create a commercial communications satellite system that would, among other things, "serve the communications needs of the United States and other countries and . . . contribute to world peace and understanding." To implement this goal, the act created the Communications Satellite Corporation (COMSAT),[1] a private, profit-seeking corporation subject to U.S. government regulation of its responsibilities under the 1962 act. The act gave COMSAT broad responsibility for planning, developing, implementing, and managing—alone or in conjunction with foreign entities—a commercial communications satellite system. COMSAT was further authorized to market the system's capacity and own and operate licensed stations on the ground.

INTELSAT

When the 1962 act was passed, the technology for providing global satellite communications was still under development and considered by

[1]On June 1, 1993, the Communications Satellite Corporation changed its name to COMSAT Corporation.

many too risky for a private company to pursue alone. It appeared at that time that the most effective way to develop, implement, and operate a commercial communications satellite system that could serve all nations of the world would be through a consortium of nations joined together in an intergovernmental organization. Therefore, at the initiative of the United States and COMSAT, INTELSAT was established, first through an interim agreement in 1964 and finally, in 1973, by an intergovernmental agreement with other countries.

Under the 1973 agreement, INTELSAT's purpose is to design, develop, implement, and operate a global commercial communications satellite system. Its prime objective is to provide international commercial satellite communications on a nondiscriminatory basis to all areas of the world. INTELSAT's rates are nondiscriminatory in the sense that for a given service, they are the same no matter where they are provided across the world. However, a given service may have a series of rates that vary depending on the amount of the service purchased or the length of the contract. Therefore, INTELSAT generally does charge lower rates to larger and more permanent customers.

Currently, INTELSAT has 139 member countries and operates 24 satellites that provide voice, data, and video communications. INTELSAT holds 31 orbital slots for geostationary satellites and has applications for 10 more pending within the ITU, an international organization within which governments and the private sector coordinate global telecommunications networks and services.

INTELSAT includes three decision-making bodies, which aim for consensus in their decision-making, and a management staff that handles day-to-day business activities, as shown in figure 2.1. The Assembly of Parties is composed of representatives of the member nations and, as the principal governing body of the organization, is supposed to meet once every 2 years to consider issues of general policy and long-term objectives. Each member government appoints a signatory, usually a telecommunications agency or company with government ownership; the signatories are the investors in and the agents for the satellite system. Users within each country purchase INTELSAT satellite capacity from their country's signatory; although more than 70 countries now allow direct purchase and direct billing from INTELSAT, they may allow this kind of access only to designated companies, according to an INTELSAT representative. As the U.S. signatory, COMSAT is the only entity authorized to purchase INTELSAT satellite capacity directly and resell it to the U.S. market. All signatories participate in the

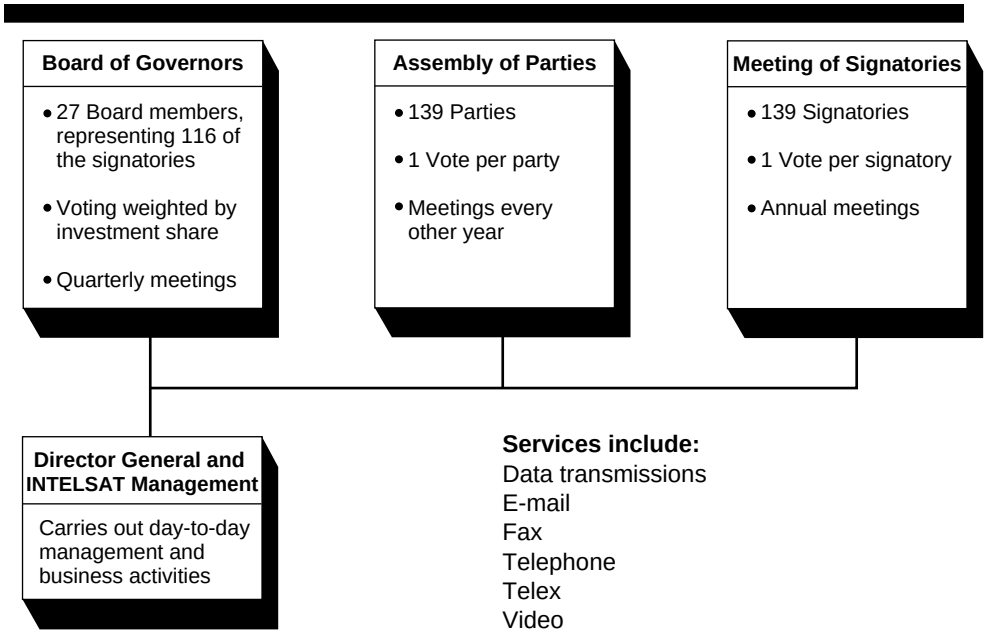
Meeting of Signatories, which meets annually, to consider financial, technical, and operational issues.

The Board of Governors is composed of signatories and has the direct responsibility for designing, developing, establishing, operating, and maintaining the satellite system. While voting within the Assembly of Parties and the Meeting of Signatories is one vote per member, voting on the Board of Governors is based on a signatory's investment share. Each signatory's investment share, in turn, is based on its share of INTELSAT's total sales of satellite services. For example, COMSAT currently holds a 19-percent share of the investment in INTELSAT and thus holds 19 percent of the voting shares within the Board of Governors.

Not all signatories sit on the Board of Governors. Membership is based primarily on a signatory's or group of signatories' investment share in INTELSAT, with an additional maximum of five signatories that can be chosen to represent regional groupings of members regardless of their investment share. As of June 1996, there were 27 members of the Board, but total membership can vary slightly because of changes in investment shares or regional representations. The day-to-day management of INTELSAT is handled by a Director General, in Washington, D.C., who reports directly to the Board of Governors.

The signatories are responsible for financing INTELSAT. Each signatory is responsible for contributions, in proportion to its share of the satellite system's use, for capital expenditures to cover the costs of INTELSAT's operations as well as the direct and indirect costs for designing, developing, and operating the system. INTELSAT's profits are distributed to the signatories on the basis of their investment shares.

Figure 2.1: The Organization and Services of INTELSAT



Note: COMSAT, with its 19-percent investment share, is the largest investor in INTELSAT. COMSAT is also the largest user of the satellite system.

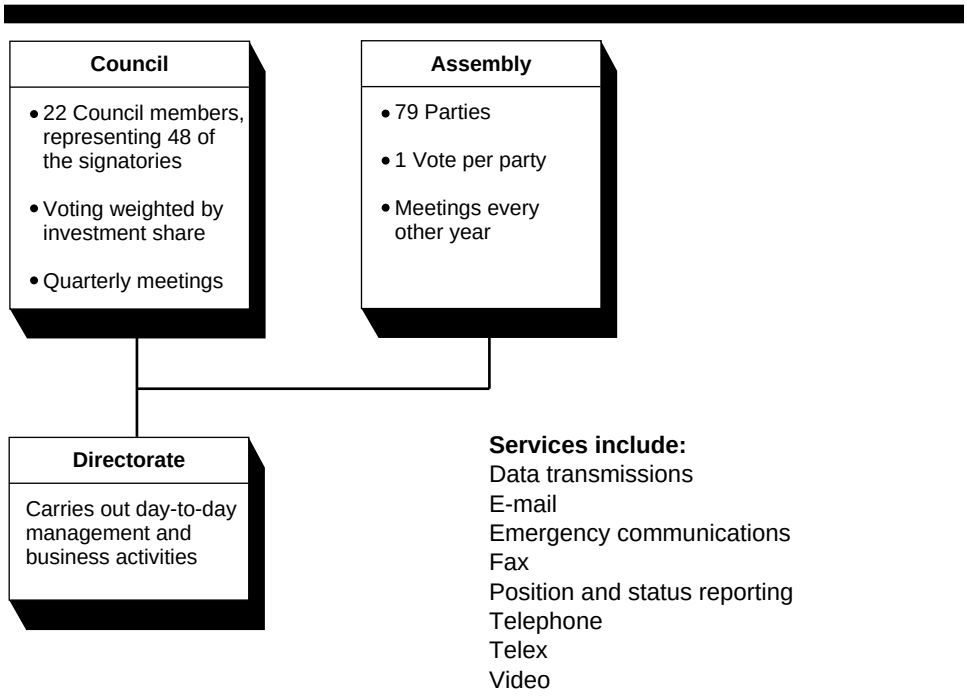
Inmarsat

In similar fashion, but for different services, the United States and COMSAT joined with other nations in July 1979 to form the International Maritime Satellite Organization, later renamed the International Mobile Satellite Organization, or Inmarsat, in order to provide satellite services for improving maritime communications, especially for maritime distress and safety at sea. Inmarsat's mandate was later expanded to include aeronautical services, and additional amendments to the Inmarsat agreement that would allow members to provide mobile services on land are pending.

As figure 2.2 shows, Inmarsat, like INTELSAT, is composed of member governments and their signatories, with similar governing and financial responsibilities. Currently, Inmarsat has 79 member countries and operates a global system of eight satellites, with four operational and the other four used as backups. As with INTELSAT, COMSAT is the U.S. signatory and, as such, the only entity authorized to purchase Inmarsat satellite capacity directly for resale to the U.S. market. Member governments meet every 2 years in the Assembly, where each has one vote. The Council,

which is responsible for developing and operating Inmarsat's satellite system, is composed of a maximum of 22 signatories, some of which may represent a group of signatories. Membership is based on signatories' investment shares and a guarantee of geographical representation. Voting in the Council is weighted on the basis of investment shares. Both the Assembly and the Council aim for decisions by consensus. Reporting to the Council, the Directorate, which is headquartered in London, manages Inmarsat's daily business activities.

Figure 2.2: The Organization and Services of Inmarsat



Note: COMSAT, with a 23-percent ownership share, is the largest investor in Inmarsat. COMSAT is also the largest user of the satellite system.

The Establishment of Other Satellite Systems Under the INTELSAT and Inmarsat Agreements

When the intergovernmental organizations were established, member nations of both INTELSAT and Inmarsat agreed to consult with one another when either they or anyone in their country wants to establish or use an international satellite system other than the ones established by the organizations. Under the INTELSAT agreement, anyone wanting to establish an international satellite communications system must provide INTELSAT

with information that enables it to evaluate the system in order to ensure that

- the system will not cause technical interference to INTELSAT's system and
- the system avoids causing significant economic harm to INTELSAT.

The Inmarsat agreement has similar provisions, although the test concerning economic harm applies for maritime communications, as opposed to safety services.

Responsibilities of U.S. Agencies

Three U.S. federal agencies share key responsibility for the policies, activities, and regulations concerning U.S. international satellite communications: the Department of State's U.S. Coordinator for International Communications and Information Policy, the Department of Commerce's National Telecommunications and Information Administration, and the FCC. These three agencies are responsible for, among other things, issuing instructions to COMSAT in its role as the U.S. signatory to the intergovernmental organizations. The agencies decide together, with input from COMSAT, what position to pursue in the organizations' meetings and how COMSAT should vote. The FCC also regulates U.S. companies providing domestic and international telecommunications services. In this regard, the FCC approves COMSAT's funding of INTELSAT and Inmarsat. The FCC also regulates the prices COMSAT charges its customers and its rate of return on its investment in the intergovernmental organizations. Other agencies, such as the departments of Justice and Treasury and offices within the Executive Office of the President, participate in formulating U.S. policy on INTELSAT and Inmarsat through an interagency coordinating committee that includes the State and Commerce departments and the FCC.

The FCC's regulatory policies affecting international satellite communications are evolving over time from ones designed to ensure the commercial viability of INTELSAT and Inmarsat to ones in support of worldwide competition. For many years, the United States did not authorize the use of any other U.S. satellite systems besides INTELSAT's and Inmarsat's to provide commercial international satellite communications—although under the 1962 act, the creation of other systems was not precluded if required to meet unique governmental needs or if deemed to be in the national interest. In early 1981, the FCC authorized use of U.S., Canadian, and Mexican domestic satellites for transborder communications within guidelines established by the executive branch. In

1983, several companies filed applications with the FCC to establish satellite systems to compete with INTELSAT's. In response, in 1984 President Reagan issued Presidential Determination No. 85-2, which stated that the President had determined that separate international communications satellite systems were required in the national interest. Two conditions were placed on the proposed satellite systems by the executive branch: (1) that the companies not be permitted to provide services that interconnected with the public networks and (2) that they consult with INTELSAT pursuant to obligations under the intergovernmental agreement. The latter provision required the companies to provide INTELSAT with information about their business plans in order to clear the consultation process.

In implementing the President's decision, the FCC issued regulations that initially precluded other companies from competing with INTELSAT's service that connected to a country's public networks—principally international telephone service. That restriction was intended to ensure that new companies did not cause INTELSAT significant economic harm, thereby safeguarding INTELSAT's financial integrity. According to an FCC official, such a restriction was deemed necessary to gain approval from INTELSAT, which was actively opposing competition. As a result, companies focused on services they were allowed to provide, primarily international private communications networks and international television/video service. Over time, INTELSAT made a series of determinations that separate satellite systems providing increasing levels of services would not cause it significant economic harm. According to a State Department official, INTELSAT's changes resulted from U.S. pressure. In response to those changes, the FCC has been incrementally lifting the restrictions on the services other companies may provide and, pursuant to the executive branch's goal, plans to remove by January 1, 1997, all restrictions on international satellite services that connect to the public networks.

Similarly, to help INTELSAT flourish, even in the face of competition from transoceanic cables, in 1971 the FCC issued a guideline that required reasonable parity in the use of cables and satellites by AT&T (American Telephone and Telegraph) on its transatlantic routes. Later, in 1988, that policy was eliminated, in part because INTELSAT no longer needed the guaranteed level of use of its satellites. Likewise, in 1966, earth stations located in the United States that were serving INTELSAT's system were required to be owned half by COMSAT. In 1984, the FCC removed that restriction in order to benefit users by increasing their options and creating competitive pressures on rates. The FCC also required COMSAT to

price its satellite and earth station services separately to help foster competition in the operation of earth stations.

Most recently, the FCC's policies have been designed primarily to assist U.S. companies competing to establish their own satellite systems serving the international market. As described in chapter 4, proposed regulations are being considered to facilitate market access here and abroad for competing companies.

Table 2.1 lists how many companies have been licensed by the FCC, are operational, and are applying for licenses to establish their own satellite systems.

Table 2.1: U.S. Companies Licensed, Operational, and With Applications Pending to Provide International Satellite Communications Services

	Number of companies		
Type of satellite system	Licensed	Operational	Unlicensed, with applications pending
Geostationary[a]	4	4	0
Big LEO[b]	3	0	3
Little LEO[c]	3	1	6
Broadcasting satellite services[d]	0	0	1
28 GHz frequency or higher[e]	0	0	11

[a]These satellite systems are operating in the C band of the spectrum (the 4 and 6 gigahertz [GHz] portion of the spectrum) and the Ku band (12 and 14 GHz); hertz and GHz (1 billion hertz) are standard measures of radio frequency.

[b]Big LEOs transmit radio signals above 1 GHz. These satellite systems will be generally used to send voice and facsimile, as well as nonvoice (or data), transmissions.

[c]Little LEOs transmit radio signals below 1 GHz on the spectrum. These satellite systems are generally used to send only nonvoice data transmissions.

[d]The satellites of these systems are geostationary, but the systems are licensed under a separate licensing category. They offer one-way communications.

[e]These systems, with satellites that are either geostationary ones or LEOs, are planned to operate at or above 28 GHz on the spectrum (the Ka and EHF bands). Services will include on-demand data or video applications directly to the home.

International Coordination of Satellite Operations

The International Telecommunication Union (ITU) in Geneva, Switzerland, is an international organization within which governments and the private sector coordinate global telecommunications networks and services. Founded in Paris in 1865 as the International Telegraph Union, the ITU

took its present name in 1934 and became a specialized agency in the United Nations in 1947.

Member countries of the ITU adopt international regulations and treaties governing all land and space uses of radio frequencies as well as the uses and allocation of the geostationary satellite orbits. The goal of the ITU's coordination procedures is to enable satellites and satellite systems to operate with minimal, if any, interference.

For companies wanting to launch a satellite that orbits above the earth's equator, a country must request use of a specific orbital location (for example, 31° west longitude) at a given radio frequency. Information submitted to the ITU must be sufficient to permit another country to ascertain whether the proposed satellite's operation may adversely affect one of its satellites or systems. A country has 4 months to comment on any potential interference. When such a potential exists, countries work within the ITU forum to resolve the issue. According to a State Department official, countries usually work bilaterally through the ITU procedures to resolve issues concerning potential interference. Once the final coordination is complete, the ITU records the assignment on its master register.

Under the INTELSAT agreement, in order to protect the organization from technical harm, companies wanting to launch their own satellites must consult with the organization as well as coordinate with the ITU. Because members of INTELSAT must also belong to the ITU, this review by INTELSAT has essentially supplanted the need for additional coordination with INTELSAT through the ITU, according to FCC officials. On the other hand, in Inmarsat, the coordination with the ITU generally supplants the need for a technical consultation with Inmarsat.

Concerns About Competition in International Communications Services

There are concerns that INTELSAT and Inmarsat have competitive advantages owing to their intergovernmental status and ownership structure. At the same time, these international satellite organizations believe that they have certain disadvantages in competing with private companies. Because price and cost data for satellite services are not generally available or readily usable, in examining competition we interviewed representatives of (1) current and potential alternative providers of communications services and (2) COMSAT, the U.S. signatory to the intergovernmental organizations, and we used other information, namely, the number of firms providing services and the difficulty or ease with which new firms could begin providing services. We found that competition developed differently in two primary markets for international communications services. In the market for international telephone service, where various policies impeded U.S. satellite firms from providing service, competition emerged primarily from an alternative medium: fiber-optic cables. In the international television/video market, the restrictions on satellite systems were less pronounced. It appears that in the segment of the market for regional broadcasts, competition from alternative systems is somewhat more developed, but in the segment of the market for international and/or transoceanic broadcasts, competition remains more limited.

A Variety of Factors May Influence Competition

The institutional framework that defines the market for commercial international satellite services provides an array of factors that may influence competition within the market. For example, the intergovernmental organizations, INTELSAT and Inmarsat, have enjoyed a variety of advantages deriving from their intergovernmental status; in particular, many of the signatories are wholly or partially government-owned and also may serve as the regulatory authorities that make decisions about which satellite systems will have access to their domestic markets. On the other hand, many members of INTELSAT and Inmarsat believe that the organizations themselves are disadvantaged because they are obligated to provide universal service at nondiscriminatory prices and because their intergovernmental structure can cause sluggish decision-making in a rapidly changing market.

Factors That May Provide Advantages to the International Satellite Organizations

As we reported in July,[1] a number of factors have been cited as providing benefits to the international satellite organizations.

Preferential Access to Foreign Markets

To provide international service to a country, a satellite system must gain permission from domestic licensing authorities for the right to do business within the country's borders. INTELSAT, Inmarsat, and their affiliates may enjoy an advantage in gaining access to markets around the world because the licensing authorities granting such permission within many countries are signatories to the intergovernmental organizations and typically have government ownership. For example, data from the FCC state that 71 percent of INTELSAT's signatories are the regulatory authorities that decide on such things as licensing, spectrum allocation, and market access.

As investors in INTELSAT or Inmarsat, signatories may have a financial incentive to favor the organizations over other potential competitors. According to a Treasury Department official, the financial incentives of signatories as both investors in INTELSAT's satellite system and as owners of the earth stations that link up with INTELSAT's satellites, when combined with INTELSAT's excess capacity, may create an impediment for other companies trying to enter the market. According to representatives of alternative satellite systems, some countries have been very restrictive in allowing these systems to operate within their borders. These representatives told us that countries have carried out restrictions in a variety of ways, including (1) authorizing earth stations only if they serve INTELSAT's satellites, (2) assessing prohibitively high tariffs on the smaller earth stations often used by private satellite systems, (3) prohibiting alternative systems' interconnection with the countries' telephone network, and (4) denying or restricting access to necessary radio spectrum within the countries for the transmission of satellite signals.

Faster Access to Orbital Positions

As intergovernmental organizations, INTELSAT and Inmarsat have enjoyed faster access to ITU's registration of scarce geostationary satellite orbital locations. Because of provisions in the organizations' governing documents, the host countries (the United States for INTELSAT and the United Kingdom for Inmarsat) are required to promptly file applications with the ITU without the interim step of national review, as required for U.S. companies. According to the FCC, which processes INTELSAT's applications for orbital positions, the submission of the applications

[1]See Telecommunications: Competitive Impact of Restructuring the International Satellite Organizations (GAO/RCED-96-204, July 8, 1996).

through the host country is a formality taking just 1 or 2 days, and applications are forwarded to the ITU automatically. The applications of private U.S. companies, on the other hand, are not submitted to the ITU until the FCC has reviewed them. The FCC forwards the applications to the ITU sometime during the licensing process.[2] The FCC's licensing process for the first two international satellite companies using geostationary orbital locations has taken, on average, more than 5 years. For geostationary satellites originally licensed to provide U.S. domestic services only, once the needed policies were formulated, the licensing process has been taking about 1-1/2 years, according to an FCC official.

Under the ITU's coordination process, timing is an important factor in obtaining access to scarce orbital positions. The first applicant for a location has a presumptive claim to it, and once the applicant's satellite is in place, subsequent applicants bear, in practice, a greater burden of ensuring that their satellites will not cause interference. In the United States, differences in the length of time it takes for applications from INTELSAT to go forward to the ITU and the length of time it takes for other companies' applications may create an advantage for the intergovernmental organizations.

Financial Advantages

The intergovernmental nature of INTELSAT and Inmarsat may provide them with more readily available financing than potential competitors are likely to enjoy. Both organizations have relatively favorable access to financing because they can assess their signatories as well as pursue financing through the debt markets. Furthermore, commercial lending institutions are likely to view INTELSAT and Inmarsat as desirable investments because of the signatories' ties to their governments in most countries. On the other hand, representatives from the Alliance for Competitive International Satellite Services (ACISS) told us that private companies wanting to compete with INTELSAT and Inmarsat have had difficulty in obtaining the needed level of equity and debt financing. Moreover, when they do obtain debt financing, they tend to have to pay considerably higher rates. One reason that raising capital for satellite systems is difficult may be the expense of such projects.

Requirements for Technical and Economic Coordination

INTELSAT's and Inmarsat's consultation requirements may have resulted in disadvantages to companies wanting to compete with either organization. For example, some companies told us that they have been harmed competitively because, as part of the consultation process, they had to

[2]The FCC's licensing process spans from the initial submission of an application through the issuance of a license. The FCC's forwarding of the application to the ITU occurs at some intermediate point.

provide INTELSAT, a future competitor, with information about their business plans, including sensitive and proprietary business information.[3] Furthermore, in the United States, the FCC's licensing of a new system is conditioned on a determination from the intergovernmental organizations that the company's plans will cause the organizations no technical interference and no significant economic harm.

According to COMSAT representatives, however, in recent years INTELSAT has been reforming its evaluations of technical and economic harm. INTELSAT has determined that an increased amount of basic telephone service can be provided by alternative satellite companies without causing it significant economic harm. COMSAT representatives also report that both INTELSAT and Inmarsat are close to officially eliminating the requirement that they review a company's plans for the economic impact on the organizations. According to an INTELSAT official, while the requirement remains in the INTELSAT agreement, the intergovernmental organization determined in 1992 that companies could provide services other than basic telephone service without causing it significant economic harm. Furthermore, COMSAT representatives point out that while the requirement remains in the Inmarsat agreement, 2 years ago the organization adopted a resolution establishing a presumptive determination that no satellite system could cause it economic harm. Competitors contend this does not guarantee that they will not later be denied operating privileges if competition does affect Inmarsat.

Nevertheless, the results of a recent consultation for a U.S. firm raise new concerns because INTELSAT appears to have expanded the criteria used to determine if a company's operation will cause unacceptable technical interference with INTELSAT's system. Specifically, according to FCC officials, INTELSAT added an economic component—the value of expected revenue

[3]COMSAT pointed out that it too provides technical and business information in certain filings it must make with the FCC as a common carrier. According to an FCC official, COMSAT must make those filings in order to participate in INTELSAT's and Inmarsat's procurements and expansion of services.

from a satellite placed in a particular orbital position—as a criterion in its finding of unacceptable technical interference.[4]

Size and Dominance

Some analysts have stated that INTELSAT, in particular, dominates the market for international satellite communications because of its size. The organization is considerably larger, in terms of its capacity and volume of services, than any of the other satellite systems throughout the world.[5] Some analysts have suggested that its large number of satellites and extensive capacity to provide communications services give INTELSAT an ability to dominate the market to the detriment of other firms. Although Inmarsat is not nearly as large in terms of assets or capacity, currently it is the only provider of global mobile satellite services. Inmarsat plans to augment its capacity and service offerings of global land-mobile services through its affiliate, ICO Global Communications Limited (ICO), in the same time frame that private competitors plan to begin offering similar services.

Privileges and Immunities

Under the intergovernmental agreements that members of INTELSAT and Inmarsat signed, the organizations enjoy certain privileges and immunities. For example, both INTELSAT and Inmarsat are exempt from taxation on their earnings and are immune from lawsuits. The exemption from taxation may provide the organizations with financial advantages relative to other satellite systems, although the signatories themselves may be subject to taxation within their home nation on their share of the organizations' earnings, as is the case with COMSAT. Immunity from

[4]The company originally was leasing a satellite for a limited number of years, after which INTELSAT was to operate its own satellite close enough for there to be technical interference on the same frequency. When the life of the leased satellite was extended, the company applied to the FCC for permission to continue operating beyond the original deadline. After INTELSAT's finding of unacceptable technical interference, the company filed a new application with the FCC requesting special temporary authority to continue to be able to offer services to customers beyond the original deadline. Concerned that INTELSAT had put its own commercial interest before its public interest obligations, the FCC granted the special temporary authority. According to an FCC official, the FCC acted to prevent the company from being forced from the market and thus harming competition. The FCC also ordered the company to seek a mutually acceptable resolution with INTELSAT under the ITU's provisions and to apply for permanent authority to operate. See Application for Special Temporary Authority to Remove Conditions on its Existing Authorization to Operate C-Band Transponder Capacity on the National Aeronautics and Space Administration (NASA) Tracking and Data Relay Satellite System ("TDRSS") Space Station at 41 Degrees West Longitude, Order and Authorization, DA 96-703 (May 6, 1996) (Columbia Communications Corporation Decision).

[5]As this report was being finalized, there were press reports that GM Hughes Electronics Corporation was acquiring PanAmSat, the only global private satellite system competing with INTELSAT. The acquisition would create a company that combined Hughes' 10 domestic satellites with PanAmSat's 4 and the latter's plans for about 7 additional satellites, bringing the combined total to about 20 satellites, second only to INTELSAT in the number of geostationary satellites.

lawsuits may allow the organizations to act in the market in ways that their competitors cannot under U.S. antitrust laws.[6]

Factors That May Disadvantage the International Satellite Organizations

According to COMSAT, the factors described above do not necessarily translate into unfair competitive advantages in the marketplace. COMSAT points to (1) the growth of alternative satellite systems as evidence that the perceived advantages do not prevent entry into the market and (2) the cumulative effect of these alternative systems and fiber-optic cables as evidence that INTELSAT no longer has market dominance. COMSAT also believes that while the intergovernmental organizations have some advantages, they also bear responsibilities, including the obligation to provide universal service at nondiscriminatory prices, which may limit their ability to compete in the market.

The requirement of meeting varied countries' needs for communications has led INTELSAT to have mostly "multipurpose" satellites, rather than ones that specialize in service for one particular segment of the market. According to COMSAT representatives, having primarily multipurpose satellites may degrade the quality of specific types of services other than basic telephone service. Therefore, the officials explain, in offering these specific services, INTELSAT must compete against others that have more specialized technology. ACISS officials point out, however, that some of INTELSAT's newer satellites have been designed to focus on television/video service.

COMSAT also points out that the intergovernmental nature of the organizations leads to slow decision-making. Discussions aim to gain consensus among varied nations, sometimes with varied interests. Consequently, according to COMSAT, INTELSAT and Inmarsat are impeded in their ability to respond to a rapidly changing market. ACISS officials contend, on the other hand, that INTELSAT and Inmarsat can act quickly when need be, as illustrated in recent statements by representatives of

[6]In 1989, the corporate predecessors of PanAmSat brought suit alleging that COMSAT, through INTELSAT and in conjunction with other signatories, engaged in a variety of anticompetitive practices in the market for international commercial satellite telecommunications services. The United Stated District Court for the Southern District of New York dismissed the complaint on the grounds that signatories were "representatives of the parties," that the immunity clause of the Headquarters Agreement covering representatives therefore applied to signatories such as COMSAT, and that the antitrust provision of the Communications Satellite Act of 1962 did not apply to COMSAT's actions as a signatory. The U.S. Court of Appeals for the Second Circuit affirmed this ruling and sent the case back to the lower court to give PanAmSat an opportunity to file its claims against COMSAT in its role as a common carrier, and not as an immune signatory. In a recent ruling, the U.S. District Court dismissed the 1989 lawsuit, holding that PanAmSat failed to present sufficient evidence to support its charges that COMSAT had violated antitrust laws and engaged in predatory pricing. See PanAmSat v. COMSAT Corp., Opinion and Order, 89 Civ. 5021 (S.D.N.Y.), Sept. 4, 1996.

both organizations. For example, INTELSAT's Director General stated in an April 1996 introduction to INTELSAT's 1995-96 annual report that the organization will be flexible in order to introduce a wide range of new services that may be necessary to enable it to compete effectively in the future. A recent press report noted that INTELSAT expects to complete the contract process for a new high-power satellite to provide direct-to-home television service in the Asia-Pacific region in 3 months instead of the normal 6 to 12 months.

Competition Has Developed Differently Across Key International Communications Markets

It is difficult to discuss the issue of competition in the international communications market or the international satellite market in a general sense. Analyzing competition in the aggregate may not be appropriate because of the varied institutional and market characteristics surrounding the different services and the varied geographic settings for them. Therefore, citing INTELSAT's ownership of about one-fourth to one-third of the satellite capacity in the world may not provide relevant information about the degree of its dominance in all contexts. For basic telephone service between two countries well served by fiber-optic cables, for example, INTELSAT's overall share of satellite capacity may overstate its dominance because the figure does not take into account the service by fiber-optic cables. On the other hand, for television/video broadcasts within Africa, a continent that currently does not have many domestic or regional satellite systems, INTELSAT's market dominance is likely understated by its overall share of satellite capacity.[7]

Because of such limitations in evaluating competition in a general sense, we examined two distinct primary markets: the one for international telephone service and the one for television/video service.[8] For this second market, we considered the separate segments for the regional distribution of broadcasts and for international and/or transoceanic transmissions. In examining competition in these markets, we could not rely on price and cost data because they are not generally available or readily usable. However, we could examine the availability of alternative providers and the ability of firms to enter markets—important indicators of the degree of competition.

[7]While there are submarkets in which satellites provide services, there is substitutability in supply across these markets. That is, INTELSAT may currently devote a high percentage of its capacity to international telephone service, but as changes in demand and other market factors require less of its capacity for this service, INTELSAT can use that capacity to provide other services. Thus, these submarkets are distinct but linked.

[8]These are not the only markets within which satellites operate. In particular, various business services are among the fastest growing markets.

In the market for international phone service, where policies by the U.S. government, INTELSAT, and other countries' licensing authorities impeded U.S. satellite firms from providing service, competition emerged primarily from an alternative to satellites: fiber-optic cables. In the market for television/video service, the restrictions on satellite systems were less extensive. In the segment of the market for regional broadcasts, a few U.S. and foreign satellite companies have become viable competitors. However, in the segment of the market for international and/or transoceanic broadcasts, INTELSAT remains dominant because of its extensive network and capacity. The competitive development of these markets may shed light on concerns about competition in the emerging market for international mobile personal communications, where Inmarsat currently is the only provider.

Fiber-Optic Cables Are an Important New Medium in the Market for International Telephone Service

Though INTELSAT's satellites have mostly been multipurpose, they have largely focused on providing international telephone service. This market has been INTELSAT's largest and has provided the bulk of its revenues over the years. Other satellite systems began to emerge, primarily in the late 1980s and early 1990s, but some of them were restricted from providing international telephone service by policies imposed by the FCC to prevent causing significant economic harm to INTELSAT and by some licensing authorities within other countries.

For example, to minimize the harm that new U.S. systems would cause INTELSAT, the FCC established a policy, known as the separate systems policy, which originally prohibited and later limited the amount of international telephone traffic that U.S. private satellite firms could provide. These restrictions were imposed on separate systems by the FCC pursuant to the 1984 Presidential Determination to ensure that no significant economic harm resulted for INTELSAT. While the restrictions are in the process of being phased out, they nevertheless may have a long-lasting effect because they led competing satellite systems to concentrate their efforts in other markets.[9] Companies focused on those

[9]According to PanAmSat, full and fair competition for U.S. alternative providers will not be possible until the restriction on telephone service is eliminated on January 1, 1997. However, PanAmSat believes that because many of COMSAT's customers have long-term contracts, COMSAT will likely remain the dominant provider beyond then. Therefore, PanAmSat has filed a petition with the FCC asking that any COMSAT customer for international telephone service who has a long-term contract in effect on January 1, 1997, be permitted to opt out without liability. COMSAT disagrees with PanAmSat's position, stating that COMSAT's share of the international telephone service market was about 34 percent when the contracts were negotiated in 1987-88 and that currently that share is about 25 percent. COMSAT further points out that PanAmSat was free to seek, and contracting companies were free to award to PanAmSat, international telephone business contracts when COMSAT renegotiated them in 1993-94.

services they were allowed to provide, primarily international private communications networks and international television/video service. Furthermore, as described, companies report that because of the financial incentive that regulatory authorities in other countries have to favor INTELSAT, many of them have kept some satellite systems from gaining access to their markets, particularly for international telephone service.

At the same time, however, there has been a massive increase in the amount of transoceanic fiber-optic cables and the capacity available for international telephone service. According to a recent report by The Brattle Group, only 37 countries were served by fiber-optic cables in 1988, while in 1996, that number has grown to nearly 100, or somewhat more than half of the world's countries.[10] Fiber-optic cables are a cost-efficient means of providing international voice services because a large amount of traffic can be amassed on each cable. Additionally, they provide a higher-quality voice service because they eliminate the echoes and time delays that are characteristic of voice service using geostationary satellites. The inroads of these cables in the international telephone market have been significant: While international telephone service remains INTELSAT's largest market sector and its business in this sector continues to increase, its share of the total international traffic is declining considerably.

A recent internal analysis by the Department of Justice found that for international telephone service, INTELSAT does not dominate U.S. "country-pair" markets (i.e., markets for telephone service between the United States and other countries) well served by fiber-optic cables or alternative satellite systems.[11] Similarly, the FCC recently noted that for international telephone service, there is now "substantial competition . . . [because] available transmission capacity has dramatically increased on most routes with the introduction of satellite and cable systems that compete with INTELSAT."[12] While alternative providers of satellite services may compete with INTELSAT for international telephone traffic, both the Department of Justice and the FCC note that providers of fiber-optic cables represent the more important factor in this market. The FCC notes that

[10]Hendrik S. Houthakker and The Brattle Group, "Competition in the Market for Trans-Oceanic Facilities-Based Telecommunications Services" (Cambridge, Mass.: June 24, 1994). This study was prepared for COMSAT.

[11]The analysis by the Department of Justice, dated Dec. 15, 1995, was intended for government use only; according to a Department official, it contains confidential business information and is therefore not available to the public.

[12]Petition for Partial Relief from the Current Regulatory Treatment of Comsat World Systems' Switched Voice, Private Line, and Video and Audio Services (FCC Order 96-349, Aug. 15, 1996).

countries not served by fiber-optic cables are less likely to benefit from vigorous competition because "separate satellite systems to date provide less competition than cable services" in the international telephone market.

INTELSAT's declining market share alone does not necessarily indicate that this market is now characterized by competitive pricing. In particular, because many fiber-optic cables are owned by the monopoly telephone companies within many nations (typically also the signatories to INTELSAT) downward pressure on the pricing of international telephone calls may not have been as significant as would be the case if the new providers were entirely distinct from INTELSAT and were able to gain access to markets.

Development of Competition in International Television/Video Service Has Differed Across Two Market Sectors

Unlike the market for international telephone service, the market for television/video service has had less pronounced restrictions for alternative satellite systems. In addition, fiber-optic cables are generally less able to provide television/video service because they are not a cost-efficient means for transmitting from a single location to many different locations at the same time.

We reviewed the development of competition for regional television/video broadcasts around the world. This market is one in which signals are more likely to be transmitted directly to end-users (i.e., homes with satellite dishes) or to land-based television stations or cable systems for further redistribution. This sector seemed important to review because it is a significant growth market for satellite providers.

We also reviewed a second sector of the international television/video market—termed the "transoceanic television/video market" and the market for the "relay of international television" by the Department of Justice and the FCC, respectively, in their recent analyses. While the agencies' market definitions were not necessarily identical, both agencies focused on international television markets in which the U.S. market is an endpoint of international and/or transoceanic transmissions. For our review, we have used the term "international television/video market" and considered it to include international and/or transoceanic broadcasts.

Regional Television/Video Market

Many domestic and regional systems that came on-line since the late 1980s, including U.S. satellite systems, have focused on providing regional television/video broadcasts. It is in this area that INTELSAT's disadvantages are most evident and its advantages less applicable.

Unlike in the international telephone market, in the market for regional television/video broadcasts, the FCC did not impose significant restrictions on the provision of these services by separate U.S. satellite systems. However, regulatory authorities within other countries, such as in Korea, applied restrictions, some of which remain in place—though, according to COMSAT representatives, most restrictions within other countries were imposed primarily on telephone service. Similarly, several U.S. companies that use satellite systems around the world for distributing television/video broadcasts told us that access restrictions on alternative satellite systems did not appear to be as much of a problem today as they were several years ago. One representative told us that some countries encourage or require the use of domestic satellites, as opposed to those of INTELSAT or any other system, for broadcasts within those countries. Another representative concurred that access to the regional television/video market may be less restricted than access to other markets, though he pointed out that access problems still exist on a country-by-country basis.

In general, our interviews of representatives of companies that use satellite systems around the world for regional television/video broadcasts showed that they are not concerned about having to use a particular system. Rather, they contract for the use of specific satellites in specific locations. Several users told us that their criterion for choosing a satellite is primarily the degree of "coverage" the satellite can provide in terms of the number of antennae or satellite dishes that can receive signals from it. These users also explained that several alternative systems' satellites are more oriented toward handling television/video broadcasts than INTELSAT's multipurpose satellites and so are often preferred for this use. Table 3.1 shows the systems, by region, that were identified by users we spoke with, as well as by our own analysis, as providing service for regional television/video broadcasts.

Table 3.1: Government and Private Satellite Systems Providing Television/Video Services, by Region Covered, 1996

	Systems providing television/video service, by region covered						
System ownership	**Asia**	**Middle East**	**N. America/ Central America and Caribbean**	**S. America**	**Europe**	**Australia**	**Africa**
Government or telephone company	INTELSAT Intersputnik (Russia) Chinasat (China) Insat (India) Arabsat (Consortium of Middle Eastern countries) Turksat (Turkey) Koreasat (Korea)	INTELSAT Intersputnik (Russia) Arabsat (Consortium of Middle Eastern countries) Amos (Israel) Eutelsat (Consortium of European countries) Insat (India)	INTELSAT Intersputnik (Russia) Solidaridad (Mexico) Hispasat (Spain) Telecom (France) Nahuel (Argentina)	INTELSAT Intersputnik (Russia) Brazilsat (Brazil) Solidaridad (Mexico) Hispasat (Spain) Nahuel (Argentina)	INTELSAT Intersputnik (Russia) Eutelsat (Consortium of European countries) Telecom (France) DFS/ Kopernicus (Germany) Thor (Norway) Hispasat (Spain) Sirius (Sweden) Turksat (Turkey) Arabsat (Consortium of Middle Eastern countries) Insat (India)	INTELSAT Intersputnik (Russia)	INTELSAT Intersputnik (Russia) Arabsat (Consortium of Middle Eastern countries) Insat (India) Eutelsat (Consortium of European countries) Telecom (France)
Private	PanAmSat Columbia Apstar Asiasat Palapa[a] JCSAT Superbird BS-Yuri[a] Thaicom	PanAmSat Asiasat	PanAmSat Columbia Orion Telstar/AT&T Anik[a] Alascom Hughes-Galaxy GE Americom Echostar	PanAmSat Hughes	PanAmSat Columbia Orion Asiasat Astra Thaicom	PanAmSat Asiasat Optus[a]	PanAmSat Thaicom

(Table notes on next page)

Notes: The grouping of these systems by region does not imply that each system has market access to or serves all countries within a region.

Additionally, the systems listed may provide an array of communications services besides regional television/video broadcasts.

It is important to note that the available capacity of these systems varies considerably. For example, INTELSAT's system, the largest in the world, has the capacity of about 1,300 transponders at 36 megahertz (MHz)—a MHz is a thousand hertz—each (not including about 300 additional transponders in satellites in "inclined orbit"), while PanAmSat's system, the largest U.S. international system, has only the capacity of almost 200 transponders at 36 MHz each. However, a comparison of total transponder capacity does not necessarily measure the amount of capacity that different systems have allocated across various markets, such as those for international telephone or international television/video. This table indicates the different systems that are providing some service in the regional market indicated and does not attempt to measure the level of different services provided or the available capacity in different geographic markets.

[a]This system is partially owned by governments or telecommunications companies.

Sources: GAO's interviews with companies using satellite systems for regional television/video broadcasts and GAO's analysis of data from Design Publishers, Inc., and Dailink SatComs, Ltd.

At the same time, some users with whom we spoke mentioned that, for certain purposes, they are more likely to use INTELSAT's system than others. In particular, it appears that when users have a need for the occasional use of satellites or services for which they are unable to plan much ahead of time, they are more likely to use INTELSAT. Users noted that many of the alternative providers have limited excess capacity because much of their systems is tied up in long-term contracts, so these systems are less able to serve the needs of occasional or short-notice users. INTELSAT's large size, excess capacity, and extensive market access allow it to be available for such users, giving INTELSAT a competitive advantage in arranging short-term-use contracts with news organizations and others that require global access. COMSAT representatives told us that the responsibilities of the intergovernmental organizations requires them to plan for and retain considerable capacity beyond what is actually used.

Despite the number of systems involved in the market for regional television/video broadcasts, it is important to note, as is shown on table 3.1, that many of these systems are owned by governments or monopoly telephone providers. Since some of these owners may also be INTELSAT signatories, such ownership may indicate that the systems are not fully distinct from the organization. In fact, according to several users, the prices for television/video broadcast service in Europe, where many of the systems are owned by governments or dominant telephone companies, far exceed similar rates in most other areas. Additionally, one analyst has

suggested that even some of the foreign privately owned systems have significant ties to governments. As a result of such ownership and such ties to governments, the greater number of firms in this market may not cause prices to fall toward competitive levels. But the effect of government ownership on pricing within the industry is not readily observable because of the unavailability of readily usable price and cost data.

International Television/Video Market

Several users mentioned that they are more likely to use INTELSAT when they are transmitting a broadcast internationally, that is, between regions and/or across oceans. For example, users such as news programmers may need to transmit news stories from around the world to the location where their broadcasts are produced. Similarly, many television/video companies produce broadcasts in a particular location and then use satellites to transmit them to locations around the world for further distribution. Thus, news-gathering operations, including those of the major U.S. television networks, have a prominent need for international television/video service.

In comparison to the market for the regional distribution of television/video broadcasts, the market for international broadcasts has fewer providers. As table 3.2 shows, few of the domestic and regional systems have the capacity for transoceanic television/video broadcasts. The FCC recently noted that INTELSAT's ubiquitous coverage and system design give it a strong competitive advantage for this type of service. Many of the users we spoke with told us that while they use a variety of systems for regional distribution, they are much more likely to use INTELSAT for transoceanic service.

Table 3.2: Satellite Systems With Transoceanic Capacity

System ownership	Transatlantic coverage	Transpacific coverage	Transindian coverage
Government or telephone company	INTELSAT Intersputnik Telecom	INTELSAT Intersputnik	INTELSAT Intersputnik
Private	PanAmSat Columbia Orion Hispasat	PanAmSat Columbia	PanAmSat Asiasat

Note: It is important to note that the available capacity of these systems varies considerably. For example, INTELSAT's system, the largest in the world, has the capacity of about 1,300 transponders at 36 MHz each (not including about 300 additional transponders in satellites in "inclined orbit"), while PanAmSat's system, the largest U.S. international system, has only the capacity of almost 200 transponders at 36 MHz each. However, a comparison of total transponder capacity does not necessarily measure the amount of capacity that different systems have allocated across various markets, such as those for international telephone or international television/video. This table indicates the different systems that are providing some service in the transoceanic market indicated and does not attempt to measure the level of different services provided or the available capacity in different geographic markets.

Source: GAO's interviews with companies using satellite systems for regional television/video broadcasts and GAO's analysis of data from Design Publishers, Inc., and Dailink SatComs, Ltd.

Both of the recent analyses by the Department of Justice and the FCC have noted the limited competition to INTELSAT in the international and/or transoceanic television/video market. The Department of Justice found that INTELSAT continues to have market power in some segments of this market. Similarly, the FCC found that for international television/video service, especially when it is likely to require the use of a satellite on short notice or to require transmission to multiple receiving stations on earth at the same time, INTELSAT has a strong competitive advantage over competitors, who do not have the same satellite capacity or the intergovernmental organization's extensive network of earth stations in more than 136 countries.

In contrast, the most recent analysis by the Brattle Group found that INTELSAT's share of the market for transoceanic video service to and from the United States is in decline—from 80 percent in 1993 to slightly under 50 percent in 1996. This measure of market share, however, was based on utilized capacity, which may understate INTELSAT's dominance in this market because INTELSAT likely has significantly more excess capacity than its competitors have for this service.[13] Nevertheless, the direction and

[13]See written testimony of Johannes P. Pfeifenberger before the Subcommittee on Telecommunications and Finance, House Committee on Commerce (Sept. 25, 1996).

rapidity of change in the measured market share may indicate that INTELSAT's dominance in this sector has declined.

The Impact of Competitive Factors Causes Concerns About Competition in the Emerging Market for Mobile Services

Inmarsat is currently the dominant provider of global mobile satellite communications services, with 70 percent of its business providing maritime services. Some other companies, including the Inmarsat affiliate ICO, plan to begin offering global land-mobile services in just a few years. Competitive concerns may arise in this emerging market for international personal mobile communications because Inmarsat's affiliate may have advantages over other providers. Competitive concerns include the following:

- Market access and availability of spectrum: Because the signatories of Inmarsat are often the dominant government-owned telephone companies or the regulating authorities within many countries, rival firms fear that Inmarsat's affiliate will gain access to foreign markets that will be denied to other competitors. Similarly, domestic licensing authorities may grant Inmarsat's affiliate access to a requested portion of the radio spectrum and make that portion unavailable to other potential firms.[14]
- Financial advantages: Inmarsat may provide its affiliate with financial advantages by providing subsidies to it.[15]

While competition in the international mobile communications market has not yet begun and these problems may be only theoretical at this point, evidence from the international telephone market indicates that the market entry by separate satellite systems can be forestalled by decisions made by the signatories.

Agency Comments and Our Evaluation

In commenting on our report, COMSAT took issue with and questioned several of the factors that we cited as possibly creating competitive advantages for the intergovernmental organizations. While acknowledging that market access is a challenge that all new market entrants face, COMSAT

[14]For mobile communications, the use of a specific frequency by one satellite company precludes the use by another satellite company in the same geographic area, according to an FCC official.

[15]The departments of State and Commerce expressed concerns in a letter to the FCC dated September 29, 1995, that existing users of Inmarsat might subsidize the development of ICO if signatories pass on to their ratepayers for Inmarsat's services the costs of their contributions to Inmarsat's investment in the affiliate. The agencies noted that "even if the actual financial impact of inclusion of Inmarsat's ICO capital contribution in the capital account on which a target rate of return is paid is small," it would still create "an opportunity which is not available to investors in competing systems." See also the discussion in Telecommunications: Competitive Impact of Restructuring the International Satellite Organizations (GAO/RCED-96-204, July 8, 1996).

questioned the seriousness of the impact of any financial advantages signatories may have to motivate the denial of market access to other companies. COMSAT also attributed any delays companies face in filing for orbital locations with the ITU to delays in the FCC's regulatory process because the FCC is free to file for orbital locations at any time. With regard to the consultation process, COMSAT asserted that the information companies provide contains no actual proprietary or market data from which INTELSAT could benefit as a competitor. COMSAT also disagreed that INTELSAT used any economic valuation in the recent failed technical consultation involving a U.S. company.

COMSAT believes that the explosive growth in international telephone service demonstrates that COMSAT has not locked up the market through long-term contracts. COMSAT was troubled by what it characterized as a lack of evidence to support the notion that common ownership between INTELSAT or Inmarsat and other regional and domestic systems may cloud the distinction between those satellite system providers. In addition, COMSAT felt that our discussion of the possibility of cross-subsidization between Inmarsat and ICO did not reflect an accurate understanding of the financial flows within a cost-sharing cooperative organization like Inmarsat.

We believe that our discussions of likely competitive advantages for the intergovernmental organizations and selected satellite markets accurately reflect the potential impact of attributes of the institutional framework for providing satellite services and the current market activity:

- Many experts we spoke with believe that the signatories, as the investors in INTELSAT and Inmarsat, have a financial interest in the success of the organizations. Furthermore, data from the FCC show that for 71 percent of INTELSAT's members, the signatory is also the regulatory authority making decisions on licensing, spectrum allocation, and market access and that for another 14 percent, the signatory is separate but "related."
- With regard to the registration of orbital locations, the distinction we are making in the report is that, unlike for private companies, applications from the intergovernmental organizations are not subject to the regulatory requirements of national jurisdictions. When INTELSAT or Inmarsat files for a geostationary orbital location through the host country, the application goes forward automatically.
- While COMSAT contends that companies do not file sensitive or proprietary information with INTELSAT during the consultation process, satellite companies that have undergone the process told us that they consider the

information they had to submit to be sensitive and proprietary. Our report includes their point of view and attributes the opinion to them. With regard to the recent failed technical consultation by a U.S. company, the FCC order giving the company temporary authority to operate stated that "In the end, INTELSAT viewed the [orbital location] as too valuable from a commercial standpoint. . . ."

- Our reference to a petition filed with the FCC regarding COMSAT's long-term contracts was included to illustrate that at least one company did not think that the complete lifting of restrictions on companies' access to public networks would, in and of itself, enable full and fair competition in that market. We revised footnote 9 in this chapter to include COMSAT's position on the effect of its long-term contracts on competition and its opposition to the petition.
- Empirical studies have found that ownership ties between competitors can inhibit full competition between those entities. In response to this concern, many laws and regulations have been put into place as a check on cross-ownership.
- In a letter to the FCC, the departments of State and Commerce also raised the concern that Inmarsat could potentially subsidize ICO, thereby creating a financial opportunity not available to investors of competing systems.

Options for Resolving Competitive Issues

A variety of options for resolving the competitive issues discussed in chapter 3 have been suggested by interested parties, and many are being pursued. Ultimately, access to all markets is the key to enhancing competition. Depending on what changes are made and how they are implemented, changes in the status of the intergovernmental organizations could potentially address most of the concerns about competition held by both the companies and the intergovernmental organizations. Other international and domestic approaches, such as pursuing multilateral negotiations or using access to the U.S. market to gain access to other countries' markets, might broaden market access more directly. Because many ongoing activities are occurring generally within the same time frames, the deliberations and outcome in any one forum may affect the others.

Changing the Intergovernmental Organizations

Most of the concerns about competition emanate from the intergovernmental status of INTELSAT and Inmarsat. Ways for resolving some of those concerns include options that range from eliminating the organizations entirely to remodeling them.

Eliminating INTELSAT and Inmarsat

Many agency officials and satellite company representatives we talked to believe that the intergovernmental organizations were needed at the time they were formed and that they have achieved their original objectives. However, satellite company representatives and some experts have questioned the continued need for these organizations, with their intergovernmental status, and their extension through affiliates.

Because most of the competitive issues emanate from INTELSAT's and Inmarsat's status as intergovernmental organizations, eliminating them and selling off their assets would resolve many of the issues. For example, without the organizations, countries would generally lose their incentive to favor one international satellite system over a competitor's, advantages in access to orbital positions would disappear, as would the existence of providers with financial advantages conferred by links to signatories and governments. There would be no intergovernmental organizations with whom potential competitors would be required to consult to have their plans approved, nor ones with the advantages of market dominance or privileges and immunities. Furthermore, there would be no intergovernmental organizations burdened by obligations to provide universal service at nondiscriminatory prices or hampered by an intergovernmental structure dependent on consensus decision-making.

However, COMSAT representatives told us that eliminating the organizations is probably not a realistic option. They point out that many signatories strongly support not only retaining the organizations but also expanding them into new service areas. Developing countries are especially concerned about retaining global service as a goal of the organizations. Despite the availability of some other satellite systems in their region, developing countries are particularly concerned that without intergovernmental organizations, they could be left without the kind of coverage that INTELSAT and Inmarsat provide. Toward this end, however, developing countries can choose to give competing satellite systems access to their markets.

Restructuring the Intergovernmental Organizations

Alternatives to abolishing INTELSAT and Inmarsat include creating one or more private companies or restructuring the organizations in a way that preserves an intergovernmental entity in some form but also privatize some portion of the organizations.

Restructuring Into Private Companies

Restructuring could be accomplished by eliminating the intergovernmental structures and creating one or more private companies out of their assets. This approach would remove the advantages that derive from intergovernmental status, such as faster access to orbital positions and the benefits of privileges and immunities. Furthermore, the creation of multiple companies from each organization could reduce the impact of the organizations' size and dominance. The approach would also free the new companies of any international obligations and from any hindrances posed by an intergovernmental decision-making structure.

As discussed in our July 1996 report and in this report, however, the owners of the intergovernmental organizations may have a financial incentive to give preferential market access to the organizations and any affiliated companies they also own because they share in the profits of the organizations or affiliates. Therefore, if the current owners of INTELSAT and Inmarsat were allowed to own the new private companies created by this restructuring approach, they would still have the financial incentive to provide preferential market access to the new companies. Furthermore, the financial advantages enjoyed by the owners because of their governmental affiliation would still prevail in some capacity.

This approach, too, may be unachievable. In 1994, COMSAT advocated what its president termed a bold proposal, a direct move to privatize both organizations as fully commercial enterprises driven by the market and

accountable to shareholders. According to COMSAT, its proposal met with little interest among signatories for generally the same reasons that they resist the elimination of the organizations. COMSAT also noted that many countries that joined INTELSAT, especially many developing countries, were deeply concerned that breaking up the organization into multiple private companies could result in loss of the global interconnection of telecommunications that INTELSAT has achieved.

Retaining Some Form of Intergovernmental Organization

INTELSAT and Inmarsat have been reviewing options for restructuring in order for each to create a private company free of the intergovernmental structure while preserving an intergovernmental entity in some form that would continue to guarantee the services the organizations were originally created to provide. As explained in our July 1996 report, key to restructuring the intergovernmental organizations with a view toward enhancing competition are the number of new entities created and the degree to which they maintain economic ties with any remaining intergovernmental organizations or their owners. However, the developing competition in the two markets we examined may imply that the marginal benefit of a second affiliate is not great.

INTELSAT. Several nations have made suggestions about how INTELSAT can best restructure to meet the challenges of a changing market. The United States and COMSAT have proposed the creation of an INTELSAT affiliate intended to concentrate on providing new types of services, while a residual INTELSAT, at roughly half its current size, would focus on ensuring basic telecommunications services. Neither INTELSAT nor the affiliate, however, would be prohibited from offering any kind of service it chose to offer. About half of INTELSAT's satellites would be given to the affiliate, along with the relevant contracts for their use. The affiliate would be incorporated under the regulatory jurisdiction of a country. INTELSAT would have no institutional ownership, and the signatories collectively would be limited to owning no more than 20 percent after a transition period.

For companies competing against the affiliate, this approach toward restructuring could address most of the disadvantages they may face; it could also address the disadvantages that some INTELSAT members feel burdened by in their quest to compete. The United States' expectation is that the relative independence of the affiliate, owing to its 80-percent ownership by entities other than INTELSAT members, will reduce the incentive countries have had to grant preferential market access to INTELSAT while excluding or impeding potential competitors. Also, because the affiliate would be a commercial company with publicly traded shares

and subject to the laws and regulations of an individual country, it would not possess the privileges and immunities or other benefits of an intergovernmental organization, although the remaining immunity of the intergovernmental organization may make enforcement difficult. It would also be subject to the same disclosure requirements of the consultation process that other companies must undergo. Furthermore, an affiliate unencumbered by an intergovernmental decision-making structure could be free of INTELSAT's obligations to provide universal service at nondiscriminatory prices and could more readily respond to the needs of a rapidly changing market.

Minimal ownership by signatories could reduce the incentive that regulatory authorities have to favor any INTELSAT affiliates over other companies. However, according to officials at the State and Commerce departments, the FCC, and the National Economic Council and representatives of COMSAT, INTELSAT members are unlikely to accept the creation of more affiliates, and the United States is encountering strong resistance to the 20-percent limit on signatories' combined ownership.[1] A Commerce Department official explained that while competition is an important goal of the United States, it is not a priority with many other members of INTELSAT. Developing countries, in particular, are concerned about maintaining some form of INTELSAT to ensure its original mission of providing universal service at nondiscriminatory prices. The U.S. proposal would retain an intergovernmental organization to ensure the fulfillment of INTELSAT's original mission.

The degree of ownership by INTELSAT and its signatories during a transition, combined with the length of that transition, raises some concerns about the extent to which this kind of restructuring approach could enhance competition. Under the U.S. proposal, INTELSAT would own the affiliate for possibly 1 or 2 years, pending the conclusion of the first public sale of shares, during which at least 60 percent of shares is to be sold. The initial sale of shares would be under the auspices of an international team of underwriters, who may judge that selling the shares during the first year may not be a prudent business decision. They have the option of delaying the initial sale for up to a second year. However, underwriters may have a financial incentive to sell the shares as soon as possible.

[1]The proposed limit on signatories' ownership is based, in part, on several U.S. laws and policies regarding competition and ownership control. These laws and policies set limits in the range of 10 to 20 percent. The group that developed the U.S. proposal stated that 20 percent is an important upper limit to ensure that INTELSAT and its signatories have minimal influence on any new entities created.

The remaining shares would be distributed among INTELSAT's signatories. As much as 2 years could pass before the sale of another 20 percent of the shares would be expected. Thus, all members of INTELSAT may continue to have an incentive to favor the affiliate over other companies potentially for as much as 3 or 4 years, at a time when other companies are trying to enter the market and establish themselves as viable providers.

While the United States' approach to restructuring would create an affiliate that would neither possess the advantages of an intergovernmental organization nor bear the burdens currently felt by INTELSAT, the intergovernmental organization that would remain after the creation of the affiliate presents different issues. To the extent that a residual intergovernmental organization owns assets and provides services, companies competing with it will still face some of the competitive disadvantages, and the intergovernmental organization will still retain some of its burdens.

With the private sector poised to compete, ACISS has proposed a restructuring for INTELSAT that would allow retaining an intergovernmental organization and would create at least two affiliates. That proposal would restrict a signatory's investment to only one of the affiliates, not both. ACISS members hope that this proposal would result in additional market access for other private companies because signatories may find that to do business with certain other countries, they will have to allow entry into their domestic markets by the INTELSAT affiliate in which they have not invested; the need to allow both affiliates into their markets may induce countries to widen access to other entrants. This proposal has not been presented within INTELSAT for consideration. ACISS has stated that it would prefer to leave the existing structure intact until the option of having multiple affiliates becomes acceptable.

Until INTELSAT decides about restructuring and its particulars, the extent to which restructuring will resolve hindrances to competition is unclear. The organization will consider its restructuring at meetings currently scheduled for October and December 1996, and possibly February 1997, with the goal of adopting a restructuring plan in April 1997, when member governments will gather for their biannual meeting.

Inmarsat. Inmarsat has also been considering restructuring to help it meet the challenges of a changing market. The main approach under consideration would create a private company and retain a residual intergovernmental organization to ensure that Inmarsat's goals of safety

and rescue at sea are met. Under discussion within Inmarsat is whether or not to transfer all satellites to the private company, leaving the residual intergovernmental organization not as a direct provider but as an entity that would oversee whether the private company met contractual obligations concerning safety and rescue and other public service obligations. Creating a private company could potentially resolve many of the competitive issues raised by the structure of an intergovernmental organization, especially if all of Inmarsat's satellites were transferred to the company rather than retained by any intergovernmental organization and signatories' ownership was limited. However, the benefits of creating a private company and transferring assets to it may be reduced if the private company were to merge with Inmarsat's existing affiliate, ICO Global Communications Limited (ICO), because ICO is primarily owned by Inmarsat and its signatories. And this approach may not resolve any advantages ICO itself may have because of its ownership structure, as discussed in our July report.

The United States recently presented to Inmarsat a position paper setting forth changes that the United States would like to see before it could accept the restructuring plan being considered. The United States is seeking two fundamental goals through a restructuring of Inmarsat: (1) guaranteeing the provision of global maritime distress and safety services and (2) enhancing competition by ensuring fair market access and a level playing field for all providers of mobile satellite services. In its position paper, the United States discussed nine areas of concern that could impair competition and suggested remedies, including the following: (1) that contractual arrangements with a restructured Inmarsat are the best way to guarantee safety and rescue services, (2) that "significant" external investment is critical to fair competition globally because of governments' current ownership interests in many Inmarsat signatories, and (3) that structural separation between a restructured Inmarsat and ICO is important in order to prevent dominance of the market by a convergence of interests between the two entities. The United States also proposed a draft amendment to the Inmarsat agreement that would commit all Inmarsat member governments to provide nondiscriminatory access to their markets for all satellite services and service providers. ACISS, too, believes that it is critical for a restructured Inmarsat and ICO to be separate in order to establish a competitive market.

According to FCC and Commerce Department officials, Inmarsat members were generally uninterested in the U.S. views discussed in the position paper and are more interested in, among other things, greater government

ownership of a restructured Inmarsat than the United States would like to see, and less, if any, investment by entities besides signatories. To resolve some of these differences as Inmarsat considers restructuring options, meetings have been scheduled for October and December 1996. Inmarsat's current goal is to adopt a restructuring plan in 1997.

According to COMSAT representatives, ICO has just incorporated into its organizing documents a set of competitive principals, many of which were approved by Inmarsat in 1994 at the urging of the United States. COMSAT believes that these competitive principles will ensure that ICO does not inhibit competition in land-based mobile services. ACISS stated that these competitive principles are not binding on ICO's individual signatory owners, who frequently control market access for their countries.

The Effect on Market Access. Although changing the intergovernmental status of INTELSAT and Inmarsat could address most of the competitive issues raised earlier, ultimately, the key to ensuring competition is the ability of competing companies to obtain access to markets. While the U.S. proposal for restructuring INTELSAT is receiving serious consideration and while its ultimate goal is to induce countries to open their markets, it can do so only indirectly by lessening the incentive that countries have to grant access to INTELSAT in lieu of potential competitors. Although the United States supports an amendment to the Inmarsat agreement to guarantee nondiscriminatory market access, the amendment has generated little interest within Inmarsat.

Other Options for Increasing Market Access

Other options for increasing market access are pursuing multilateral negotiations and using access to the U.S. market as leverage in getting other countries to provide access to theirs.

Multilateral Negotiations

One option that could focus specifically on the issue of increasing market access around the world is direct negotiations with other countries to remove barriers. Bilateral negotiations alone could take a long time to produce useful results in a sufficient number of countries to facilitate competition in international satellite services, especially for global systems. But the United States is currently engaged in multilateral negotiations under the aegis of the World Trade Organization (WTO), an international forum for addressing trade issues, including trade in services. These negotiations are dealing with the issue of opening countries' markets in basic telecommunications services. The United States has

participated since the talks began in 1994 and originally offered to open all of its basic telecommunications markets except direct access to INTELSAT's and Inmarsat's capacity and cable landing rights. When an agreement has been reached, each country will provide to all WTO members the market access it offered, including to members that make no concessions at all. According to FCC officials, however, a country may exclude a type or category of services from this general extension of benefits.

The original deadline for reaching agreement was April 30, 1996. However, because a sufficient number of high-quality offers from other countries were not presented (specifically, other countries offered only limited, if any, market access), the United States forged a consensus to extend the deadline for agreement to February 15, 1997. Between January 15, 1997, and February 15, 1997, new offers and changes in current offers will be allowed. The United States hopes to encourage new and better offers from other countries through discussions with them prior to the new deadline.

The results of the WTO negotiations, however, could affect U.S. influence in discussions within INTELSAT and Inmarsat on restructuring approaches, according to FCC officials, who note that control over access to the U.S. market gives the United States some leverage in achieving its goals in the restructuring of the intergovernmental organizations. According to these officials, if the WTO negotiations are successful and include satellite services (and the United States does not except them from the general extension of benefits), then the U.S. market will be opened for the satellite service suppliers of all WTO members. According to those officials, because the international satellite organizations are not organized under the laws of any single country, they may not necessarily gain access to a specific country's market through the results of the WTO negotiations. However, these officials note that the intergovernmental organizations as well as any private affiliates may gain access to the U.S. market through the WTO negotiations if the organizations or affiliates are considered to be organized under the laws of their host country or the country in which they are at least nominally incorporated. If the WTO negotiations fail or do not include satellite services, then access to the U.S. market by foreign-licensed satellite systems, including those of any affiliate of INTELSAT and Inmarsat, would be governed by regulations proposed by the FCC setting forth the conditions under which it would allow, and could deny, access to the U.S. market, as discussed below.

Members of ACISS consider the WTO negotiations to be the most important forum for opening foreign markets; they view them as a more effective

approach for gaining market access than any unilateral action. Company representatives also stated that they believe forums other than INTELSAT or Inmarsat are more likely to provide fairer consideration of market access. COMSAT also supports U.S. efforts in the WTO to open markets globally.[2]

Unilateral Option

Control over access to the U.S. market may be a way of inducing broader access to other markets. The FCC has jurisdiction over licensing foreign satellite companies' access to the U.S. market through its authority to approve the establishment of earth stations that service foreign satellite systems. As part of a broader review of its regulations to enhance competition, the FCC is proposing to permit non-U.S.-licensed companies to serve the U.S. market to the extent that U.S.-licensed systems are allowed to serve the applicant's home market and some or all of its other markets. The agency's decisions would also take into account other considerations about the public interest. The FCC hopes that a desire to gain access to the large U.S. market will give nations sufficient incentive to open their own markets to competition from other systems.

In commenting on the proposed regulatory changes, COMSAT stated that the FCC's proposed approaches for evaluating the openness of other markets presumes them to be anticompetitive and could foster a backlash against U.S.-licensed companies. COMSAT also noted that with so few orbital positions available for serving the U.S. market, there may not be enough slots open to provide an incentive to a foreign country to abandon its own protective domestic policies. Under the proposed regulatory changes, COMSAT, as the sole provider of INTELSAT and Inmarsat satellite services in the U.S. market, would lose the opportunity to provide services of any new affiliates created by the intergovernmental organizations unless those affiliates passed the FCC's evaluation of their home market's openness.

Several private satellite companies that compete, or will be competing, with INTELSAT and Inmarsat, supported the FCC's approach to ensuring effective market access. For example, one U.S. satellite company commented to the FCC that the proposed regulations should lead to lower prices, better service, and enhanced access for U.S. companies to other countries' markets. However, the company cautioned that the proposed regulations as applied to international satellite services alone would not

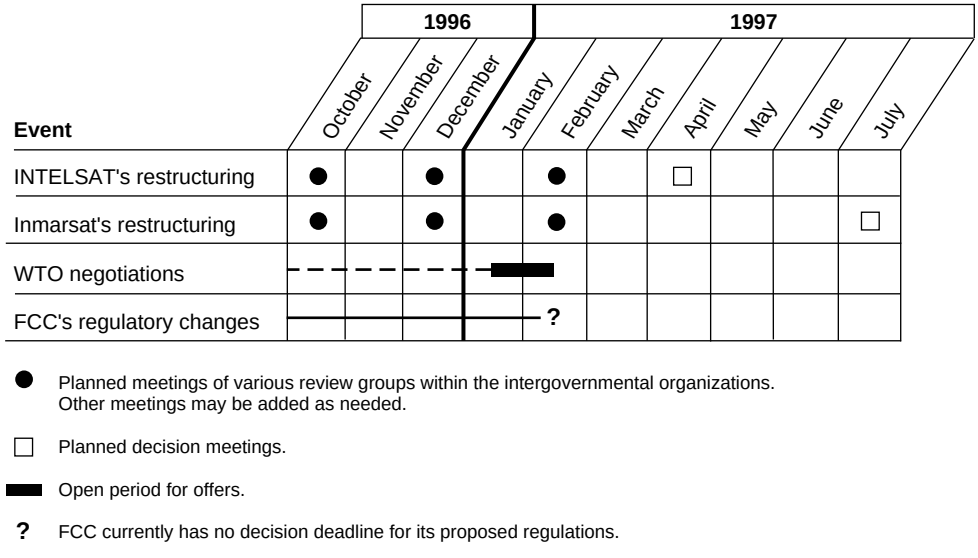
[2]Some competing companies also believe that new policy forums being inaugurated by the ITU could benefit competition in international satellite services. The first forum, on October 21-23, 1996, will address the issue of mobile personal communications. Although the forums will issue only nonbinding resolutions, the industry coalition noted that WTO representatives are expected to attend. The companies would like to see the forums adopt principles of open market access, which could somehow be incorporated in any agreement reached by the WTO in February 1997.

facilitate access to the vast majority of other nations' markets because few countries are in a position to participate in the U.S. satellite market. The company urged the FCC to extend this approach to its evaluation of foreign telephone companies' applications to serve the U.S. market.

Decisions Planned for 1997

As we have noted, a number of options are being considered concurrently, and some of those that the U.S. is pursuing may be decided on in 1997. With many deliberations occurring concurrently, what happens in one setting may affect what happens in another. INTELSAT's and Inmarsat's goals for adopting restructuring plans are currently set for the first half of 1997, though the goal for a decision by INTELSAT's Assembly of Parties at its April 1997 meeting appears firmer than Inmarsat's tentative plan for a decision in the spring. The deadline for the completion of negotiations within the WTO is February 15, 1997. There is no current deadline for the FCC's decision on its market access policy. Table 4.1 shows the anticipated dates for international and domestic efforts affecting competition in international satellite communications.

Figure 4.1: Anticipated Dates for International and Domestic Efforts Affecting Competition in International Satellite Communications



Conclusions

Most of the concerns about hindrances to competition can be resolved by changes to INTELSAT and Inmarsat, depending of course on what the changes are and how they are implemented. However, any option that

eliminates the intergovernmental organizations may not be achievable because, according to many officials, many members of both INTELSAT and Inmarsat strongly support retaining the organizations. Ultimately, the key to the success of companies trying to become international satellite service providers is gaining access to all markets on a global basis. But options that restructure the intergovernmental organizations may address market access only indirectly. Multilateral and unilateral approaches currently ongoing could have a more direct impact on opening markets. How effective any of the efforts under way will be in enhancing competition is unclear because key activities are ongoing, although the goals for reaching agreement or adopting changes generally fall within the first half of 1997. In this convergence of activities, the outcome of one may affect the others.

Agency Comments and Our Evaluation

COMSAT questioned our characterization in this report of the relative importance of creating more than one affiliate. Also, COMSAT stated that a key to negotiations on restructuring is to ensure that they do not impede market access. Therefore, because successful WTO negotiations will achieve that goal, COMSAT believes that concerns about diminishing U.S. influence in restructuring negotiations are not founded.

In response, we have revised our reference to the potential impact of creating more than one affiliate to note that the developing competition in two markets that we examined may imply that the marginal benefit of a second affiliate may not be great. We have also revised the discussion of the WTO negotiations to reflect the FCC's clarification that because a number of different negotiations are ongoing at the same time, the results of one may impact the outcome of others.

Comments From ACISS

COMMENTS OF ACISS * ON GAO DRAFT REPORT:

"TELECOMMUNICATIONS: Competition Issues in International Satellite Communications," GAO/RCED-97-1 Draft Date: September 13, 1996

The members of ACISS, representing the views of companies across the satellite industry, again commend GAO for a balanced and thorough treatment of the complex issues surrounding the proposed privatization of Inmarsat and INTELSAT. We greatly appreciate the interest of the Chairman of the Senate Commerce, Science and Transportation Committee in requesting this review of an issue that critically impacts the competitive development of a new generation of satellite delivered services to consumers.

While the GAO report makes no recommendations, it does focus on many of the important competitive factors at issue in the privatization discussion. The report acknowledges many of the concerns ACISS has raised about the continued anti-competitive nature of Intelsat and Inmarsat and the difficulty we have faced in getting signatories to recognize competitiveness as an important factor in the organizations' privatization discussions.

ACISS Supports the Private Sector — ACISS members respect the many accomplishments of both Intelsat and Inmarsat in their years of public service. Their successes in taking satellite communications to a global scope were in many ways responsible for the current wave of development by private global satellite communications systems. Once accomplished, the international satellite organizations (ISOs) failed, however, to recognize and encourage the private sector's growing role in meeting communications needs as a way to meet their public service goals. Instead, both Intelsat and Inmarsat saw the development of private systems as a threat and have embarked on ambitious plans to develop competing systems and services while using their dominant market status to retard private sector development.

* ACISS: The Alliance for Competitive International Satellite Services, represents the views of the private satellite industry affected by the proposed changes to Inmarsat and INTELSAT. ACISS members include Columbia Communications, Odyssey Telecommunications International, Orbital Communications, Orion, Motorola Inc., PanAmSat and TRW Inc.

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The current plans to privatize Intelsat and Inmarsat seek to legitimize these decisions and eliminate the burden of regulatory oversight and concensus decision making that was originally designed to protect the public interest. ACISS members support privatization as a means to transition control away from government backed signatories but we have focused on making that process result in a more, rather than less, competitive market.

Here is what ACISS intends:

Intelsat _ ACISS members are concerned about the size of Intelsat spinoffs and the nature of their relationship to each other and to any residual inter-governmental organization (IGO). ACISS has recommended that any breakup in Intelsat have at least two private affiliates in addition to the IGO with no cross-ownership at the time of divestiture. The proposal allows each of the entities to have a critical mass of eight satellites while not overwhelming the growing private sector competitors (the largest of which has four satellites). The elimination of cross-ownership at the time of divestiture ensures that, for the critical period between breakup and subsequent public offering, the signatory owners are encouraged to work for open access to each others' markets, rather than for continued market closure intended to maximize the public offering value.

Inmarsat _ Two years ago Inmarsat was permitted to spinoff an affiliate called ICO in order to compete with private mobile satellite systems under development. The failure of that spinoff and Inmarsat to live up to the letter and spirit of the competitive intent expressed by the U.S. has been documented in numerous expressions of concern by the Administration, Members of Congress and the July GAO report. ACISS members join them in the belief that ICO stands to gain significant market and spectrum access advantages from its government-backed signatory ownership and continued relationship with Inmarsat. We continue to work with the U.S. government to seek the complete separation of Inmarsat from ICO with further enforcement of fair market access principles through the WTO and/or FCC regulation.

We thank the GAO for its efforts and recommend the report to Congress for consideration in its efforts to extend telecommunications reform to the international satellite communications industry.

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Comments From COMSAT

Note: GAO comments supplementing those in the report text appear at the end of this appendix.

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September 20, 1996

Mr. John H. Anderson, Jr.
Director
Transportation and Telecommunications Issues
United States General Accounting Office
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Room 2474
Washington, D.C. 20548

Dear Mr. Anderson:

Thank you for the opportunity to review and offer comments on the draft GAO Report entitled: "TELECOMMUNICATIONS: Competition Issues In International Satellite Communications." Given the special expedited procedures established by the GAO for this review, the best way for COMSAT to meet the deadline is by means of this letter.

The overall thrust of the GAO Report accurately describes a challenge all new entrants face in providing global or regional satellite services — obtaining access to foreign markets.[1] The GAO Report is also quite correct in recognizing that INTELSAT and Inmarsat themselves have no control over the domestic access policies of its member nations. International satellite organizations ("ISOs") no more have the ability to alter the laws pertaining to foreign system entry in the United States as they do in China or Uruguay. Accordingly, COMSAT agrees with the GAO's conclusion that any of the options to restructure these ISOs "may only indirectly improve market access — ultimately the key to enhancing competition" (p. 3). Better, as the draft Report suggests, "[m]ultilateral and unilateral approaches currently ongoing could have a more direct impact on opening markets."

Now on p. 4.

Beyond that, COMSAT is encouraged by the draft Report's recognition of the many competitive and other benefits associated with the current U.S. Government plan for restructuring INTELSAT, as contrasted with the infeasibility of the alternatives that have been proposed. We also concur with much of the analysis in the draft Report recognizing the high levels of

[1] This is true whether foreign-licensed satellite systems (like Intersputnik or Hispasat) seek to serve customers in the U.S., or U.S.-licensed satellite systems seek to serve customers in other countries.

competition that currently exist in the various segments of the international telecommunications marketplace — a fact that has been heavily documented in a number of reputable studies.

There are some areas of the Report, however, that fall short of the thorough analysis found elsewhere. COMSAT therefore offers these comments to assist the GAO in its preparation of a final Report.

1. INTELSAT Signatory Incentives. While acknowledging that, as a pure space segment provider, INTELSAT itself cannot impede foreign market access, the GAO analysis postulates that INTELSAT's Signatory owners have a financial interest and incentive in denying access to other global satellite operators.[2] The difficulty COMSAT has with this assertion is that no evidence is offered in the draft Report to support it. Indeed, given the central importance of the access issue, the GAO's admission that it "did not, however, do a country-by-country evaluation of regulatory authorities' access policies for alternative satellite systems" (p. 17), is all the more perplexing.

Now on p. 19.
See comment 1.

The evidence which COMSAT brought to the GAO's attention suggests this problem may not be as serious as competing satellite systems are telling government authorities. For example, nowhere does the draft Report cite to PanAmSat's SEC filings which inform potential investors that it already has foreign market access in 110 countries. Similarly, Globalstar's annual report informs shareholders that it today has agreements to operate in 91 countries, literally years before its system is launched. No mention is made of these facts and other successes anywhere in the Report.[3] Most significantly, for purposes here, if market access problems have been encountered in particular countries, those that claim that INTELSAT or Inmarsat Signatories are the source of the problem because they have a financial incentive to discriminate against them have come forward with no proof whatsoever to support this theory. Unless and until they do, it is difficult to understand the credence that the draft Report gives to these claims.

See comment 2.

Parallel allegations regarding INTELSAT Signatory financial incentives and behavior to deny market access made by one global satellite competitor, PanAmSat, have been tested in the

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[2] Contrary to what the draft Report suggests, the vast majority of INTELSAT's Signatories are not the licensing entities in their home countries, nor do they establish national access policies. Those decisions are generally made by governmental entities, not the Signatory operators in those countries.

See comment 3.

[3] See TELECOMMUNICATIONS: Competitive Impact of Restructuring the International Satellite Organizations, GAO/RCED-96-204, July 1996, at 31 ("First GAO Report").

crucible of an antitrust lawsuit and found to be lacking.[4] In a September 4, 1996, written opinion granting COMSAT's Motion for Summary Judgment, a federal court described the evidence submitted by PanAmSat on this very market access issue as consisting of references "only to self-serving documents created by PAS, including letters from PAS complaining to various government ministries and agencies about PAS' difficulty in gaining access to some countries . . . ."[5] On the other hand, the Court stated that COMSAT "has shown that Plaintiffs did in fact receive authorization to operate in many of the subject countries,"[6] and that "Plaintiffs' own citations reveal that PAS did in fact obtain authorization to enter the markets of most of the alleged Defendant conspirators' home countries."[7] To be sure, the Court even went on to observe that the local Defendant monopolies assisted PAS in gaining market access."[8] COMSAT respectfully submits that all of this is compelling evidence on the market access issue that should be included in the GAO's final Report.

See comment 4.

Lastly, the draft Report seems to imply that a successful outcome of the WTO process could potentially harm the ability of the U.S. to accomplish its objectives in INTELSAT restructuring, by removing the carrot of access to the U.S. market as a negotiating tool. This entirely misses the point, in that a key objective underlying the U.S. position on INTELSAT restructuring is to ensure that it does not impede market access. Thus, if a successful outcome is achieved in the WTO, the very objective that the U.S. is seeking via its INTELSAT restructuring proposal will have already been accomplished.

See comment 5.

2. INTELSAT Restructuring and Market Dominance. The draft Report recognizes that competition to the various space segment services offered by INTELSAT developed differently across key international markets. Significantly, it acknowledges the fact that fiber optic cables are highly substitutable for satellite voice and data transmission services between countries linked by these facilities, and that the widespread availability of these cables deprive INTELSAT of monopoly power in the transoceanic voice markets.

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[4] See PanAmSat v. COMSAT Corp., Opinion and Order, 89 Civ. 5021 (S.D.N.Y.), September 4, 1996.

[5] Id. at 52.

[6] Id. at 58.

[7] Id. at 59.

[8] Id. at 60-61 (emphasis added).

With regard to transoceanic video services, the draft Report finds that INTELSAT "remains dominant" because of its extensive satellite network and capacity. Here again, we had some difficulty connecting the facts to the conclusions. In the First GAO Report, it was stated that market dominance of a restructured INTELSAT generally should be measured against the number of new affiliates to be created.[9] But that study also went on to observe that "[t]he number of new entities created is less important if domestic and regional firms provide meaningful competition to INTELSAT."[10] This draft Report does conclude that INTELSAT now faces meaningful competition from domestic and regional satellite systems, well before restructuring. Given that type of actual competition, INTELSAT dominance would no longer seem to be an issue in the restructuring debate under the GAO's own framework for analysis. This inconsistency is never explained.

See comment 6.

In addition, the GAO was provided with a paper entitled: "INTELSAT: A Reform Proposal," recently published by an economist with the Antitrust Division of the U.S. Department of Justice.[11] Although that economic analysis concludes that the U.S. Government plan to spin-off a single commercial affiliate "is particularly sensible" and would allow the new entity to participate effectively in the "highly competitive market" for international broadcast services,[12] no reference to this important contribution is made anywhere in the draft Report. Fairness dictates that at least the conclusions reached in this paper addressing the economic sensibility of the U.S. Government's restructuring plan from a competition perspective would have been mentioned.

See comment 7.

Finally, on the issue of competition for transoceanic video services, the GAO was provided with the most recent quantitative market analysis available of the competition facing the INTELSAT system.[13] Contrary to the conclusions reached in the draft Report, that study firmly concludes that INTELSAT does face effective competition in the market for transoceanic video

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[9] First GAO Report. at 16.

[10] Id. at 16 n. 23.

[11] Einhorn, Michael A., "INTELSAT: A Reform Proposal," EAG 96-6, Economic Analysis Group, Antitrust Division, U.S. Department of Justice, July 15, 1996 ("Einhorn Paper").

[12] Id. at 11.

[13] See H. Houthakker and J. Pfeifenberger, "Does INTELSAT Face Effective Competition?", presented at INTELSAT Restructure and Satellite Competition Conference, Columbia Institute for Tele-Information, July 1996 ("1996 Brattle Report").

See comment 8.

services.[14] The final GAO Report, at a minimum, should seriously consider the findings of this very recent study, sponsored by a renowned economist and former member of the President's Council of Economic Advisors.

3. COMSAT's Long-Term Carrier Contracts. The draft Report correctly states that, just about three months from now, the remnants of the U.S. separate systems policy restricting those operators from interconnecting as many satellite circuits as they desire to the public switched network will be eliminated.[15] The draft Report then goes on to reference a petition PanAmSat has filed with the FCC alleging that certain inter-carrier agreements that COMSAT has entered into with AT&T, MCI and Sprint makes the elimination of the PSTN-restriction meaningless. According to PanAmSat, COMSAT has effectively "locked-up" by contract the U.S. market for international switched voice traffic that otherwise would be available for separate systems.

See comment 9.

Given the explosive growth in international voice traffic that has occurred and is projected to continue, this claim is ludicrous on its face. Nevertheless, for purposes of the final GAO Report, COMSAT respectfully requests that a summary of its FCC filing in response to PanAmSat's claims be included to ensure fair treatment on this issue.

Now on p. 18.

[14] The conclusory statements made in the draft Report on INTELSAT dominance in the transoceanic video market also do not seem justified given the GAO's concession that "we cannot firmly conclude that any particular market of international satellite communications is or is not competitive, we can [only] offer indications of the degree of competition" (pp. 16-17). Yet, the "firm" conclusions of economic experts that have studied the markets and published reports on this subject are ignored altogether.

[15] As a practical matter, significant increases made over the past few years in the threshold number of circuits that separate systems could interconnect to the public switched network per satellite effectively freed those competing satellite operators to offer their customers basic international switched-voice services without concerns about ever exceeding the limits. However, those companies have voluntarily chosen not to concentrate on the switched-voice markets (after all, this is where fiber optics threatens most), but instead have decided to concentrate their business plans primarily on video and business data applications.

It is also important for the final GAO Report to recognize that it was these very restrictions which led the FCC to conclude in 1985 that U.S. separate satellite systems could operate on a non-common carrier basis. With the sunset of that policy, there is no longer any legitimate public interest or legal basis for this regulatory treatment of separate systems to continue.

To summarize, COMSAT's share of the international switched-voice market covered by the current agreements was approximately 34 percent when they were negotiated in 1987 and 1988, and that share has declined to approximately 25 percent today. This is hardly "a lock on the market." Plenty of international switched-voice traffic is up for grabs by separate satellite system operators.

The FCC also reviewed every detail of those contracts and affirmatively concluded that they were in the public interest. Among other benefits, the FCC held that they resulted in lower rates, promoted inter-modal competition, and provided a means to eliminate burdensome balanced-loading regulations. Most importantly, the traffic commitments COMSAT could make to INTELSAT by virtue of these agreements were a key factor relied upon by the INTELSAT Assembly of Parties when it decided to phase-out the Article XIV(d) economic harm test for switched-voice services!

These contracts were renegotiated in 1993 and 1994 when AT&T, MCI and Sprint had even greater incentives and opportunities to put their traffic on their own rapidly proliferating fiber optic cable systems or to use separate satellite systems rather than COMSAT. The carriers elected to renew their contracts with COMSAT. Here again, the recent decision in PanAmSat v. COMSAT is illuminating because PanAmSat raised this very issue in the context of its antitrust claims. As the Court stated, "nothing in the record suggests that COMSAT secured any of the contracts by means of anticompetitive acts against PAS. On the contrary, the record suggests that, for their own reasons, the common carriers elected to secure long-term deals from COMSAT only after considering and rejecting offers from PAS."[16] Clearly, PanAmSat was free to seek and AT&T free to award its international switched-voice business to PanAmSat. COMSAT's prior agreements were no impediment to competition in the marketplace for this carrier business.

Finally, in 1995 when PanAmSat filed its petition with the FCC and urged application of the so-called "fresh look" doctrine to allow the carriers to opt out of these agreements without termination penalties, not one party — including the carriers which had contracted with COMSAT — filed comments supporting the PAS petition.

4. INTELSAT Orbital Slots. In describing certain perceived competitive advantages, the draft Report mentions that INTELSAT currently has 24 satellites in orbit, 31 registered orbital locations, and 10 pending orbital slot applications.[17] No mention is made, however, of the status

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[16] PanAmSat v. COMSAT at 74 (emphasis added).

[17] This information as presented is somewhat misleading in that 7 of the 10 pending orbital slot applications are for use of Ka-band frequencies at orbital locations that INTELSAT

of orbital slots and applications pertaining to competing satellite systems. Moreover, unlike its competitors, much of INTELSAT's size and capacity is related to its universal service obligations — and the efforts required over the last 30 years to build such an infrastructure — which private firms can neglect. The final GAO Report should present a more accurate picture of the total situation to arrive at a correct competitive assessment.

For example, in its SEC filings, PanAmSat states that its global system will consist of 8 satellites in 7 orbital locations (PAS-4 will be co-located with PAS-7 in the same orbital slot), and it has applications pending for 11 more orbital slots (2 slots for C- and Ku-band satellites and 9 slots for Ka-band geostationary satellite systems).[18] In addition, with the recent press accounts announcing the intention of Hughes Electronics Corp. to purchase a 70 percent controlling interest in PanAmSat, the number of orbital slots and total satellites in the combined global system will far exceed that of the current INTELSAT, let alone a downsized and restructured organization.[19] Comparative data for other satellite systems is available in the 1996 Brattle Report previously mentioned. This information should be included in the final GAO Report for completeness.

See comment 10.

With respect to the process of registering orbital slots, the draft Report also maintains that the ISOs have an advantage. They do not. A national administration is free to file the advanced publication information with the ITU at any time, and without waiting to determine how "real" a satellite applicant may be. The U.S. itself has used this approach many times, most recently for the numerous Ka-band satellite applications filed with the FCC and for the U.S. global MSS applicants. In fact, it is interesting to note that the U.S. filed for its Ka-band systems well before INTELSAT filed its Ka-band requests.

To the extent that U.S. separate satellite systems are experiencing problems with respect to registrations for orbital slots, it therefore appears that such problems are attributable to delays at the FCC, not some preferential treatment in the ITU registration process accorded the ISOs.

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has registered for other purposes. Interestingly, the United States has already filed 99 satellites for Ka-band systems, and there are a total of 368 satellites registered for Ka-band systems in 273 slots.

[18] See 1995 PanAmSat SEC Form 10-K at 4-5.

[19] See Wall Street Journal, Sept. 19, 1996 at pp. A3, A10. Hughes already boasts that it is the world's largest private satelllite system with direct ownership or control over 20 satellites and is aggressively expanding internationally. See Hughes Press Release, July 29, 1996.

Accordingly, the GAO might recommend in its final Report that FCC procedures in this area be streamlined as a cure.

Now on pp. 31-32.

5. Technical and Economic Consultations. With respect to the subject of requirements for technical and economic consultation by competing satellite systems (pp. 32-34), the draft Report correctly indicates the significant progress that has been made in the phasing out of these requirements, particularly those relating to economic harm. In doing so, however, the draft Report erroneously alludes to use by INTELSAT of this consultation process to review its competitors' actual business plans, thereby giving INTELSAT a competitive advantage.

See comment 11.

That has never been the case. The information that is submitted by separate satellite systems under the Article XIV(d) economic standards contains no actual proprietary or market data from which INTELSAT could benefit as a competitor. What it does contain is simply a hypothetical presentation showing the total revenue loss INTELSAT would experience if all the transponders on the separate system were filled. That is it.

In stark contrast, U.S. separate system competitors have a huge "open window" into INTELSAT's strategic direction by virtue of Section 214 authorizations COMSAT must obtain from the FCC to participate in INTELSAT and Inmarsat satellite procurements. When COMSAT files a Section 214 application with the FCC, it must reveal publicly the various INTELSAT traffic and demand projections by type of service and geographic location to justify its share of the INTELSAT expenditures for these facility investments. Competing systems routinely challenge these applications and put COMSAT through lengthy FCC proceedings, always asking for more and more cost and traffic data. Thus, if anyone obtains a competitive advantage in this process, it is the separate satellite systems.

Also, in referring to the recent difficulties encountered in the Columbia Communications technical consultation, the draft Report suggests that an economic component has now been added to the technical process in the form of consideration related to the commercial value of an orbital slot. While the Columbia consultation represented a situation in which the U.S. Government, COMSAT and Columbia Communications worked closely together in an effort — which unfortunately still has not been successfully concluded — to resolve a very difficult technical consultation issue, the core problem was not the commercial value of an orbital slot, but the perceived technical constraints associated with an alternate orbital location that the U.S. had offered to INTELSAT for the additional duration of the consultation.

See comment 12.

6. ICO Cross-Subsidy. In describing the market for global mobile satellite services ("MSS"), the draft GAO Report repeats the fears that U.S.-licensed MSS systems often express about ICO gaining preferential market access because of ICO's investors ties to Inmarsat, which itself is an ICO investor. In that context, at footnote 10 on page 46, a statement is made that a

Now footnote 15, p. 44.

cross-subsidy from Inmarsat to ICO may occur because Inmarsat can treat its investment costs in ICO as capital costs upon which a defined rate of return is due to Inmarsat's Signatories. The final GAO Report should note that this analysis exhibits a fundamental misunderstanding of the financial flows within a cost-sharing cooperative organization like Inmarsat.

The rate of return that Inmarsat employs in determining the amounts to charge Signatory owners for their use of the Inmarsat space segment is a target, not a guaranteed rate of return. The actual return achieved depends on the success of Inmarsat service providers in marketing their services to the public. More importantly, the "return" component built into Inmarsat's utilization charges is simply intended to provide a mechanism for Signatories that use more than their shares of the space segment to compensate the Signatories whose shares they used. As the FCC has determined, this has economic significance only on Signatories whose usage of the system differs from their ownership share. To the extent a Signatory's usage is equal to its ownership share, it pays in the return component in usage charges but then receives it back as its share of Inmarsat's net revenues.

See comment 13.

7. Ownership of Other Systems. The draft GAO Report infers that regional satellite systems that also happen to be owned by governments or PT&Ts and are Signatories to INTELSAT "may not be fully distinct from INTELSAT" (p. 6). Later on, the draft Report seems to carry this notion further by asserting the INTELSAT's declining market shares may not reflect true price competition "since many fiber optic cables are owned by Signatories to INTELSAT, [and] downward pressure on the pricing of international telephone calls may not have been as significant as would be the case if the new providers were entirely distinct from INTELSAT" (p. 39).

Now on p. 7.

Now on pp. 37-38.

COMSAT is deeply troubled by the fact that no evidence is provided to support this theory, which seems to suggest some sort of anticompetitive collusive activities between regional and international satellite system competitors, as well as fiber optic cable operators. These are serious allegations. What makes this worse, however, is that the draft Report — immediately after alleging that such a problem may exist — goes on to state that "[i]t is impossible to examine this issue, though, without price and cost data," which the GAO then admits it does not possess (p. 39).[20] COMSAT respectfully suggests that until such an examination is undertaken, no inferences should be drawn one way or the other. If anything, the evidence that does exist

Now on p. 35.

[20] COMSAT did provide the GAO with access to internal INTELSAT cost information and COMSAT's prices and costs are filed with the FCC as part of the tariffing process. If a problem with the availability of this information arose, it must lie elsewhere.

See comment 14.

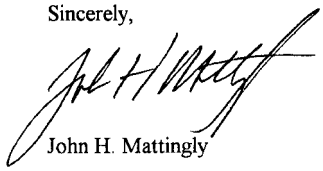
See comment 15.

regarding regional systems that have some common ownership with INTELSAT is that they do exert significant competitive pressures on the prices and services that INTELSAT offers.[21]

* * *

In closing, COMSAT appreciates the effort the GAO has undertaken to examine the many complex issues confronting the international satellite industry. Technical, market and regulatory changes are occurring quickly and it can be difficult to keep pace. All that we ask is a careful look at the facts before conclusions are reached. We remain ready to provide any further assistance you require.

Sincerely,



John H. Mattingly

[21] Moreover, the mere fact that a single firm has ownership interests in several telecommunications companies, standing alone, demonstrates nothing. For example, AT&T owns fiber optic cables, has an ownership interest in the American Mobile Satellite Company ("AMSC") (which provides domestic and international satellite services), and owns a U.S. domestic satellite system which also is now authorized by the FCC to provide international satellite services.

The following are GAO's comments on COMSAT's letter dated September 20, 1996.

GAO's Comments

1. COMSAT suggests that because we did not do a country-by-country survey of licensing issues, we have no clear evidence that signatories have favored INTELSAT over other providers. We did not do such a review because it was not feasible in the time available for our study. Nevertheless, a wide array of federal government officials, separate satellite system representatives, and U.S. firms that use satellite systems overseas, as well as our review of several academic studies, indicated that signatories generally have close ties to their governments and are thus in a position to make or influence decisions, including decisions on access. Moreover, economic considerations would suggest that signatories, as investors in INTELSAT, have a financial incentive to favor it.

2. As COMSAT notes, and as we noted in our July 1996 report in response to COMSAT's comments, separate satellite providers have been able to gain access in many countries over a number of years. However, one company's access to a country does not guarantee that any other company seeking some or similar access will obtain it. Nor does it mean that a company will obtain the same degree of access, or access for the same types of services, in each country. Like INTELSAT, separate satellite providers in the United States generally want to offer global services, but these companies must negotiate on a country-by-country basis, while INTELSAT can benefit from already established working relationships with its 139 member countries through its signatories. INTELSAT thus has readily available to it extensive opportunities for access.

Moreover, even if companies may eventually gain significant access, a continuing concern would be the time, effort, and expense involved in achieving that level of access. PanAmSat has worked to acquire access for more than 10 years and, on the basis of data COMSAT cites, still does not have access to the same number of countries that are members of INTELSAT. In addition, the number of countries, in and of itself, does not address the issue of the nature or degree of access that PanAmSat may have acquired in those countries. Furthermore, a Globalstar representative told us that while it has service provider agreements with companies in many countries, very few of those companies have obtained licenses to serve the markets.

3. Contrary to COMSAT's assertion that the vast majority of INTELSAT's signatories are not the licensing entities in their home countries and do not establish national access policies, data from the FCC show that (1) 83 percent of INTELSAT's signatories are government-owned and another 11 percent have some government ownership; (2) for 71 percent of INTELSAT's membership, the signatory is also the regulatory authority making decisions on licensing, spectrum allocation, and even market access; and (3) for another 14 percent of the members, the signatory is separate but "related" to the licensing authority. Because of these ties to governments, the signatories to INTELSAT are sometimes able to make licensing decisions directly, or they are often in a position to influence decisions. We have added these data to the report where appropriate.

4. The court found that PanAmSat had not presented sufficient evidence to support its charges that COMSAT had violated antitrust law and engaged in predatory pricing. However, there was no finding that the alleged conspiracy, if true, would not have served the conspirators' economic interests. See PanAmSat v. COMSAT Corp., Opinion and Order, 89 Civ. 5021, 5043 (S.D.N.Y.), September 4, 1996. We have added a reference to the recent court ruling and the background of the lawsuit.

5. Until July 1996, less than 60 members of WTO were participants in the negotiations. Although 122 members are now designated as participants, it is not clear to what extent any will make offers to open their markets in basic telecommunications services during the WTO negotiations. Furthermore, as of April 30, 1996, only 15 countries had offered to open their domestic and international services and facilities by January 1, 1998, for satellite-based basic telecommunications. Eight more countries had offered similar access but on a phased-in basis. Another 12 countries had made limited commitments on services and/or facilities. Of the 48 countries making offers, 13 did not include offers on satellites. Also, if satellite services are included in successful WTO negotiations, not all WTO member countries need open their markets to benefit from the offers of other member countries. Thus, it is not clear how much market access successful WTO negotiations will produce.

We have revised our report, however, to reflect the FCC's clarification of the current situation that with several different negotiations ongoing, the results in one may affect the outcome of others in an as yet unknown manner.

6. COMSAT concludes that we have contradicted ourselves by saying that INTELSAT "remains dominant" in transoceanic video services while noting the importance of competition from domestic and regional firms. In fact, we are speaking of two different market sectors when we make these points. INTELSAT appears to retain a dominant position in the transoceanic television/video market (which we have called the "international television/video market" in our report). On the other hand, INTELSAT now seems to face a number of competitors in the market for the regional distribution of television/video.

In addition, COMSAT questions how our statements in this report relate to our statements in our July 1996 report, which noted, with regard to the restructuring of INTELSAT, that a second affiliate would be preferable from the standpoint of encouraging competition but that this would be a less important issue if INTELSAT faced meaningful competition from regional and domestic competitors. We agree, and in our reference to the potential impact of creating more than one affiliate, we have revised the report to state that the developing competition in two markets we examined may imply that the marginal benefit of a second affiliate may not be great. However, while this report cites a number of competitors in the market for the regional distribution of television/video, it reaches no conclusions about the degree of the competition.

7. The report COMSAT mentions appears to base its conclusions on how restructuring should occur from the vantage point of enhancing INTELSAT's ability to effectively compete in the marketplace rather than from a perspective of enhancing competition in general. Nevertheless, we did find the report helpful for background information and analysis.

8. We used both the 1994 Brattle report as well as the 1996 Brattle report in our analysis. Our report cites the 1994 report regarding the increases in fiber-optic cables to many countries. The second Brattle report, however, does not have specific market information on providers' shares of the transoceanic television/video market, but rather cites data for all transoceanic services, and therefore was not appropriate for our purposes of examining separate market segments. The first Brattle study does report transoceanic television/video market shares, but a recent FCC order raises concerns about the 1994 report's findings on this market because the report does not include occasional-use service in calculating transoceanic television/video market shares. Including this service would likely show that COMSAT/INTELSAT's market shares are greater than what

the report cited, although a Brattle representative told us that occasional-use service represents a small portion of the total market.

In a September 25, 1996, hearing held by the Subcommittee on Telecommunications and Finance, House Committee on Commerce, Subcommittee on Telecommunications and Finance, COMSAT provided a more recent Brattle analysis that provides information on market shares. We have cited this recently available data in the report. However, the Brattle Group's methodology uses utilized capacity as a measure of market share for television/video services. From discussions with associates of the Brattle Group, we understand their concern that including all capacity would overstate INTELSAT's market share of television/video service because much of the intergovernmental organization's capacity is devoted to telephone services. Nevertheless, the measure of utilized capacity would likely understate an appropriate measure of INTELSAT's dominance of the television/video service market because INTELSAT has more excess capacity than other systems do.

9. Our reference to PanAmSat's petition was included in the report to illustrate that at least one company did not think that the complete lifting of U.S. restrictions on international telephone service will, in and of itself, enable full and fair competition. We have added COMSAT's view on the petition to the footnote.

10. The information on INTELSAT's size and capacity is included in the report as part of the description of the existing institutional structure for providing international satellite services. We do not provide equivalent numbers for the private U.S. satellite companies because, until now, only one had reached the capacity to provide near-global coverage. That company, PanAmSat, can now reach 98 percent of the earth's populated areas with four geostationary satellites. However, under a January 1996 revision of the FCC's regulatory process eliminating the distinction between domestic and international licenses, many U.S.-licensed domestic systems are seeking to offer international services. For example, as this report was being finalized, there were press reports that Hughes Electronics Corporation, originally licensed as a domestic provider, was acquiring PanAmSat. That acquisition would create a company that combined Hughes' 10 domestic satellites with PanAmSat's 4, and their plans for about 7 additional satellites. We have added a reference to this information in the report.

Our discussion of access to orbital locations does not state that INTELSAT and Inmarsat have preferential treatment within the ITU. It states that the organizations have faster access to the application process. And because filing the first application for an orbital location can provide an advantage in the coordination process, faster access may provide the intergovernmental organizations with a competitive advantage in registering orbital locations. COMSAT further states that the intergovernmental organizations do not have an advantage in registering for orbital locations with the ITU because national administrations are free to file advanced publication information with the ITU at any time. When INTELSAT or Inmarsat files for a geostationary orbital location through the host country, however, the application goes forward automatically. U.S. companies' applications, on the other hand, are subject to the FCC's regulation and review requirements, which can result in longer waiting times before their applications reach the ITU. For a discussion of our use of Brattle reports, see our comment 8.

11. Satellite companies we spoke with that have undergone the coordination process told us that they consider the information they had to submit to be sensitive and proprietary. Our report includes their point of view and attributes the opinion to them. According to an FCC official, COMSAT does, as part of its obligations as a common carrier, provide certain technical and business information in its "Section 214 filings" with the FCC in order to participate in INTELSAT's and Inmarsat's procurements and expansion of services. We have added a reference in the report to COMSAT's filing responsibilities.

12. Our report notes that FCC officials believe that INTELSAT appeared to apply different criteria in the failed technical consultation than it has applied to technical consultations in the past. Specifically, the FCC order authorizing the temporary authority to Columbia Communications stated that "In the end, INTELSAT viewed the 40.5 degrees W.L. as too valuable from a commercial standpoint to relinquish for an additional four years, as compared to other solutions under consideration." If the organization has added a new and economic dimension to its review of technical consultations, that may diminish the benefits of eliminating the consultation concerning economic harm.

13. In a letter to the FCC dated September 29, 1995, the departments of State and Commerce also raise the issue of cross-subsidy. In particular, they were concerned that existing users of Inmarsat might subsidize the development of ICO if Inmarsat signatories pass on to their ratepayers for

Inmarsat services the costs of the signatories' contributions to Inmarsat's investment in the affiliate. They noted that "even if the actual financial impact of inclusion of Inmarsat's ICO capital contribution in the capital account on which a target rate of return is paid is small," it would still create "an opportunity which is not available to investors in competing systems." We have revised footnote 10 in chapter 3 to reflect this concern.

14. The data on prices and costs that COMSAT provided us were not in a usable format for us to analyze market power. Moreover, analogous data were not provided by alternative companies because they considered price and cost data to be commercially sensitive or proprietary information.

15. We neither stated, implied, or intended to imply that INTELSAT, Inmarsat, or any of their signatories have engaged in collusive activities in terms of the pricing of international communications services because of the cross-ownership between the intergovernmental organizations and other providers of international communications services. However, empirical studies have found that ownership ties between competitors can inhibit full competition between those entities. In response to this concern, many laws and regulations have been put into place as a check on cross-ownership. Particularly, such laws and regulations have focused on the level of ownership at which influence may be exerted. The recent discussions on restructuring INTELSAT and Inmarsat have largely focused on the issue of how much of an affiliate it is appropriate to leave in the hands of the residual intergovernmental organizations if a primary goal is to advance competition. Given the rich knowledge in this area, our statements were only intended to bring out that competition is more ensured by a market characterized by fully distinct competitors.

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