BY THE COMPTROLLER GENERAL

Report To The Chairman, Subcommittee On Government Information, Justice, And Agriculture Committee On Government Operations House Of Representatives OF THE UNITED STATES

FCC Needs To Monitor A Changing International Telecommunications Market

The Federal Communications Commission (FCC) and the Congress have taken action over the past 2 years to reduce entry barriers for the U.S. portion of the international telecommunications market. The decisions are expected to increase competition and benefit consumers.

GAO found considerable disagreement among the telecommunications carriers and others as to whether decisions reached by FCC and the Congress will actually increase market competition. The Commission needs to monitor market behavior to ensure that its decisions are having desired effects.

GAO/RCED-83-92
MARCH 14, 1983

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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON D.C. 20548

B-210512

The Honorable Glenn L. English
Chairman, Subcommittee on Information
and Individual Rights
Committee on Government Operations
House of Representatives

Dear Mr. Chairman:

This report examines the Federal Communications Commission's ability to assess if recent congressional and Commission actions designed to remove barriers to increased competition in the international telecommunications market are working. We conducted this review per your request of October 26, 1981.

We found no general consensus that these actions would, in fact, increase competition in the international market. We also found that the Commission could not adequately monitor the market to determine if its policies were resulting in a more competitive market. We recommended that the Commission develop an industry analysis section to perform such monitoring. We requested Commission comments on our draft report but only received unofficial staff comments. We made minor revisions in the report based on these comments. These revisions did not alter our conclusions or recommendations.

As arranged with your office, unless you publicly announce the contents of this report earlier, no further distribution will be made until 30 days from the date of the report. At that time, we will send copies of this report to interested congressional parties; the Director, Office of Management and Budget; and the Chairman, Federal Communications Commission.

Sincerely yours,

Charles A. Bowsher

Comptroller General
of the United States

COMPTROLLER GENERAL'S REPORT TO
THE SUBCOMMITTEE ON GOVERNMENT
INFORMATION, JUSTICE, AND AGRICULTURE
COMMITTEE ON GOVERNMENT OPERATIONS
HOUSE OF REPRESENTATIVES

FCC NEEDS TO MONITOR A CHANGING INTERNATIONAL TELECOMMUNICATIONS MARKET

D I G E S T

Since 1979, the Congress and the Federal Communications Commission have implemented a series of decisions designed to (1) reduce entry barriers and (2) increase competition in the international telecommunications market. These decisions were based on the premise that market competition is essential to protecting telecommunication users. GAO agrees with the Commission that a competitive telecommunications market best serves the public interest. However, GAO found that many carriers questioned whether the Commission's decisions would lead to increased competition or towards more market control by a few telecommunications carriers.

In response to a request from the Chairman, Subcommittee on Government Information and Individual Rights, House Committee on Government Operations, GAO examined whether the Commission could effectively monitor and gauge the impact of the recent Commission and congressional actions designed to increase competition in the international telecommunications market. GAO found that the Commission does not monitor market development and cannot measure or gauge the competitive impact of its decisions on the market. The Common Carrrier Bureau, responsible for implementing these decisions, recognizes the importance of monitoring the industry but stated that its strained resources made it difficult to track industry development. Without such capability, the Commission may have to react to undesired market behavior rather than anticipate such behavior and take measures to prevent it.

GAO/RCED-83-92
MARCH 14, 1983

Tear Sheet

TRADITIONAL MARKET STRUCTURE HAS NOT BEEN CONDUCIVE TO COMPETITION

Historically, the international telecommunications market could be characterized as a series of compartments or submarkets offering two types of services--voice and record (telex, telegram, and private line)--over two types of transmission media--undersea cables and satellites. (See pp. 4 to 6.) Until a December 1982 Commission decision, the largest voice carrier, American Telephone and Telegraph, has been prohibited from entering the record market, and the six international record carriers have not entered the voice market.

International telecommunications services and facilities must be jointly provided with the postal, telephone, and telegraph authority of foreign nations. These authorities are almost always monopolies owned or directly controlled by the foreign government. Frequently, these monopolies have political and economic motivations such as supporting employment or subsidizing postal services which differ from Commission objectives. Typically, they are disinterested in, if not opposed to, American efforts to foster competition in telecommunications. (See p. 15.)

MARKET STRUCTURE IS CHANGING/ COMPETITION MAY BE DIFFICULT TO ACHIEVE

Recent technological advances have upset the traditional market structure. The development of high capacity alternative transmission technologies such as fiber optic cables and the new generation of satellites has greatly expanded the market's growth potential. At the same time, other developments such as digital switching networks which integrate voice and computer transmission data, have broken down the segmented market characteristics of the international telecommunications market. Such technological advances have paved the way for a more competitive industry structure.

To increase competition in the international market, the Commission and the Congress have taken significant action to reduce existing market entry barriers:

--Record carriers may now enter the voice market while American Telephone and Telegraph can now serve the record market. (See p. 10.)

--International record carriers can now serve the domestic market, and Western Union, the primary domestic record carrier, can now enter the international market. (See pp. 10 to 11.)

--COMSAT, previously limited to providing wholesale satellite service for other carriers, can now provide retail record services. (See pp. 11 to 12.)

--The Commission will no longer prescribe the traffic balance among satellite and cable media. Cables and satellite transmission media can now more freely "compete" for traffic. (See p. 12.)

While these actions certainly alter market structure, many industry observers and some Commission staff members believe that the recent decisions, while offering an opportunity to increase competition, also have a real potential for disrupting the market. Unanswered questions which could realize this potential include:

--Will foreign entities accept new carriers? (See pp. 15 to 20.)

--Will the potential entry of the American Telephone and Telegraph Company into the record market be conducive to competitive market performance? (See p. 29.)

--Will the record carriers be able to successfully compete with American Telephone and Telegraph Company in the voice market? (See p. 28.)

--Will "reasonably" balanced intermodal competition develop between cable and satellite facilities? (See p. 45.)

COMMISSION DOES NOT MONITOR MARKET STRUCTURE

Uncertainty surrounding whether Commission initiatives will succeed in increasing competition makes it necessary to monitor future market developments and to determine if competition is being fostered. The Commission's Common Carrier Bureau agrees with GAO that such

industry analysis is needed. However, the Bureau stated that its resources are strained, and it does not have the staff necessary to conduct industry analysis.

GAO believes that the few additional personnel necessary to do this analysis are well within the Commission's means to provide. For example, an internal Commission study identified 100 positions that could be eliminated without affecting Commission activities. Some of these positions could be made available to conduct industry analysis. Unless the Commission develops an industry analysis capability, it cannot adequately measure market competitiveness. Such capability can better assure the Commission that the public interest is being protected. (See pp. 31 to 34.)

RECOMMENDATIONS TO THE CHAIRMAN, FEDERAL COMMUNICATIONS COMMISSION

GAO recommends that the Chairman establish within the Common Carrier Bureau an industry analysis section. The Chairman should consider reallocating positions within Commission bureaus to provide staff. The section should evaluate the cumulative effect FCC decisions are having on market competitiveness for both carriers and transmission media so that appropriate regulatory programs and policies can be implemented if the market does not respond as intended. (See pp. 34 and 46.)

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On December 27, 1982, GAO requested Commission comments on this report. The Commission did not provide GAO official agency comments. However, GAO did receive on January 12, 1983, informal staff comments on technical issues raised in the report. GAO revised technical material as appropriate. These revisions did not affect GAO's conclusions or recommendations.

Contents

ABBREVIATIONS

AT&T	American Telephone and Telegraph
CCITT	Consultative Committee on International Telegraph and Telephone
CEPT	European Conference of Postal and Telecommunications Administrations
COMSAT	Communications Satellite Corporation
FCC	Federal Communications Commission
GAO	General Accounting Office
INMARSAT	International Maritime Satellite Organization
INTELSAT	International Telecommunications Satellite Committee
IRC	International record carrier
ITTWC	ITT World Communications, Inc.
ITU	International Telecommunications Union
MCI	MCI Telecommunications Corporation
MTS	Message telephone service
NTIA	National Telecommunications and Information Administration
Pacnet	Pacnet Communications Corporation
PTT	Administrations of posts, telegraph, and telephones
TAT	Trans Atlantic telephone

GLOSSARY

Accounting rates	The rates agreed upon between the United States and foreign entities to be used in dividing revenues between carriers.
Alternate voice/ data	Private line hybrid telecommunications service class combining voice and data.
Basic services	Traditional "pipeline" transmission services.
Circuit	A transmission path between one point and another.
Common carrier	A company, organization, or individual providing wire or electronic communications services for hire.
COMSAT	The Communications Satellite Corporation, established by the Communications Satellite Act of 1962, is a private corporation subject to Government regulation. COMSAT is engaged primarily in the business of providing communications services through the facilities of various international, domestic, and maritime satellite systems and is the sole U.S. participant in INTELSAT and INMARSAT.
Conduct regulation	The application of regulatory tools such as tariff review, earnings regulation, and allowable rate base regulation, which presumably influences or constrains the conduct of the regulated entity.
Cross-subsidy	The contribution of profits by one telecommunications service priced above its cost made to defer the cost of another telecommunications service priced below its cost.
Docket	The record of a proceeding that is assigned a docket number for administrative control purposes.
Earth station	A fixed station used in communications satellite service for transmitting or receiving information from satellites.

Enhanced services	A service that involves more than the pure transmission of information.
Fiber optics	Light wave systems which carry voice data and video signals on beams of pulsed light through hair-thin glass fibers.
Gateway cities	Limited number of cities where FCC regulation obliged the IRCs to receive hand-off traffic, or interchange traffic with the authorized domestic carrier.
Industry structure	The organizational aspects of firms in a particular market, including the number and size of the firms and the presence or absence of barriers to entry.
INMARSAT	The International Maritime Satellite Organization--an independent organization that will provide for ownership and operation of a global maritime satellite system.
INTELSAT	The International Telecommunications Satellite Organization--a 106-member organization established to plan, own, and operate the space segment, comprised mainly of satellites, of an international communications system.
Intermodal competition	Competition between transmission media, e.g., satellites and cable.
Leased channel service	A dedicated private line service whereby a customer can communicate to a given foreign point over circuits set aside for customer's use.
Prescribed-use formula	Formula specified by FCC obligating carriers to activate a specific ratio of cable and satellite circuits.
Rate compositing	FCC policy requiring carriers to file one rate for each destination based on an arithmetic average of the costs of serving that route by cable and by satellite.

Rate of return/rate base regulation	A method of regulation allowing a regulated firm to earn revenues equal to its cost of service, including a fair return to stockholders and bondholders. Such regulation attempts to prevent firms from receiving monopoly profits but still allows them to attract new capital.
Resale and shared use	Lease of a private line by an entity at a flat fee to resell sporadic use of that line to users normally too small to enjoy volume discounts. This may be on a profit or non-profit basis.
Settlement procedures	The method for dividing revenues from a long-distance call involving two or more companies.
Switched services	Services that require circuit or message switching in order to establish the required communications link.
Structural regulation	Measures that alter the regulated market environment such as reducing regulatory barriers to entry, promoting product differentiation, encouraging the entry of new firms, and carefully scrutinizing the effect of vertical and horizontal integration on competition.
Tariff	A schedule governing any generally applicable charge, characteristic, regulation, or practice associated with a regulated telecommunications service.
Telex	A teletypewriter exchange service whereby messages are sent over a telephone network.
Traffic	The total communications flow, such as conversations, written messages, facsimile, or data, in a telecommunications system.
Voice-grade circuits	Circuits that are capable of transmitting human speech.
Voice services	Services that have an oral input or output, such as ordinary telephone service and private-line telephone service.
Whipsawing	Term used to describe the ability of the foreign correspondent to utilize its monopoly power to play one carrier against others to gain concessions and benefits from the U.S. international carriers.

CHAPTER 1

INTRODUCTION

International telecommunications provide an essential link between the United States and other nations. Diplomatic and economic activity, military preparedness, and cultural exchange all depend upon the international telecommunications network.

Improved technology has made sophisticated telecommunications services available worldwide. As a result, U.S. regulatory policies and practices have had to operate in an increasingly complex arena in which other nations are asserting their own communications policies--policies often in conflict with U.S. positions.

To obtain a better understanding of the changing international market conditions, we examined the Federal Communications Commission's (FCC's) role in the regulation of common carriers and international facilities planning. On April 19, 1982, we issued a report which described FCC's organizational structure and resources for international activities. 1/ Our current review focuses on the market uncertainties caused by recent FCC and congressional actions designed to increase competition.

HOW THE INTERNATIONAL TELECOMMUNICATIONS SYSTEM WORKS

The international telecommunications market consists basically of two types of services--voice and record--carried over two types of transmission media--undersea cable and satellite. Voice service or message telephone service (MTS) is primarily provided by the American Telephone and Telegraph Company (AT&T), the dominant MTS carrier, 2/ while record service--telex, telegraph, and private line--has been offered by six carriers known as international record carriers (IRCs). 3/

1/"The Federal Communications Commission's International Telecommunications Activities," CED-82-77, Apr. 19, 1982.

2/Economists have traditionally considered a firm dominant if it controls at least 40 percent of the total market.

3/The IRCs are FTC Communications, Inc.; ITT World Communications, Inc.; RCA Global Communications, Inc.; TRT Telecommunications Corporation; Western Union International, Inc.; and United States Liberia Radio Corporation.

FCC exercises regulatory authority over U.S. carriers under the Communications Act of 1934 (47 U.S.C. 151 et seq.) and the Communications Satellite Act of 1962 (47 U.S.C. 701 et seq.). Section 214 of the 1934 Act requires that the Commission authorize all new interstate communications facilities in which U.S. carriers participate if the facilities are in the public interest. The 1962 Satellite Act establishes a statutory mandate to foster the establishment of a global satellite system.

Foreign communications entities are joint owners of international telecommunications facilities and joint participants in the provisions of service. Typically, the foreign entities are state monopolies and are generally referred to as administrations of posts, telegraph, and telephones (PTTs). Since FCC cannot exercise regulatory authority over the PTTs, FCC and U.S. carriers must cooperate with them to develop shared standards and facilities necessary for the international telecommunications system to function. Transmission media are jointly owned between the U.S. carriers and PTTs. Carriers must have operating agreements approved by both FCC and the PTTs before providing most types of service.

OBJECTIVES, SCOPE, AND METHODOLOGY

The Chairman, Subcommittee on Government Information and Individual Rights, House Committee on Government Operations requested that we review FCC's international activities. Our objective was to determine if FCC can effectively ascertain that its initiatives to increase competition and improve the planning process for international facilities in the international telecommunications market are working.

We analyzed a series of FCC orders and the Record Carrier Competition Act of 1981, which were designed to reduce barriers to market entry and increase competition. Our evaluation included an examination of FCC's initial estimation of market impact, the carrier's estimation of impact, and FCC's ability to monitor the changing market conditions. Many of these decisions were reached on August 5, 1982. Therefore, the full effects of this movement have not yet been felt.

Most of our analysis was based on extensive interviews within the Common Carrier Bureau of FCC. We also interviewed officials at the National Telecommunications and Information Administration, the Department of State, Office of Special Trade Representative, and the Office of Management and Budget. We also benefited from the opinions and advice from staff analysts of the Congressional Research Service and the Office of Technology Assessment. Additionally, we interviewed the major

telecommunications carriers, officials from the Communications Satellite Corporation (COMSAT), representatives from telecommunications user groups, and industry observers. These representatives gave us their opinions as to how their companies would be affected by FCC's recent actions to increase competition in the international market.

Our interviews were supplemented by review and analysis of available academic and journal articles on competition and regulation in the international telecommunications market. Articles in trade journals were used to keep abreast of current developments. Both AT&T and COMSAT supplied us with various cost and statistical information.

This review was performed in accordance with generally accepted government audit standards. The review was conducted from April through September 1982. Most of our work was at FCC headquarters. We interviewed industry officials in New York City, New Jersey, and Washington, D.C.

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On December 27, 1982, GAO requested Commission comments on this report. The Commission did not provide GAO official agency comments. However, GAO did receive on January 12, 1983, unofficial staff comments on technical issues raised in the report. GAO revised technical material as appropriate. These revisions did not affect GAO's conclusions or recommendations.

CHAPTER 2

CHANGING EMPHASIS ON REGULATORY POLICIES

Starting in 1979, FCC and the Congress have taken a series of regulatory and legislative actions, which have dramatically reduced entry barriers to the international telecommunications market. These actions place emphasis on increased competition as partial substitutes for the traditional regulatory tools applied under title II of the Communications Act of 1934. To understand how these decisions affect the international telecommunications market, it is useful to first examine the regulatory policies of the 1960's and 1970's and review the rationale for changing these policies.

HISTORICAL INDUSTRY STRUCTURE: AN OVERVIEW

The international market offers two essential services: (1) voice and record and (2) cable and satellite transmission media. Until the recent initiation of structural changes, this market was highly compartmentalized with little overlap among the segments. Almost no competition has existed among the segments, and competition within each segment has been limited. Service has typically been provided by dominant carriers or groups of carriers acting as an oligopoly.

Operating revenues for both overseas voice and record communications services have been rapidly increasing. The major change in the market has been that the demand for voice and record services has reversed since 1955, with voice services now holding 77 percent of the overseas communication services market.

Revenues from Overseas Communications Services
(dollars in millions)

Year	Voice carriers	Market share (percentage)	Record carriers	Market share (percentage)
1955	$ 16.0	(23)	$ 52.6	(77)
1960	49.4	(40)	72.9	(60)
1965	117.4	(56)	92.1	(44)
1970	267.7	(62)	165.6	(37)
1978	589.6	(69)	272.2	(31)
1979	1,135.4	(72)	433.1	(28)
1980	1,562.1	(77)	461.2	(23)
1981	1,685.8	(77)	498.5	(23)

Source: Statistics of Communications Common Carriers, FCC, tables 14 and 25, 1973 and 1981 editions.

Voice market

AT&T is the dominant provider of international message telephone service. In 1981, its MTS revenues were about $1.5 billion--about 91 percent of the total international MTS market. 1/ Until recently, AT&T was prohibited from entering the record market by the Trans Atlantic Telephone (TAT)-4 decision. 2/ MTS service is carried by both cable and satellite facilities.

Record market

The record market is largely controlled by six international IRCs, which traditionally have not entered the MTS market and until recently have had only limited access to the domestic market. Nevertheless, operating revenues have been substantial--nearly one-half billion dollars in 1981--including $35.5 million from message telegraph services, $351.2 million from telex services, and $111.9 million for private line services. Message telegraph is declining in importance with revenue gradually dropping from a 1974-peak of $52.5 million. Revenues for telex, the industry "breadwinner," have grown by 85 percent, and private line revenues have increased 47 percent since 1976.

The dominant domestic record carrier, Western Union, was authorized to enter the international record market in August 1982. Western Union's operating revenues were almost $780 million in 1981, over 1-1/2 times that of all the IRCs combined.

Because of recent FCC and congressional actions allowing the IRCs to enter the domestic market and Western Union to enter the international market, the regulatory distinction between

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1/Other international voice carriers include Cuban American Telephone and Telegraph Co., Hawaiian Telephone Company, All American Cables and Radio Inc., and ITT Communications--Virgin Islands. Service to Hawaii, Puerto Rico, and Virgin Islands is classified under "international services" in FCC's Statistics of Communications Common Carriers.

2/In its 1964 TAT-4 Decision, FCC determined that the provision of alternate voice/data services by AT&T could threaten the continued viability of the IRCs. At that time, AT&T was authorized to provide alternate voice-record communications services for defense agencies of the U.S. Government only. AT&T had applied for authorization to provide all customers with such service. Instead, FCC conditioned the authorization of new facilities on the removal of AT&T from the provision of international record services. FCC limited AT&T's voice/data service for DOD to the circuits it was then providing and specified that once an entity leading such services terminated its lease, the authority of AT&T to provide the service was terminated. (NOTE: TAT-4 was reversed by FCC on December 8, 1982; see p. 10.)

domestic and international record carriers has been eliminated. Thus, the term IRC is not really descriptive. However, since the term IRC is still commonly used to identify the firms traditionally providing only international record service, we use it in this report to remain consistent with common usage.

With the exception of private line services, true price competition has rarely existed in the record services market. Price competition has existed in the private line market due to varying service options, and the fact that the Defense Department, the largest purchaser of private line services, has required competitive bidding. Until July 1982, when FTC Communications, Inc., the smallest IRC (less than 2 percent market share), lowered its telex rates to its own customers by 9 cents, all the IRCs charged the same overseas rates for telex and message telegram services. As a result, many analysts refer to the IRCs as a cartel.

The IRCs deny that they have acted as a cartel. Instead, they say that their behavior shows the true competitiveness of the marketplace. They noted that when TRT Telecommunications and then Western Union entered the market with rates 1 or 2 cents below market, the existing firms immediately matched the new firm's rates. Such market related price reductions have been few; the most extensive telex reductions have been ordered by FCC. For example, the 1968 TAT-5 cable decision ordered telex rates be reduced by 15 percent in 36 countries.

Satellite facilities

The Communications Satellite Act of 1962 established COMSAT as a publicly chartered, privately owned company. COMSAT is the sole provider of satellite facilities. Until August 1982, COMSAT was a "carrier's carrier" which could provide services to other carriers but could not provide services directly to users. Neither the IRCs nor AT&T has been allowed direct access to INTELSAT satellites. 1/

REGULATION OF SERVICES AND CARRIERS

FCC regulates telecommunications carriers and services to protect the public interest. Traditional telecommunications regulation includes tariff review, entry and exit control, earnings regulation (primarily determining lawful expenses and rate of return), allowable rate-base investments, facilities authorization, and quality standards. With the exception of entry and exit control, which authorizes companies to provide or terminate a service and is generally considered

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1/The International Telecommunications Satellite Consortium (INTELSAT) is described in chapter 4.

structural regulation, the application of these regulatory tools has been called conduct regulation since such regulation influences or constrains the conduct of a regulated entity while it is providing a service.

Conduct regulation requires constant monitoring and "interference" to assure that reasonable balance is maintained among the carriers' profitability (rate of return) and the public interest. Under the existing market conditions, it was assumed that this balance could only be achieved through regulation--not through competition. Such a regulatory balance, however, can be difficult to achieve as illustrated by FCC's continued problems with rate-of-return regulation.

Rate-of-Return Regulation

FCC has traditionally used a system commonly known as rate of return/rate base controls to regulate the common carriers. Under this system, FCC simulates a competitive outcome by limiting a regulated carrier's revenues to its cost of service, plus a reasonable return on investment. This involves determining the carrier's reasonable costs of plant and expenses and setting prices for the carrier to charge for its products and services, which allow it to cover its costs and provide a fair return to investors.

FCC has found it difficult to devote the necessary time and resources to adequately regulate rates of return for international carriers. For example:

(1) While FCC has initiated four proceedings since 1965 to establish a fair rate of return for AT&T's overall operations, 1/ AT&T's international operations have never been separately examined. In an effort to simplify reporting requirements, FCC no longer requests the data necessary to monitor AT&T's overseas MTS earning separately from domestic long-distance services. In 1979, the last year AT&T was required to break out overseas MTS separately in its Annual Fully Distributed Cost Report, overseas MTS had an earning ratio 2/ of 36-1/2 percent. AT&T subsequently made tariff revisions in 1981 and 1982 to reduce overseas MTS rates.

1/Four proceedings--dockets 16258, 19129, 20376, and 79-63--were initiated in 1965, 1970, 1975, and 1979, respectively and involved the use of trial-like evidentiary hearings. Before that time, AT&T's rate of return was set on an informal basis.

2/The ratio of net operating earnings to investment.

(2) FCC conducted no rate of return investigations for any IRC between 1958 and 1976. In 1979, a preliminary audit report (based on a review begun in 1976) showed that telex services cross-subsidized both telegraph and private line services. In addition to the cross-subsidization finding, the report concluded that the IRC industry is "either suffering or benefitting from an extreme case of regulatory neglect." The report indicated that international record carrier's rates of return ranged from 34.4 percent to 58.3 percent for the telex service of the most profitable carrier, while the least profitable carrier for telex had earned rates of return ranging from 18.6 percent to 25.4 percent depending on the method used for calculation.

The audit report concluded that before the Commission could determine the "lawfulness" of any carrier's rate of return, it must first establish what is a just and reasonable rate of return in today's market, and what is or is not to be included in a carrier's rate base. However, the report added that "adequate enforcement capabilities depend upon sufficient manpower and funds which have not been available due to budgetary constraints." According to the report, at least a 50-member task force would be required to thoroughly examine the carriers' investment and expenses.

FCC's Common Carrier Bureau's Audit Staff then recommended several alternative courses of action to the Commission. One was to conduct a formal rate investigation. Another was to devote staff resources to rectify deficiencies in carrier's books and records. A third alternative was to take no affirmative action, and a fourth alternative was to propose "necessary legislation for deregulation." It said that "deregulation should be considered, if only from the standpoint that nothing else will work."

In December 1979, when FCC adopted the audit report, it concluded that it was unnecessary to begin a procedure to establish reasonable rates of return for the IRCs. Rather, it would monitor the effects of its recent decisions (since 1979) that were intended to create more competition, which would in turn, control profits. However, on October 9, 1980, FCC began a rate-of-return investigation for ITT World Communications, Inc. (ITTWC), the IRC which the audit report found to have the highest overall rate of return. The Commission said it was beginning the investigation because it had not discerned any significant alteration or downward trend in IRC rates as had been expected in response to FCC actions made the previous December.

According to FCC's Enforcement Division Chief, the Commission had originally planned a two-pronged approach to the rate case to expedite the final decision. He said a formal rate-of-return investigation would be handled as an on record public proceeding with witnesses and cross-examinations, while at the same time, separate FCC staff would analyze ITTWC's rate base and expenses. However, FCC decided to do the rate-of-return examination first, and conduct the rate base examination later, if necessary, because of staff limitations and ITTWC complaints that the originally planned investigation was unconstitutional. The proceeding has lasted 2 years and the record on the rate-of-return aspect is complete. A final FCC decision is expected in 1983.

Many parties within FCC have expressed reservations about the proceeding's usefulness. For example, according to the FCC Enforcement Division Chief, FCC knew that other FCC proceedings and soon-to-be-enacted legislation would soon make the proceeding less pressing when it decided to conduct a rate base examination later, if necessary. An FCC economist involved in the proceeding said that "investigating the proper rate of return without investigating the rate base and expenses was like using a scissor with one blade." A spokesman for one IRC said he did not believe the proceeding would hold up in court due to insufficient analysis by FCC.

(3) In 1978, FCC concluded a general review of COMSAT's operations initiated in 1965. FCC determined that COMSAT's earnings and rate levels were excessive, its rate base was substantially overstated, its rate structure was unreasonable, and its cost of capital was overstated. FCC disallowed, as improper, items in the rate base such as undepreciated capital value of laboratories and return deficiencies which amounted to approximately 50 percent of COMSAT's charges. Although substantial rate reductions were ordered, these were not immediately realized by consumers because COMSAT provides consumer service through retail carriers. Further steps were necessary to pass the reductions on to consumers and prevent the carrier from retaining the savings from the rate reduction as excess profits. One proposed voluntary refund plan remains pending.

FCC MOVES TOWARD STRUCTURAL REGULATION

As contrasted to conduct regulation, structural regulation alters the regulated market environment by (1) reducing regulatory

barriers to entry, (2) promoting product differentiation, and (3) encouraging the entry of new firms and the applications of new technologies. Beginning in December 1979, FCC has made a number of decisions affecting the structure of the international telecommunications market. In one of these decisions (FCC 82-357) FCC explained its changes:

> "Experience in the international communications market, as well as our observation of the economy as a whole, has convinced us that competition can play an important role in protecting the interests of international telecommunications users. At best traditional rate and rate-of-return regulation is a cumbersome and unprecise exercise. In the case of the U.S. international communications industry, the multiplicity of carriers and services increased geometrically the difficulty of such regulatory efforts. Based upon our experience in the domestic market, we believe that our regulatory efforts will benefit greatly from supplementing traditional, formal procedures with increased competition wherever possible. Indeed, we believe that the domestic experience clearly demonstrates that service innovation and rate competition flourish best in a freely competitive market and that the development of such a market in the international sphere will be the best way to protect international communication users."

These decisions are briefly highlighted below and are considered in greater detail in chapter 3.

1. Relaxing the voice/record dichotomy

In December 1979 (FCC 79-842) and December 1980 (FCC 80-523), FCC partially removed the voice/record dichotomy by allowing both AT&T and the IRCs to offer voice or data services on a permissive or secondary basis only. In October 1980 (FCC 80-585), FCC opened a reexamination of its 1964 TAT-4 decision which prohibited AT&T from entering the record market and the IRCs from entering the voice market. Final orders on both these inquiries were issued in December 1982.

2. Changing the domestic/international dichotomy

FCC had previously interpreted section 222 of the Communications Act of 1934 to require a division between domestic and international markets. Consequently, FCC authorized the IRCs to operate only out of (5) specified gateway cities. Western Union was authorized to carry international record traffic between the gateway cities and other portions of the continental United States.

In December 1979, FCC expanded the IRC's domestic operations when it ruled that its prior interpretations of section 222 were incorrect and authorized the IRCs to serve 21 additional gateway cities (FCC 79-841). As a condition of expansion, FCC required the IRCs to unbundle their rate structure, i.e., separate terminal equipment charges, transmission charges, and local access charges to obtain fair competition on the domestic haul portion of international telex traffic and encourage the development of a terminal equipment market. At the same time, FCC approved a requirement that the IRCs interconnect their networks upon demand which would eliminate the need for customers to use one telex machine for each IRC. Today, the concept of "gateway" cities is outmoded. IRCs apply for and receive authorizations to operate out of cities where they desire to locate.

In December 1979, FCC also reinterpreted section 222 as not barring Western Union from offering international record services. This decision was later overturned by the United States Court of Appeals for the Second Circuit, August 25, 1980. However, the International Record Carrier Competition Act (Public Law 97-130, Dec. 29, 1981) amended section 222 of the Communications Act of 1934 to allow Western Union to provide international record or telegraph service. In August 1982, Western Union's application for international record service was approved by the Commission (FCC 82-378).

3. Deregulation of enhanced services

In its Telenet/Tymnet decision (FCC 82-377), FCC reaffirmed that the Second Computer Inquiry or Computer II as it is popularly known (77 FCC 2d 384 (1980)), applied to international as well as domestic telecommunications. The Computer II decision drew a boundary between regulated "basic" communications services (i.e., traditional "pipeline" transmission services) and unregulated "enhanced" services (services which add computer processing and "acts" on the content, code, protocol, or other aspect of the subscriber's information).

The Computer II decision removes FCC from traditional title II common carrier regulation in the case of enhanced service and terminal equipment offerings. In reconsideration of the final order on Computer II, FCC affirmed that the basic/enhanced dichotomy applied to international as well as to domestic services. Thus, companies offering enhanced services overseas would not be subject to traditional regulatory requirements such as rate-of-return regulation and facilities authorization, although they would still be subject to resale prohibitions.

1/ITT World Communications Inc., et al. v. F.C.C. et al., 635 F.2d 32 (2d Cir. 1980).

4. Modification of COMSAT arrangements

In its 1982 authorized user decision (FCC 82-357), FCC removed the constraint which limited COMSAT to the role of a carrier's carrier and permitted COMSAT to serve both carrier and non-carrier entities. FCC said that it would condition any authorization to COMSAT to provide end-to-end services upon implementation of the changes in its corporate structure that FCC was requiring that day in a separate proceeding (FCC 82-372). These changes would essentially segregate COMSAT's regulated activites from its unregulated competitive activities.

In the same order, FCC changed two regulatory policies included in its original authorized user policy, which it believed had constrained COMSAT from exploiting the international satellite system--mandatory rate compositing and prescribed-use formulas. Rate compositing required the carriers to review their leased channel service tariffs to assure that the lower costs of satellite transmission were reflected in their costs. In August 1982, FCC decided to make its composite rate policy discretionary, allowing all carriers either to file separate satellite and cable rates or to continue to file composite rates as they deemed appropriate. FCC also decided that, insofar as possible, it would limit its role in prescribing the circuit loading of cable and satellite facilities, relying upon the marketplace to create intermodal competition between cables and satellites.

Along with the two COMSAT orders, FCC also initiated two inquiries that focus on other aspects of the structure of the U.S. international satellite system. FCC 82-374 opened notice of inquiry into the "Regulatory Policies Concerning Direct Access to INTELSAT Space Segment for the U.S. International Service Carriers." This proceeding will examine the feasibility of allowing carriers direct access to INTELSAT satellite facilities rather than going through COMSAT. FCC 82-373 opened a notice of inquiry to determine if the public interest would be served by allowing earth station ownership outside of the current Earth Station Ownership Committee.

CONCLUSIONS

These recent congressional and FCC actions have set in motion major changes in the international telecommunications market structure. These actions (1) eliminated the dichotomy between voice and record services, (2) blurred the distinction between domestic and international record service, (3) removed the retail restrictions on COMSAT, and (4) eliminated forced cable/satellite loading ratios.

It is clear that these actions can and will eliminate many entry barriers to the international telecommunications market. FCC believes such action will help create a competitive international telecommunications market structure and will result in

improved conduct and performance by industry participants. The consumer will benefit from lower costs, improved service, and technical innovation. Thus, a more competitive market structure will better serve the public interest than continued conduct regulation.

CHAPTER 3

COMPETITION IN THE CHANGING INTERNATIONAL TELECOMMUNICATIONS MARKET REQUIRES FCC MONITORING

As shown in chapter 2, recent FCC and congressional decisions are intended to restructure a heretofore segmented telecommunications market. While these decisions are too recent, for the most part, to have had significant structural effect on the market, they are clearly designed and intended to reduce or eliminate market entry barriers and thus increase competition. FCC believes that a competitive market best assures the public interest.

We agree with FCC that competition is the best way to regulate the market, but how successful recent decisions will be in making the market more competitive is a serious concern within the industry. FCC needs to monitor market development to find out if its policies are, in fact, resulting in a more competitive market and that the public interest is being protected as provided for by the Communications Act of 1934. Presently, FCC does no such analysis, but it recognizes the need and importance of monitoring industry performance.

WHAT CONCERNS FACE THE INTERNATIONAL TELECOMMUNICATIONS MARKET?

From our discussions with FCC officials, other Federal agency officials, carrier representatives, and industry observers, two key points emerged: (1) most agreed that the recent international decisions were designed to permit greater entry into the market, but (2) there was no consensus if, in fact, increased competition will result from these decisions.

Recent FCC and congressional decisions may well, in fact, lead to increased competition and better telecommunications services. They may, however, also lead to a number of situations not anticipated or desired by FCC. In our discussions with agency officials and industry representatives, we identified several major areas that might adversely affect the international market. They are:

--Foreign reaction to increased market access, including the impact of extending Computer II to the international market.

--Impact of Western Union's entry into the international record market on existing record carriers.

--Effects of allowing COMSAT to become an IRC.

--Potential effects of allowing AT&T into the international record market.

FOREIGN REACTION TO INCREASED MARKET ACCESS

The United States is one of the few nations encouraging competition in the telecommunications market. Traditionally, our foreign telecommunications partners have seen little advantage to the competitive policies being advocated by FCC. Their motivations and objectives for the market are generally different from those in the United States.

In many countries, the "Post, Telegraph and Telephone" operators are under one organization and are collectively called the PTT. PTT is a term used to describe foreign telecommunications entities. PTTs have often used the telecommunications system to subsidize postal services. PTTs also consider such factors as employment and subsidizing national industries when making rate decisions, rather than the most cost-effective use of the telecommunications system. Finally, PTTs have generally considered the telecommunications market as being rather inelastic, i.e., the same number of messages will be sent regardless of price or service. While the U.S. position has been that expanded services and interconnections will mean additional business, and thus, additional revenue, most PTTs have viewed such action as creating additional work and cost for themselves.

How PTTs are structured

Essentially, PTTs are structured in one of three ways:

1. Government administrations or ministries directly operating the networks. The Bundespost of West Germany and the Secretariat d'Etat aux Postes et Telecommunications of France and Sweden's Televerket are examples of this structure.

2. Public corporations under the authority of a government department. Included here are the British Telecom, Japan's Nippon Telephone and Telegraph, and Australia's Telecom.

3. Operation by a private corporation, controlled and/or partially owned by the government. Japan's external carrier, Kokusai Denshin Denwa would fall in this category.

Variations on these three main organizational structures do exist; however, the basic monopoly situation is the same in nearly all countries.

The PTTs authority and responsibility for facilities and services include tariffs (rates and services), technical standards, facilities construction, data security encryption, transborder data transmission, joint use and line-sharing, and termination regulations. The policies of the major PTTs are closely consistent with the policies of the countries' trade ministries and foreign policies.

PTT attitudes towards competition may be changing in some countries. Britain is encouraging competition between public and private telecommunications services as is, to a point, Canada and Australia. The Philippines have several telecommunication entities. Although CEPT, the organization of the European PTTs, would like its members not to link up with new U.S. carriers, this is often disregarded. However, most PTTs prefer to deal with as few U.S. carriers as possible and may, in fact, view the recent FCC and congressional actions as an opportunity to obtain higher profits for themselves. By utilizing their monopoly power to play U.S. companies against each other, it is possible that PTTs will be able to gain a better share of the accounting and settlement rates.

Accounting and settlement rates

The accounting and settlement process is the mechanism by which revenues earned through international telecommunications are divided between the parties providing the services. Since both the U.S. carriers and PTTs generally have one-half interest in each circuit, both entities are entitled to a revenue share for each message sent over the circuit. There are two types of financial arrangements for international telecommunications services. One pertains to leased line service and does not require a complicated accounting and settlement process since a monthly fee rather than individual messages is involved. In the other case, either the U.S. company and its foreign correspondent charge the U.S. customer separately for utilizing its portions of the leased line, and the U.S. subscriber pays for each part of the communication separately; or the U.S. subscriber pays the U.S. international carrier the full monthly rate, with the U.S. carrier then paying the foreign correspondent its portion.

The accounting and settlement process is more complicated for switched services such as MTS, telex service, message telegraph service, Datel, facsimile, and packet switched services where the message is "switched" from one customer to another in order to establish the required communications link. The complexity arises from the detailed accounting that must be kept of all calls or messages in each direction because many parties are involved. Each country establishes its own consumer rates for each international switched service offered in that country. These rates are generally known as "collection rates." They are collected from customers and are not normally uniform

in either rate structure or rate level between countries. For example, an ordinary dialed daytime telephone call from New York to Munich, Germany, presently costs the U.S. consumer $1.38/minute, but a call made from Germany (and billed in Germany) at the same time of day, costs the German consumer about $3.03/minute. 1/

Since collection rates are not equal, a special "accounting rate" is agreed upon by both the U.S. carrier and foreign correspondents. The accounting rate is usually applied on a minute-by-minute basis. If the number of paid minutes are greater in one international direction than the other during a particular month, then the carrier with the higher paid minutes must make a payment to its correspondent. First, the net balance, or the number of excess minutes in one direction, is multiplied by one-half of the accounting rate. This sum is then converted to the currency specified by the recipient and the settlement payment is made.

Whipsawing: using monopoly power

"Whipsaw" is the term used to describe the ability of a foreign PTT to use its monopoly power to play one U.S. carrier against others to gain concessions and benefits. The foreign administrations have the potential to "whipsaw" the IRCs because they can make operating agreements 2/ with U.S. carriers at their discretion and because they control, for the most part, the distribution of return traffic to the United States among those carriers with whom they have signed operating agreements. Presently, only IRCs are susceptible to "whipsawing" since switched international voice services are supplied by just one U.S. carrier, AT&T. However, MCI Telecommunications Corporation is presently negotiating for operating agreements with several foreign administrations and would like to commence international service during 1983. In that case, both record and voice services would be susceptible to "whipsawing."

To illustrate what whipsawing might look like, a foreign PTTs condition for allowing a new telex carrier to interconnect in its country might be that the carrier agree to a telex accounting rate lower than the prevailing rate, i.e., agree to a 40 to 60 split of the accounting rate, rather than a 50 to 50

1/Based on the German collection rate converted to U.S. dollars, using the exchange rate of April 12, 1982.

2/An operating agreement is signed prior to the commencement of most telecommunications services between the countries. The operating agreement generally includes the specific financial and operating arrangements which are applicable during the term of the agreement.

split. An established carrier might be threatened with a reduction in its share of return traffic if it does not agree to a lower telex accounting rate. In this manner, one carrier could be played off against the others, with the foreign administrations constantly gaining concessions and benefits.

FCC's policy on "Whipsawing" is being tested

To prevent "whipsawing" the FCC instituted a policy in 1977, reaffirmed in 1980, requiring uniform settlement rate agreements on parallel international routes. This means that all carriers must abide by the same accounting and settlement arrangements to the same destination. This policy prevented the PTTs from playing IRCs off of one another.

Further opportunities to "whipsaw" may develop, however, as a result of the 1981 Record Carrier Competition Act (RCCA). A provision of that Act requires each record carrier to make available to any other record carrier full interconnection with any facility operated by that record carrier, upon reasonable request. These interconnections make it easier for customers of one IRC to communicate with and utilize facilities of another IRC. They also enhance the ability of foreign correspondents to communicate with a large segment of the U.S. market by linking up with just one carrier rather than multiple carriers.

The PTTs of Belgium and Luxemberg, the Netherlands, and NORDTEL, the telecommunications governing body representing the NORDIC administrations of Denmark, Finland, Iceland, Norway, and Sweden have already taken action to take advantage of this situation. They have contacted the U.S. carriers about the possibilities of entering into an operating agreement with one, or a limited number of carriers. Potential suppliers of data communication services have been invited to bid on existing and new services and to indicate the financial conditions, including the division of total accounting rates, for such connections. Representatives from FCC, the Departments of State, Commerce, and Justice, the Office of U.S. Trade Representative, and the Office of Management and Budget are presently meeting to consider whether such proposals by the PTTs may engender offers which could unfairly increase the costs of public telecommunications services provided by U.S. carriers. Meanwhile, FCC has written to the relevant U.S. common carriers requesting them to defer discussions with NORDTEL which set a deadline of October 1982 for receiving possible offers. At the same time, the State Department notified NORDTEL that U.S. common carriers were asked not to respond to their request. In November, 1982, NORDTEL cabeled the carriers stating that their original request was not an attempt to use their (NORDTEL) monopoly power to seek exclusive bids on telecommunications services.

International resale and shared use

Another example of FCC actions designed to allow easier market entry but also causing uneasiness among the PTTs is international resale and shared use. Under a resale and shared-use system, both carriers and non-carriers can lease a private line at a flat fee and resell use of that line to multiple users normally too small to enjoy volume discounts. The reseller thus acts as an aggregator or broker of low-volume users. Resale can either serve a simple broker function, or it can encourage the application of new and existing technology. For instance, GTE Telenet's "Packet Switching" is a computer-based method of communications network management whereby circuits within the network are assigned to produce greater efficiency and other useful enhancements.

Foreign PTTs object to resale and shared use of international leased lines primarily because of its effect on revenues; i.e., low return from private leased lines in comparison with substantially higher returns from public network traffic, which generate revenues with each message unit. In response to resale, foreign administrations could refuse to allow access to the foreign-owned switch which terminates international lines. They could also discontinue all private lines or charge for them on a usage sensitive basis. They did, in fact, threaten to take such actions several years ago when FCC brought up the issue of authorizing resale at an international meeting. Currently, only the United Kingdom allows any interconnection for resale services.

Restrictions on resale and shared use are contained in the regulations of the Consultative Committee on International Telegraph and Telephone (CCITT), a standing body of the International Telecommunications Union (ITU). CCITT regulations D1.6-12 and D6.11-13 authorize private leased lines so long as "(t)he channels so derived (are) not subleased" and recognizes the right of communication administrations to take all steps, including termination of service, necessary to assure conformity. FCC's representative to CCITT said that many countries look upon CCITT's regulations as being international law.

In 1976, FCC lifted the prohibition against resale and shared use domestically. Upon reconsideration, FCC stayed the decision's application to the international arena. However, another FCC proceeding, the Computer II inquiry begun in 1976 and completed in late 1980, could seriously effect the outcome of the resale docket.

The Computer II decision was the culmination of FCC efforts to address the regulatory questions raised by the interdependence of communications and data processing technologies. In a previous decision (Computer I) (28 FCC 2d 267 (1971)), FCC determined that data processing services should not be regulated even

though transmission over common carrier communications facilities was involved in linking user terminals to central computers. This "forbearance" from regulation regarding data processing entailed a need to distinguish regulated communications services from unregulated data processing services and led to adopting a set of definitions to assist in making such determinations.

Computer II allows relatively free entry of new firms into the new unregulated data processing industry as well as the participation by dominant common carriers in new and emerging product and service areas by long established monopoly-based common carriers. It requires dominant carriers to establish a separate corporate subsidiary to offer unregulated services so as to insulate a dominant carrier's newly "competitive" operations from its traditional offerings. It also draws a boundary between regulated "basic" communications services (i.e., traditional "pipeline" transmission services) and unregulated "enhanced services," services which involve more than the pure transmission of information. 1/ The decision is premised on an FCC finding that enhanced services are outside title II regulation.

The International Resale docket (FCC 80-176) was initiated in 1980 after FCC indicated that the basic/enhanced dichotomy of Computer II would be difficult to apply internationally without a separate FCC decision to apply domestic resale policies to international communications.

Although the Resale Docket had not been concluded, on August 5, 1982, FCC reaffirmed the basic/enhanced dichotomy established in Computer II to international services provided by facilities licensed under the Communications Act and deregulated enhanced international services as of January 1983. FCC did not rule, however, whether resale should be extended into the international arena.

Several major questions arise from FCC's extension of Computer II into the international market. One is how foreign counterparts will perceive the decision. A dissenting FCC Commissioner wrote:

> "Our foreign counterparts may easily perceive that the Commission has by this action established resale internationally. This decision was not an action for the Commission to take unilaterally--without any attempt to consult our foreign partners. American entities

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1/For example, in an enhanced service, computer processing applications are used to act on the content and other aspects of the users's information rather than simply transmitting the original message.

employ a substantial number of leased channels overseas. In the past, various foreign administrations have threatened to prohibit the use of leased channels if the Commission adopted international resale. If that happens, American businesses will lose far more than we have gained by adopting this Order. This critical consideration has been totally ignored."

A recent study commissioned by NTIA stated that in the final decision of Computer II, FCC admitted it lacked the requisite supporting record to apply the basic/enhanced dichotomy internationally. The study concludes that FCC's applying Computer II internationally was based on a record self-evidently insufficient. This argument is also brought up by one of the dissenting FCC Commissioner's. The decision is now being appealed in the U.S. Court of Appeals for the District of Columbia.

Carriers are concerned that if their resale services become unregulated and become "enhanced" under Computer II definitions, foreign carriers would terminate such services through enforcement of the CCITT "no-resale" provision. The Assistant Bureau Chief for International, Common Carrier Bureau said that FCC authorization was never intended as a guarantee that a carrier can secure an operating agreement. However, the NTIA study agrees with carrier concerns that without an FCC certificate,

"a U.S. carrier may be unable to enter the market. This is another example of the cooperative nature of international communications, in which one party cannot entirely reform the industry's structure without the agreement of the other."

In short, the Congress and FCC have implemented a number of decisions designed to allow entry of new companies and services into the international telecommunications market. However, international telecommunications involves partnership arrangements between U.S. carriers (which are, to some extent, regulated by FCC) and foreign PTTs (which are not regulated by FCC). Foreign PTTs, with views and interests often differing from those of the United States, may react to U.S. innovations in ways that may well frustrate U.S. regulatory intentions.

WESTERN UNION ENTRY INTO THE INTERNATIONAL RECORD MARKET

The Record Carrier Competition Act (RCCA) of 1981 (Public Law 97-130) required that

"the Commission shall, to the maximum extent feasible, promote the development of fully competitive

domestic and international markets in the provision of record communications service, so that the public may obtain record communications service and facilities (including terminal equipment) the variety and price of which are governed by competition."

The Congress further required the Commission to reduce the extent to which it regulates record carriers as the development of competition among record carriers replaced the need for regulation to protect the public. It is Congress' directive that the Commission follow a policy of open entry into all markets and grant all permits requested promptly unless the carrier is not living up to its obligations under the RCCA.

Accordingly, FCC authorized several IRCs to begin wholly domestic record service, and in August 1982, authorized Western Union to begin international record service. Before RCCA, the IRCs were restricted to operating out of five "gateway" cities and several other domestic "points of operation." If a customer were based in a gateway city or point of operation, he could contract directly with one of the international carriers. If the customer were located outside a gateway or point of operation, he could either rely on Western Union to transmit his message to one of the international carriers at points of interconnection or could lease a line directly to an IRC point of operation. Western Union had been required to divest its international services in 1943. This divestiture occurred in 1963.

Under the new regulatory scheme, the international carriers and Western Union are essentially free to operate wherever they want; the international carriers can expand their networks within the United States and carry domestic traffic, and Western Union can negotiate agreements with foreign governments to transmit and pick up messages overseas.

Will Western Union's entry threaten the economic viability of the IRCs?

In its Memorandum Opinion Order and Authorization, FCC stated that if Western Union succeeded in its 15-percent market penetration goal, the IRCs would not likely suffer actual traffic volume declines--that Western Union's market penetration would equate with the market's growth. FCC stated that the IRCs did not dispute Western Union's projections. FCC concluded that "we remain confident that any revenue diversion created by Western Union's entry will not adversely affect the IRC's ability to provide international services to the public."

Most of the IRCs, however, felt that Western Union would be a formidable competitor in the international market, but questioned their (the IRCs) own ability to compete against Western Union in the domestic market. There seemed to be general consensus that

Western Union would quickly become either the dominant carrier or rival the three largest IRCs in market share (ranging from 23.6 to 35.1 percent of the international telex market in 1980).

While the IRCs may be self-serving in their views on Western Union's entry into the international record market, Western Union does have several advantages over other entrants into that market.

--Name recognition--Western Union has an established reputation as a reliable provider of record services.

--Wide-spread availability--Western Union has about 135,000 to 140,000 telex machines in place; considerably more than the IRCs combined.

--Western Union already originates or terminates on its own terminals about 60 percent of all international record service.

Western Union has used these advantages to get operating agreements from about 19 countries since August 1982, when FCC authorized it to deliver international record services. It is expected that Western Union will be a major international record carrier within a year.

Because of the perceived advantages held by Western Union, the IRCs are also pessimistic regarding their chances of making a significant entry into the domestic record market. A particular concern is the rate structure established in the domestic interconnect arrangements. A tariff specialist at FCC told us that on internetwork calls (i.e., calls originating with one IRC but terminating with another IRC), the originating carrier collects 34.75 cents from its customer but must pay 29.54 cents to the terminating carrier. For example, when one IRC customer originates a call to another IRC customer, the first IRC will keep only 5.21 cents and give the second 29.54 cents. The only record carrier which operates differently is Western Union, which charges its customers 34.75 cents for a domestic call within its own customer network, but charges an additional 23 cents if they want to call a customer in another record carrier network. Therefore, Western Union is able to retain almost as much money whichever domestic network its customers call.

Some of the IRCs feel that Western Union is sufficiently established so that this rate structure, in which Western Union will charge its customers an additional amount for calling another telex network, will not cost Western Union business. However, one IRC told us that although they have entered the domestic market to provide full services to their international customers, they do not expect to compete profitably in the domestic market. They could neither charge more than Western Union charged for domestic telex service, nor could they charge

extra fees for interconnecting their customers with the Western Union network, since it was so large that they had to allow new customers access to it.

Both Western Union and FCC dispute this reasoning. A Western Union spokesperson told us the IRCs had not proven that they must charge the same price for all customers regardless of network or quality of service. Western Union believes that IRCs could charge more if they offered better service, which is what they claim to do. Further, Western Union considers its large domestic network as irrelevant in terms of competition, because a particular customer would typically only call a limited number of telex users.

The Assistant Chief for International, Common Carrier Bureau said that if the domestic telex market was priced so cheaply that the IRCs could not enter the market, then competition--or the threat of competition--was likely instrumental in keeping rates down. He stated that competition could not be framed in terms of equity for record carriers but rather in terms of service and prices provided to the customer.

In its decision to authorize Western Union's international service, FCC stated that Western Union might face a greater hurdle entering the internal market because of the PTT's reluctance to sign operating agreements than the IRCS would face in combating Western Unions "headstart" in the domestic record service market. Since then Western Union has been able to negotiate agreements with many foreign PTTs. Whether the IRCs will be as successful in entering the domestic market and competing with Western Union is open to question. The "imbalance" increases market uncertainties in an environment that is already undergoing substantial strain.

RESTRUCTURING COMSAT HAS CAUSED UNCERTAINTY

Until recently, COMSAT (see ch. 2) had two primary functions: (1) it was a "carrier's carrier" and (2) it represented U.S. interests in INTELSAT/INMARSAT. 1/ COMSAT would lease circuits to U.S. carriers who in turn would provide end-to-end service to their customers.

FCC's Authorized User decision (FCC 82-357) adopted August 5, 1982, removes the constraint limiting COMSAT to the role of carrier's carrier and permits it to serve both carrier and non-carrier entities (users). This decision will permit COMSAT to

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1/The Congress has Authorized COMSAT to represent the United States in international communications organizations such as INTELSAT and INMARSAT.

service non-carrier entities in two ways. First, it will permit non-carrier entities access to COMSAT's INTELSAT basic transmission facilities. For example, AIRINC., a cooperative user group of airline companies, intends to use COMSAT directly rather than utilize an IRC's service. In this role, COMSAT will continue to provide service beginning or ending at the INTELSAT earth station. Non-carriers will be required to obtain operating agreements, however, with foreign PTTs to complete the transaction. Second, COMSAT can provide end-to-end service through a corporate affiliate separate from its INTELSAT/INMARSAT functions. If COMSAT enters this market, it will function as any other international record carrier. In this role, it may provide leased-channel, switched or any other international service directly to end-users. Prior to entering the end-user market, COMSAT must obtain the necessary authorization and file tariffs as required by the Communications Act of 1934. 1/

FCC conditioned its approval of COMSAT end-to-end services upon COMSAT's establishing appropriate controls to assure separation of retail services from its INTELSAT/INMARSAT monopoly activities (FCC 82-372). FCC said that this separation would facilitate implementation of the new authorized user policy by allowing FCC to monitor COMSAT's performance and assure that it deals fairly with its competitors and customers.

The Authorized User and COMSAT structure decisions have caused considerable unease among the IRCs. Their concern is that COMSAT will be able to cross-subsidize retail services from profits made from wholesale operations and thus undercut the IRCs. To assure that cross-subsidization does not occur, FCC proposes to monitor COMSAT's operations through structural remedies that will be reflected in COMSAT's accounting system. Auditors within FCC's Accounting and Audits Division stated that to do an adequate job of reviewing COMSAT's operations would require a recurring review every 2 years with each review lasting about 6 months.

We are concerned about FCC's capabilities to effectively monitor cross-subsidizations between COMSAT's monopoly and competitive businesses. In an earlier report on the Computer II decision, 2/ "we expressed concern about FCC's capability to effectively police the boundaries between regulated and unregulated activities of common carriers, according to the regulatory schemes established by FCC." In that report, we wrote that "unless it (FCC)

1/This decision also removed FCC from the role of prescribing the loading of cable and satellite circuits. This is discussed in detail in chapter 4.

2/"Can the Federal Communications Commission Successfully Implement its Computer II Decision?" CED-82-38, Jan. 29, 1982.

has the ability to verify carrier reports, FCC may not, however, be able to attest to the realiability of the transactions between a dominant carrier and affiliates."

In our September 1981 report on the domestic telecommunications industry, 1/ we pointed out that

> "separate subsidiaries, because they solve little or nothing in themselves, imply a continuing and intensive regulatory effort, including a heavy reliance on the very cost allocation, accounting and auditing techniques which have proven so troublesome, difficult and inadequate in the past in their application to traditional rate of return/rate base regulation as a means of preventing cross-subsidization of competitive offerings."

FCC itself concludes in its Corporate Structure decision (FCC 82-372):

> "The comments in this proceeding affirm the need for structural safeguards to address our stated concerns (Comsat having monopoly ratepayers to whom it can pass off the costs of competitive service). Upon consideration of these comments, we conclude that such safeguards should be established. If appropriate regulatory safeguards, structural and otherwise, cannot be established, consideration must be given to restricting Comsats participation in competitive markets."

COMSAT's entry may hurt existing IRCs

The IRCs believe that COMSAT will divert a large share of leased channel services away from the IRCs. Since COMSAT will be able to service users directly, the rates charged will be the same as charged the IRCs. As long as these users are able to make their own connections between the earth station and the foreign correspondent, there will be an economic advantage--to going to the wholesaler, i.e., COMSAT, rather than the retailer, i.e., the other IRCs which pass on COMSAT's charge plus their own charge to the user. The IRCs feel that to compete with COMSAT, they must have cost-based access to INTELSAT facilities rather than leasing channels from COMSAT. Such a policy is being considered by FCC (CC Docket No. 82-374) but a final decision is far away and may not allow such access.

1/"Legislative and Regulatory Actions Needed to Deal With a Changing Domestic Telecommunications Industry," CED-81-136, Sept. 24, 1981.

IRCs are not the only entities that are concerned about the recent COMSAT decision. Early ramifications of Computer II's extension to the international telecommunications market and the COMSAT Authorized User decision have caused the Chief/Common Carrier Bureau to request a staff memorandum for a "worst case scenario" of policy questions raised by Pacnet Communications Corporation, owned by Cable and Wireless (C&W), a British company. In June, Pacnet requested a data network identification code (DNIC), so that overseas users could dial its domestic U.S. resale packet switched network.

The staff memorandum considers the ramification of the COMSAT Authorized User Decision, the Computer II decision, and FCC prescription of interconnection arrangements among record carriers pursuant to RCCA. If Pacnet is defined as an enhanced service provider according to Computer II definitions, it becomes unregulated and does not have to file anything with FCC. As a result of the COMSAT decision, Pacnet, or its parent, C&W, are no longer prohibited from acquiring satellite circuits from COMSAT and providing enhanced service without authorization by the Commission. The report states that "Pacnet and its parents have a strong incentive to follow such a course of action. C&W would obtain 100 percent of the revenues for any traffic originating on Pacnet's network and terminating on C&W's network."

In the memo it was concluded that

"the Pacnet request for a DNIC brings into focus the probability that foreign telecommunications entities will seek to avail themselves of the opportunity provided by Commission policies, such as Computer II, deregulation of domestic resale carriers, and authorized users to enter the U.S. international telecommunications market, without the need to seek Commission authorization* * *It is fair to say that the ability of foreign telecommunications entities to enter the U.S. international telecommunications market is in large measure unprecedented and raises serious issues not presented by foreign entry into the U.S. domestic market* * * .

"In the U.S. international telecommunications market, an unregulated foreign enhanced service provider would have the ability to both prevent the entry of additional U.S. entities into the market for service between the U.S. and the home country of the foreign entity and to remove existing U.S. carriers competing in that submarket, at least where the service involved is classified by the foreign country as a common carrier service to be provided by the telecommunications entity of the country. Such action by foreign entities would run directly counter to the U.S. policy of

fostering increased competition in the provision of international telecommunications services."

Pacnet has since withdrawn its application for a DNIC, perhaps because of adverse reaction. However, the application did serve to surface problems that could occur because a number of FCC decisions are changing the telecommunications market and impacting on each other. We believe that the "Pacnet" memo was written after a potentially serious problem arose rather than as part of an FCC analysis of decision impacts prior to final decisionmaking.

FCC's RECONSIDERATION OF TAT-4

As noted in chapter 2, the 1964 TAT-4 decision instituted a voice/record dichotomy which prevented AT&T from entering the international record market and the IRCs from entering the voice market. However, technology began to overtake the TAT-4 decision by blurring the distinctions between voice and record service. FCC, in the 1979 Dataphone and Datal orders, partially removed the voice record dichotomy by allowing AT&T and the IRCs respectively, to offer data or voice on a permissive or secondary basis only. In October 1980, FCC initiated a reexamination of its TAT-4 decision to review whether even the primary/secondary service delivery distinctions should be removed; i.e., AT&T and the IRCs should be authorized to provide voice or record services on a primary nonancillary basis, rather than a secondary permissive use basis. A decision on this reexamination was reached in December 1982. 1/

Can the IRCs enter the voice market?

The IRCs are willing--if allowed--to enter the voice market but have real questions about their long-term ability to successfully compete against AT&T. Only MCI is confident that it can compete successfully against AT&T. These questions center around a few basic issues:

--AT&T controls most of the voice market, and there is little incentive for a foreign PTT to allow additional carriers into the market unless the PTTs receive a larger share of the settlement rate. Such action would be subject to FCC approval.

1/TAT-4 was reversed by the FCC on Dec. 8, 1982.

--The IRCs might not be able to competitively price services with AT&T because AT&T has certain economies of scale in terms of facilities not available to the IRCs.

--AT&T is better suited to connect with domestic switched voice service. (AT&T is directly linked to the domestic voice switched service; other carriers would not initially have this same advantage.)

An NTIA study 1/ also questions the IRCs ability to successfully compete in the voice market. The study concluded that AT&T could well lower its margins on international voice services to match the IRC and thus prevent or inhibit IRC entry. Further, for the IRCs to compete on an equal basis with AT&T, they would have to have comparable operating agreements with the PTTs and comparable interconnection with the domestic network. The study questioned the IRCs' ability to obtain either.

Could AT&T dominate the international record market?

The IRCs share a common concern that AT&T would become the dominant carrier if allowed into record service even assuming such service was offered through a fully separated subsidiary. This "fear" is based on two opinions: (1) the possible opportunity for AT&T to cross-subsidize record services from voice service revenues and (2) the potential for AT&T to develop special relationships with foreign PTTs based on existing operating agreements for voice services.

Most carriers were concerned with AT&T's influence with foreign PTTs. Two carriers told us that foreign PTTs were hesitant to take actions which might "irritate" AT&T. This hesitation is based on AT&T's ability to reroute voice service and reduce revenues of a particular PTT. For example, a call from country A to country B could be routed through country C or country D. Country B and country C would each receive a portion of the revenue generated from the call. If the call were rerouted to avoid country C in favor of country D, then country C would lose substantial revenues. We found nothing to indicate, however, that such action could or has taken place. In response, AT&T stated that such action was highly improbable.

AT&T is unsure, at this point, what services it would deliver if it is allowed to enter the record market. An AT&T official stated that the reorganization of AT&T, being undertaken

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1/Competition and Deregulation in International Telecommunication, prepared for NTIA by MarTech Inc., 7/10/81.

because of the consent decree between AT&T and the Justice Department, is AT&T's primary concern at the moment. While this reorganization will impact on both domestic and international operations, primary attention is presently going to the domestic side.

FCC's ROLE IN A MORE COMPETITIVE ENVIRONMENT

FCC believes that a purely competitive international telecommunications market would best serve the public interest. FCC recognizes that a purely competitive market is not a realistic objective but does believe a more competitive market offers opportunities for decreased regulation and would better serve the public interest.

This change in regulatory philosophy reinforced by recent international decisions raises two fundamental questions:

1. Will the series of international decisions reduce market barriers and increase competition?

2. Will these decisions encourage better service and/or reduce rates for voice and record service?

The reaction of carriers--especially the IRCs--to these decisions would indicate that the decisions may not be successful. However, one must consider that these reactions may be, in part, the expected response of any business concern suddenly faced with an unknown market after being accustomed to a rather secure, highly profitable market.

The reaction of the foreign PTTs is perhaps more serious. While some PTTs are encouraging increased competition, most do not. FCC can eliminate entry barriers for the U.S. portion of the international market but that offers no assurance that the PTTs will sign operating agreements.

All in all, there is no assurance that the market will work as predicted. A number of existing and potential issues discussed in this chapter face FCC.

--Possible attempts by foreign PTTs to try to "whipsaw" U.S. telecommunications companies as the market becomes more competitive and, in certain cases, less regulated.

--Negative PTT reaction to Computer II deregulation and the subsequent inability of new companies to reach agreement with foreign correspondents.

--Problems in assuring that COMSAT does not cross-subsidize its non-regulated enterprises.

--Potential conflict-of-interest problems between COMSAT's role as a U.S. representative to INTELSAT/INMARSAT and its role as a carrier.

--Potential problems with IRCs gaining access to the voice market.

--Potential detrimental effects on market performance by the entry of AT&T and COMSAT into the record market.

--Possible action by PTTs to send a disproportionate share of return traffic to foreign-owned companies in the United States.

Other issues may also arise. This list is not intended to be all-inclusive but rather to show a broad range of possible issues that could arise and interfere with the market performing as FCC might prefer.

CAN FCC DETERMINE IF ITS POLICIES WORK?

The uncertainty of future market development increases the need for FCC to monitor market conditions so that appropriate action, if needed, can be taken on a timely basis. A recent article by an FCC economist concluded that:

> "Of particular significance is the FCC's decision not to initiate general investigations or a rate case. Apparently, the FCC has concluded that some modifications in market structure will cure the problems of excessive rate of return, cross-subsidization, idle capacity, and high concentration. It will rely on the marketplace to correct the situation. In rendering this policy decision, the FCC made no specific provisions for monitoring performance, established no criteria for tracking the development of the industry, and proposed no guidelines for evaluating the degree of competition."

This conclusion was mirrored in our report on the domestic telecommunications industry which stated that the assessment of the success of policy initiatives to increase competition must ultimately rest on their effects on the industry's structure. Such analysis is the responsibility of the Common Carrier Bureau's Economic Division. According to FCC's fiscal year 1984 budget proposal document, the Economic Division's duties include providing

> "support to major regulatory efforts of the Activity through studies and analyses of telephone industry structure and competition and the effects of structure on decisionmaking, performance, and costs; the economic

effect of technological change and the economic implications of new regulatory policies * * *."

Our domestic telecommunications report concluded that the Economics Division neither collected sufficient information nor had a group of individuals engaged in analyzing the industry.

The Economics Division also cannot perform such analysis for the international market. To do a proper economic analysis, a wide range of variables must be examined. For example, to evaluate "degree of competitiveness" for a particular market, the number of firms in the market, the size of the firms, entry condition (cost of acquiring capital, and cost of obtaining operating agreements), price/cost margins, cost efficiency, and responsiveness to technological advances must be examined. For the most part, economic analysis considering these factors is not being performed by FCC.

The Chief of the Economics Studies Division told us that he would like FCC to have more information on the state of the industry (both domestic and international). He said that FCC could not always identify performers in the industry, what services companies were offering, and the viability of the various players in the telecommunications market. He said that although he would like to do research on industry structure, he does not have the staff to do such research, or for that matter, other research because his staff is involved in doing statistical reports and matters pending for Commission decision. He said that a side effect of not doing research is that it is hard to recruit and/or keep staff economists because they want to publish and establish a reputation in their field.

Both the Chief of the Common Carrier Bureau and the Assistant Chief for International believe that recent decisions have taken needed steps to help restructure and make the international telecommunications market more competitive. While they believe that these steps were made with due deliberation and consideration, both agree, however, that industry monitoring is necessary to make sure these decisions are having the desired effect. Such monitoring is not being done because of a lack of resources. The Chief said that resources for the entire bureau were strained, and that it was difficult to increase staff for any one section.

Available resources

As noted above, both the Chief of the Common Carrier Bureau and his Chief of the Economic Studies Division cited a lack of available resources as a reason for not monitoring market structure development. While the information needed to measure market competitiveness is generally available, the Economic Studies Division does lack resources. It currently has fewer staff than it did when our earlier report was released in 1981. Currently, 9 economists--down from 15 a year ago--are on board. Mostly, they

collect and assemble data for the annual reports and prepare information to support Commission agenda items.

However, based on discussions with FCC and industry economists, such monitoring could be performed with a limited staff--perhaps 2 or 3 economists. Their role would be to analyze available data. Such analysis could provide reasonable monitoring of market structure and conditions. A more detailed study--necessary only if problems in market structure were evident--would likely require information on services and expense/investment data not now collected by FCC and would require additional economists, or studies done for FCC under contract.

Our current review of FCC licensing activities identified opportunities for reassigning staff or positions within the Commission. For example, an internal FCC study identified 100 positions, which could be eliminated with minimal or no impact on Commission functions. FCC stated that since that study, two reorganizations plus the loss of 185 full-time employees impact the number of positions on the original list. FCC should consider, however, whether 2 or 3 of the remaining positions could be assigned to the Economics Division to monitor "competitiveness" in the international market.

CONCLUSIONS

Since the late 1970's, FCC and the Congress have made major changes in the international telecommunications industry to reduce entry barriers and to facilitate a more competitive market. Although many structural barriers to entry have been removed, other barriers exist which either cannot be controlled at the U.S. end of the telecommunications circuit, or which are monopolistic by statute, historical usage, or both. For instance (1) FCC cannot force the PTTs to interconnect with new carriers; (2) COMSAT, by statute, controls the U.S. international satellite half-circuit; (3) until recently, Western Union had a monopoly to supply domestic record services; and (4) AT&T is the only authorized international voice carrier. Because of these structural and historical barriers, it is doubtful whether competition will develop either naturally or easily in the international telecommunications market. The players, whether countries with different motivations and perceptions of national interest or carriers with large differences in size and organizational power, do not easily fit into a competitive market structure.

FCC has stated numerous times in its proceedings that it intends to rely on a more competitive marketplace to cure some of the problems of excessive rates of return, cross-subsidization, idle capacity, and high concentration. Ideally, the international market will develop so that the marketplace can, in fact, "regulate" itself, and FCC's oversight and regulatory role can be

reduced or even eliminated. However, until such competition effectively develops, FCC must be able to protect the public interest as provided for by the Communications Act of 1934. We believe that the competitiveness of the international marketplace is sufficiently uncertain to warrant FCC monitoring so that the public interest can be assured. FCC, however, has not established criteria for tracking the industry's development, identified "danger signals" (such as increased market share for one carrier or fewer carriers) in market behavior, or made any specific plans to monitor market performance.

We believe that the few additional personnel needed to analyze market behavior are within FCC's means to provide. The importance of the international market and the significant changes occurring in that market certainly warrant the resources. Based on FCC's own study, it appears that personnel or positions could be reassigned without exceeding FCC's staffing limits or affecting other FCC operations.

RECOMMENDATION TO THE CHAIRMAN, FCC

We recommend that the Chairman, FCC establish within the Common Carrier Bureau an industry analysis section to monitor industry structure. The Chairman should consider reassigning available positions within FCC to provide the necessary staff. The section should evaluate the cumulative effect FCC decisions are having on market competitiveness so that appropriate regulatory programs and policies can be implemented if the market does not respond as intended.

CHAPTER 4

FACILITIES PLANNING AND THE FCC--A DIFFICULT HISTORY NOT YET COMPLETE

Over the past 15 years, FCC has gradually shifted its role in international facilities regulation 1/ from planning for when and how such facilities would be built and used to becoming more of an overseer for the planning process. FCC has proposed to limit its role further by relying on the marketplace to guide facility allocation rather than establishing a formula to allocate traffic between cables and satellites. Previously, FCC believed that to advance satellite technology and to develop backup transmission facilities for adequate service and for national security reasons, traffic must be allocated between satellite and cable transmission facilities. FCC now believes that structural changes in the market and comparable costs/services will allow successful media competition without FCC intervention. FCC intends to monitor facilities use, however, to assure that both facilities are reasonably used.

Most parties involved in the facility planning process believe that FCC's current policy of consulting with involved parties before setting preestablished planning guides is a great improvement over its earlier role. While we agree that the process is smoother, we believe that FCC's proposed reliance on the marketplace to allocate cable/satellite traffic may be premature. The marketplace is rapidly changing as advanced technology greatly increases circuit capacity and lowers per circuit cost. FCC cannot determine if the developing market will assure a reasonable cable/satellite usage mix.

BACKGROUND

FCC's role in the planning process has been to assure that (1) adequate capacity is available for voice/record transmissions, (2) excess capacity is not being built into the system, and (3) satellite facilities will be effectively used. FCC exercises regulatory authority over U.S. carriers under the Communications Act of 1934 and the Communications Satellite Act of 1962. Section 214 of the 1934 Act requires that the Commission authorize all new communications facilities in which U.S. carriers participate to assure the facilities are in the public interest. The 1962

1/Such regulation includes approval of plans for cable transmission of voice and records, determination of the traffic balance between cable and satellite facilities (prescribed use loading), and authorization to use circuits for either cable or satellite facilities.

Satellite Act established a statutory mandate to foster the establishment of a global satellite system. To assure an orderly balance in the construction and use of both satellite and cable facilities, FCC has become involved with the carriers and foreign entities in a procedure called the international facilities planning process.

Until the introduction of voice-grade cables in the mid-1950's, the planning process essentially consisted of negotiations between FCC and foreign PTTs to secure landing rights for terminal points of the cable. As cable technology advanced and as satellite circuits were introduced, facilities planning became more complicated and eventually split into separate processes for cable and satellite. Cable negotiations and planning have become bilateral undertakings with divided ownership among U.S. carriers and foreign PTTs. Satellite facility planning is conducted by the International Telecommunications Satellite Consortium (INTELSAT). 1/

DEVELOPMENT OF THE CONSULTATIVE APPROACH TO FACILITIES PLANNING

Consideration of the proposed TAT-5 and TAT-6 cables 2/ in 1968 and 1971 were the first facility planning processes to be undertaken after introduction of international satellite service. In both instances FCC made major adjustments to the proposed cable after agreement on cable configuration and timing had been reached between U.S. carriers and foreign PTTs. In TAT-5 FCC initially ruled that AT&T could activate one cable circuit for every five satellite circuits activated. FCC denied a portion of TAT-6 stating that the cable was not in the public interest. Under considerable pressure from foreign PTTs and U.S. carriers, FCC in 1971 reduced the satellite/cable activation rate from 5:1 to 1:1, and in 1972 approved construction of the TAT-6 cable.

In part to air their opposition to prescribed loading for satellite/cable circuit activation and in part to avoid post facto

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1/INTELSAT was chartered in 1964 and has 106 member countries and operates a satellite system which connects 310 earth stations in 155 nations. Members are required to contribute to the investment and operating costs of INTELSAT in proportion to their use of the system's capacity. Each member's investment share is approximately equal to its percentage of the total use of the system. COMSAT, the U.S. entity designated to INTELSAT, currently owns 23 percent of INTELSAT, down from its original share of 61 percent. While COMSAT is the sole U.S. participant in INTELSAT planning, U.S. carriers and their foreign correspondents provide the data on which planning is based.

2/TAT-5 and -6 are both North Atlantic cables.

review by FCC, the European PTTs proposed in 1974 that FCC, the European PTTs, and U.S. carriers should exchange their views on facility plans and policies. FCC replied that it could not directly negotiate with European entities but did propose a consultative process for an exchange of views. In November 1976, the FCC officially agreed to a comprehensive planning format when it wrote:

> " * * * we will not in the future consider the authorization of major facility investments and utilization proposals as isolated instances, but will instead evaluate them in the context of a comprehensive long-range plan for the establishment and use of facilities to serve a particular geographic area during a specified future planning period."

According to FCC, the process was intended to allow the Commission to consider both cable and satellite technology in an integrated fashion and arrive at an overall plan for the establishment and use of North Atlantic facilities up to the mid-1980's time frame. The goal was to allow the Commission to process facilities applications expeditiously and avoid circuit-by-circuit review that in the past caused regulatory delays and had disruptive effects on foreign relations.

FCC's new approach has problems

FCC's new approach to facility planning incorporated information gathered from carriers regarding circuit requirements, service reliability, and construction costs for a new cable (TAT-7) for the 1977-85 planning period. Based on this information, FCC developed several alternative plans, discussed its plans through the consultative process, and ultimately determined in December 1977 that new satellites would provide adequate service for the 1977-85 time period and a new cable was not economically justified.

This decision was immediately criticized. According to the State Department official who monitors the facilities planning process, about one-half of the European PTTs protested to the Secretary of State. Several U.S. agencies, including the Department of Defense and NTIA, also expressed disagreement with the decision. Both AT&T and the IRCs petitioned for reconsideration.

In 1979, FCC revised its decision. The Commission stated that the TAT-7 cable might result in additional expenses, but joint cable-satellite planning can result in greater savings in the future sufficient to warrant incurring such additional costs. FCC viewed its shift as contributing to international comity. The FCC decision was a compromise between its early rejection of the cable and the strongly held position of the European PTTs that the cable must be put into service in 1981. In its decision, FCC reaffirmed its view that the cable would not be needed to meet expected levels

of demand through 1985, nor would it significantly increase service reliability. However, the Commission ruled that an operational date of no earlier than July 1, 1983, would serve the public interest because it would promote development of a mutually acceptable plan. Thus, FCC objective that the comprehensive plan for both cables and satellites be acceptable to all parties would be met.

The decision is still controversial. According to an FCC economist, the decision exacerbated and prolonged an existing excess capacity situation and, in short, sacrificed economic efficiency in order to promote international goodwill. He cites the impact on revenue requirements due to the "additional expenses" at about $68 million. AT&T on the other hand, believes FCC's capacity projections were grossly understated and if they were adopted, the United States would find itself under capacity in the near future.

Planning responsibility has shifted to the carriers

In a March 31, 1978, GAO report "Greater Coordination and a More Effective Policy Needed for International Telecommunications Facilities" (CED-78-87), we reviewed FCC's facility planning procedures and concluded that an effective policy framework for international facilities cannot be maintained within the context of an FCC-developed comprehensive plan. We stated that FCC's policy framework was not effective because it was shifting planning responsibility for facilities from the carriers to the regulator.

We recommended that the Chairman, FCC

--evaluate future international facilities within a regulatory policy framework which establishes and maintains policy guidelines for future facilities and

--establish policy guidelines for international telecommunications facilities in other parts of the world.

FCC has acted positively on both recommendations by establishing a planning framework for the North Atlantic basin and initiating the planning process for the Pacific.

Moving towards a planning framework

For the 1985-95 planning period, FCC has worked with an international working group since March 1979 to develop "terms of reference" to guide North Atlantic planning efforts. These are:

(1) Development of an overall facility-decision timetable.

(2) Development of a common data-base of traffic forecasts.

(3) Development of common quality of service criteria.

(4) Development of a projection of technological facility alternatives likely to be available at various junctures within the 10-year period in question.

(5) Development of a list of facility alternatives available to accommodate demand.

(6) Exchange of views on methodology.

(7) Preparation of a report to senior level CEPT/USA/Teleglobe Canada meeting outlining results of (1) to (6) above.

Since the 1979 meeting, further U.S. views were exchanged with the Europeans in 1981 at Montreal and in 1982 at Rome. U.S. positions have been worked out in a series of public meetings involving FCC staff and U.S. international carriers.

According to the Assistant Chief for International, the PTTs and U.S. carriers now better understand the FCC position in advance of a section 214 application (to authorize facilities) so that chances of a misunderstanding are diminished. He said FCC made its position known in January 1981, when it published general policy guidelines for the 1985-95 planning period. The Commission stated that since the carriers submitted plans representing a wide range of potentially viable options, FCC would refrain from stating a preference for any individual construction and use plan as it did in the past. Instead, FCC said its guidelines would protect the public interest by defining a range of acceptable alternatives. For example, under the policy guidelines, an analog cable in 1986 or 1987 will not be considered unless the planned TAT-8 schedule is not met and INTELSAT's plans for the 1980"s fall behind schedule. The Assistant Chief said that while the PTTs do not share the U.S. view, the PTTs appreciate that the United States has let its position be known early on in the process. He contrasted this with the TAT-7 controversy, stating that by making the U.S. position known early this time, the U.S. carriers should be able to negotiate freely with the PTTs and hopefully avoid an analog cable application. He said if that occurs, the success of FCC policy guidelines in the consultative process will be demonstrated. One industry spokesman agreed in part, stating that the PTTs do appreciate that FCC has made its position known, but believes that reduced demand projections is the major reason why the PTTs are remaining so quiet.

Pacific planning process begun:
Caribbean planned but resources limited

Telecommunications traffic between the U.S. mainland and Pacific nations is about 10 percent of total U.S. international traffic with about 70 percent to the Atlantic and about 20 percent to the Caribbean and South and Central America. The Pacific region, however, is sustaining the most rapid traffic growth. The major traffic streams in the Pacific are between the U.S. mainland and Japan, Hong Kong, the Philippines, and Australia.

On May 15, 1981, FCC opened docket number 81-343 to plan telecommunications in the Pacific for the period 1981 to 1995. According to the Assistant Chief for International, FCC is considering a Caribbean basin proceeding when (1) carrier plans in that region reach the point that FCC involvement is warranted and (2) a staff member becomes available to direct the process. FCC decided to open the Pacific docket due to a decision by a foreign consortium--principally Australia, New Zealand, and Canada--to commit to developing a cable system connecting the three countries with Hawaii and with extensive AT&T participation. FCC stated it wanted to explore all reasonable options for meeting traffic needs in the Pacific before "committing to a heavy dependence on a foreign-owned cable facility for U.S. Mainland-Hawaii use."

All the carriers involved in the Pacific proceeding believe the Commission has greatly improved the facilities planning process. Users, however, have not been as complimentary. For example, in commenting on the Pacific planning process in June 1982, the State of Hawaii wrote that the Commission is relying too heavily on the carefully limited information and opinions submitted by carriers with vested interests in the outcome of the planning process.

The Assistant Chief for International told us he believes the State of Hawaii favors developing a better record on the impact of facilities decisions on rates. Although there is an obvious relationship, he conceded that an assessment of the precise impact on rates has not been a part of the process. An attorney in the International Facilities Planning Division told us he does not believe the outcome of the process would have changed if more data were available. He added that he believes "the FCC is now on the success side of the learning curve" as a result of FCC becoming more flexible and carriers giving better information to FCC.

Others within FCC, however, question FCC's ability to analyze economic issues presented almost exclusively by the carriers--entities having vested interests in the outcome. Users rarely comment on the planning process due to the technical nature of the proceedings. According to the Deputy Chief, Office

of Plans and Policy and an Economics Division economist, there is a need for FCC to quantify user costs at some point in the planning process. They said such figures are necessary if FCC intends to make an economic determination of the public interest. FCC, however, has not established such an economic evaluation function.

TECHNOLOGICAL ADVANCES WILL GREATLY INCREASE CIRCUIT CAPACITY

International telecommunications will soon be entering an era where circuit capacity for voice/record communications will be significantly increased. Major advances in both cable and satellite technologies have allowed per circuit costs to drop significantly over the past 20 years. Both AT&T and COMSAT believe this trend will continue and even accelerate over the next several years.

The table on the following page based on data supplied by AT&T and COMSAT 1/ shows that investment costs per circuit 2/ and per circuit year have dropped significantly as facility capacity has increased.

The TAT-8 cable proposed for 1988 is expected to use fiber optics technology--light beams which carry messages over glass fiber cables. The base voice grade circuit capacity of the TAT-8 cable will be nearly three times that of the scheduled 1983 TAT-7 cable (see table 1) which will use the more traditional analog technology. Additionally, fiber optics technology is more compatible to circuit multiplication equipment which allows more messages to be sent than the actual number of circuits on the cable. According to AT&T, circuit multiplication equipment has the potential to more than double the base voice grade circuit

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1/Since AT&T and COMSAT have never been able to agree on a common costing methodology, FCC must always deal with data based on two sets of assumptions. For example, AT&T's "use approach" uses AT&T projections of COMSAT's future tariff charges as a measure of satellite costs. COMSAT's incremental approach bases satellite costs on the present value of capital expenditures.

2/Due to assumptions which have to be made for factors such as depreciation, landline expenses, capacity utilization, and maintenance expenses, it is difficult to transform both cable and satellite investment figures to per circuit cost figures. Satellite per circuit cost estimates are particularly difficult to assess due to additional uncertainties involving earth station costs and typically greater excess capacity.

Table 1

Cable & Satellite Investment Costs Per Circuit
in Constant 1982 Dollars (note a)

Cables	Year	Voice/grade circuit (note c) capacity	Investment (millions)	Investment costs per circuit (thousands)	Design life (years)	Investment costs per circuit year (thousands)
b/ TAT 1	1956	50	$167.3	$3346	25	$133.84
b/ TAT 2	1959	48	128.1	2669	25	106.76
TAT 3	1963	138	154.6	1120	25	44.80
TAT 4	1965	138	150.7	1092	25	43.68
TAT 5	1970	845	253.5	300	25	12.00
TAT 6	1976	4,000	353.0	88.3	25	3.53
TAT 7	1983	4,200	194.8	46.4	25	1.86
TAT 8	1988	12,000	200.0	16.7	25	.67

No.	Satellites	Year	Voice/grade circuit capacity	Investment (note e) (millions)	Investment costs per circuit (thousands)	Design life (years)	Investment costs per circuit (thousands)
1	Earlybird	1965	240	$ 30.1	$125.4	1.5	$83.60
4	Intelsat II	1966	240	26.3	109.6	3.0	36.50
8	Intelsat III	1969	1,200	33.4	27.8	5.0	5.57
8	Intelsat IV	1971	4,000	80.8	20.2	7.0	2.89
6	Intelsat IVA	1975	6,000	86.1	14.4	7.0	2.05
9	Intelsat V	1982	12,000	103.5	8.6	7.0	1.23
6	Intelsat VA	1984	13,500	98.3	7.3	7.0	1.04
5	Intelsat VI	1986	d/ 40,000	f/ 178.0	4.5	10.0	0.45

a/1982 dollars calculated using GNP deflator as printed in Spacecraft Inflation Indices, Department of the Air Force, Space Division, Los Angeles, Ca., June 1981.

b/TAT 1 and TAT 2 are no longer in service.

c/Cable circuit capacity is exclusive of circuit multiplication equipment.

d/Satellite circuit capacity includes satellite switched/time division multiple access technology equipment.

e/Satellite investment includes spacecraft, launch, and program costs. Satellite investment does not include earth station costs.

f/Includes initial purchase of 5 satellites at $116 million each. Additional satellites estimated at $63 million each.

capacity of TAT-7 and increase the base voice grade circuit capacity of TAT-8 by fivefold. 1/ A modest incremental investment is required to install the equipment.

The INTELSAT V and VI series satellites scheduled for launch beginning in 1984 and 1986, respectively, will also utilize technologies which make more efficient use of capacity. Unlike cable circuit multiplication equipment which requires incremental investments to increase cable capacity, the new satellite technologies are designed into the satellites. However, additional earth station costs will be needed to make earth station equipment compatible with the new technology. For example, the INTELSAT VI series satellites are being designed with satellite switched/time division multiple access technology. According to COMSAT, this new technology has the potential to double the INTELSAT VI satellites voice grade circuit capacity.

In summary, if the proposed new facilities go on-line as scheduled, the increase in circuit capacity will be unprecedented. FCC facilities planning officials said it is too early to tell what impact such an increase in capacity will have on costs or demand.

FCC PLANS TO RELY ON MARKET FORCES TO ALLOCATE SATELLITE/CABLE LOADING AND "MONITOR" THE RESULTS

The FCC's August 5, 1982, decision modifying its 1966 authorized user decision (see ch. 3) set a long-term policy goal of removing FCC from the facilities planning process. FCC based its decision--which allows COMSAT to become an IRC--on the conviction that competition is preferable to regulation as a means of allocating satellite services. FCC said its decision was not made merely to introduce competition for competition's sake but to make the cost and service benefits of competition between cables and satellites available directly to the public. FCC stated that by removing the constraints on access to COMSAT, it is setting the stage for COMSAT's independence. FCC emphasized the long-term aspect of the goal stating that it recognized the effects of past regulatory policies will not disappear immediately, and FCC will "continue to monitor the carriers' use of facilities to assure both cable and satellite facilities are reasonably used."

At the August 5, 1982, Commission meeting, Common Carrier Bureau officials emphasized that the authorized user decision is the first of a number of decisions which the Bureau hopes will

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1/Also includes circuit capacity gains from changing from a 64- to a 32-kilobit system.

force COMSAT into a competitive position in the marketplace. The officials stated that while FCC removing itself from facilities planning is a long-term goal, it will not succeed in realizing its goal until COMSAT is actively and successfully competing for user services. COMSAT officials told us, however, that they are reluctant to move into competitive areas. They do not believe lower prices for satellite services will increase market share due to the large portions of the market controlled by AT&T.

FCC cited two regulatory policies from its original authorized user policy which it believed have constrained COMSAT from exploiting the international satellite system--prescribed use formulas and mandatory rate compositing. Prescribed use formulas, as balanced loading, were set by FCC to encourage the development of both technologies by specifying cable user ratios. FCC stated in its decision that given AT&T and IRCs possible ownership bias in favor of cable facilities and COMSAT's constrained role, FCC had been compelled to ensure carriers allocate a reasonable amount of traffic to COMSAT. Second, a composite rate policy was implemented to assure that users received savings provided by satellite transmission.

FCC believes that elimination of the two policies will result in cheaper satellite rates for users. FCC argues that because COMSAT receives its share of traffic by formula, COMSAT has no incentive to reduce rates to attract more traffic. In addition, because rate compositing prevents a cost difference between cable and satellite circuits, any economic advantages of one communications mode over the other have been hidden. FCC believes that elimination of the two policies will give COMSAT incentive to attract more traffic through reduced prices. According to the Assistant Chief for International, the more actively involved COMSAT becomes in competing for customers, the less monitoring will be required by the Commission to assure facility usage remains "reasonably" balanced.

FCC's International Facilities Division Chief (at the time of this review) told us that FCC will not have problems monitoring the marketplace to assure reasonable balance. He said it will occur through watching the section 214 application process and monthly reports on circuit usage. He said, for example, if FCC sees a significant net change in cable/satellite usage, the Commission will probably take regulatory action. However, he added that he does not believe such a shift will occur because (1) carriers recognize the need for transmission media diversity, (2) some services are more economical on cables or satellite facilities, and (3) as (or if) COMSAT rates come down, the satellite medium should become more attractive.

The Chief said that he hopes the authorized user decision will lead to lower COMSAT rates, but added that the authorized

user decision is only "one variable in the international telecommunications equation." He said that FCC believes other upcoming decisions on topics which the Commission recently opened notices of inquiry, such as direct access and earth station ownership, as well as recent orders such as one requiring COMSAT to change its accounting rates will "force COMSAT into becoming more competitive and increase demand for satellite services." For example, he said that allowing IRCs into the voice market would probably result in IRCs obtaining the cheapest facilities available for voice services and that COMSAT could try to compete to serve this new market.

Preliminary reaction from COMSAT shows a reluctance to move into competitive areas. The FCC noted in it decision that COMSAT appears reluctant to upset its existing arrangement as a comfortable monopolist supplier of satellite facilities with a guaranteed share of overseas circuits. COMSAT officials feel that the choice of cable facilities cannot be left up to the marketplace since COMSAT receives about 80 percent of its international revenues from MTS traffic which is controlled by AT&T.

According to COMSAT officials, "with 80 percent control of the international market, AT&T is the market" and, along with the IRCs, has both economic and political incentives to use cables. They added that while the IRCs may be more price sensitive to reduced satellite rates, IRCs utilize less than 20 percent of available circuits which will not result in giving COMSAT what it would interpret as a "reasonable" share. In addition, both COMSAT and FCC officials agreed that it does not appear the economic advantage for using cable facilities can be feasibly changed since complicated INTELSAT agreements are based on the TAT-4 framework of capitalizing cables and leasing satellites.

COMSAT officials also expressed concern that by taking FCC out of the circuit loading business, the August 1982 authorized user decision contradicts FCC's May 1982 Pacific planning docket which proposed a master plan to show how facilities in the Pacific would be utilized. According to FCC's International Facilities Planning Division Chief, FCC is making a policy change in this area. He said FCC will give the carriers the flexibility to figure how many circuits they will need and what type of circuits to employ.

CONCLUSIONS

Potential changes in market structure combined with technological improvements permitting tremendous increases in circuit capacity have created some uncertainty and questions about future utilization of satellite and cable transmission media:

--Will the restructured marketplace maintain a "reasonable" balance between cable and satellite facilities?

--Will there be excessive circuit capacity and will this excess capacity be reflected in additional user charges?

--Will the PTTs and foreign carriers keep a "reasonable" balance or will the PTTs continue to favor cable transmission over satellite?

In March 1982 hearings, FCC stated that it was not feasible to deregulate facilities until effective competition is present in the international market or structural changes were made. Yet clearly, FCC's authorized user decision sets a course for deregulating facilities planning. While we believe that FCC has made significant improvements in facilities planning, we question whether FCC will be able to determine if its structural changes will be effective in promoting intermodal competition among satellites and cables.

RECOMMENDATION TO THE CHAIRMAN, FCC

In conjunction with our earlier recommendation that FCC develop an industry analysis capability to monitor the impacts and success of its actions to promote competition, we recommend that the Chairman, FCC direct the Common Carrier Bureau to use this same capability to assure that intermodal competition is developing and to allow FCC to intervene in facilities authorization if necessary to correct any imbalance.

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