AN EXPLORATION OF THE COMMUNICATIONS SATELLITE CORPORATION

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ABSTRACT

AN EXPLORATION OF THE COMMUNICATIONS SATELLITE CORPORATION

by Kay Smith

The Communications Satellite Act of 1962 created a communications satellite system for the United States. This Act established the Communications Satellite Corporation (COMSAT), as the U.S. representative in charge of Satellite Communications. This thesis considers the creation of COMSAT, the implementation of changes needed to regulate the system and the problems faced by COMSAT today.

In the technical section, particular attention is given to the evolution of technology, which in turn, has improved communication networks. The socialization of technology has been necessary in order for man to best use his knowledge for serving communication needs; accordingly, the need to structure satellite technology is discussed.

Developing an organization to coordinate satellite operations was a difficult task. Technical, political, economic and legal complications were involved. These factors influenced the legislation creating the Communications Satellite Corporation, and have subsequently

influenced the operations of the satellite system. Consideration is made of these intrinsic factors and their effect on the domestic and international communications systems.

An exploration is made of COMSAT's role as manager of the International Telecommunications Satellite Consortium (INTELSAT), which was created in 1964 to coordinate a global satellite network. COMSAT must integrate domestic and international satellite policy, a responsibility which is increasingly more difficult to meet. Regional and domestic satellite systems are gaining support and causing factions within the international system. There are, in conclusion, inferences about the future of satellite communications drawn from present controversy.

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CHAPTER I

A LOOK AT SATELLITE COMMUNICATIONS TODAY

> The ultimate result will be to encourage and facilitate world trade, education, entertainment and many kinds of professional, political and personal discourses which are essential to healthy human relationships and international understanding.[1]
>
> President John F. Kennedy
>
> Upon signing the Communications Satellite Act of August 31, 1962

Satellites have provided channels of communications since 1965. Like the conventional cable systems, satellites can relay messages around the globe. As the demand for communication channels increases, both cable and satellite systems will be expanding to meet growing needs. Nations of the world will be called upon to work closely together to establish the best possible communications network.

President Lyndon Johnson wanted to declare the position of the United States on international communications. He did this in his statement to the Congress of the United

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[1] The First Five Years, Communications Satellite Corporation, Washington, D.C. (1968), p. 1.

States on August 14, 1967, in which he established the Presidential Task Force to investigate the future direction of communication systems.[2]

The Task Force is a committee which is re-evaluating the usefulness of both the conventional cable and the satellite communications systems. Decisions made by the Task Force should be reported in August, 1968 and should indicate the emphasis the U.S. will place on expanding each communication system.

Satellites are our newest form of international communications. A brief historical sketch of communications systems in the U.S. will indicate the character of our satellite system.

The Communications Act of 1934 provides a blueprint for federal involvement in communications. This Act created the Federal Communications Commission (FCC), with the responsibility to regulate our privately operated systems. Among its duties, the FCC regulates the power of broadcast stations, assigns frequencies for broadcasting, grants licenses and determines fair rates for communication carrier services.

The Communications Satellite Act of 1962 gave additional responsibility to the FCC: it was now authorized

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[2]Message on Communications Policy to the Congress of the United States, White House Release, Washington, D.C. (1967), p. 4.

to regulate the newly created Communications Satellite Corporation (COMSAT). COMSAT was created by the U.S. Congress to establish a commercial communications satellite system in conjunction and cooperation with other countries. This system was to be extended to all interested countries in hopes of promoting world peace and understanding.[3] Because COMSAT was officially designated as the only U.S. satellite communications corporation, it was made responsible to the public for developing the best satellite system possible.

Directors of COMSAT were concerned with organizing an international communications satellite system. Informal conferences among European nations and COMSAT led to formal agreements to establish an international organization. In August, 1964, seventeen nations meeting in Washington, D.C. signed the Special Agreement creating the International Telecommunications Satellite Consortium (INTELSAT). The goal of INTELSAT is to "provide for the establishment of a single global commercial communications satellite system at the earliest practical date . . . and to provide for the design, development, construction, establishment, maintenance and operation" of this system.[4]

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[3] "The Communications Satellite Act of 1962," Public Law 87-624, 87th Congress, H.R. 11040 (August 31, 1962), p. 1.

[4] "International Telecommunications Satellite Consortium (INTELSAT)," Treaties and Other International Acts, Series 5646, p. 4.

COMSAT was designated as the U.S. representative to INTELSAT. It was also appointed director of INTELSAT by the member nations. Thus, COMSAT's responsibilities grew from being in charge of the U.S. satellite system to managing the world organization.

More than five years have passed since COMSAT was formed. It has been active in engineering a satellite communications system to service two-thirds of the world. Completion of the world-wide system is scheduled for December, 1968.[5]

With responsibility for directing INTELSAT, COMSAT officials are now concerned with the meetings scheduled for 1969 to reorganize INTELSAT. Before these meetings, President Johnson's Task Force will confirm U.S. position on satellite communications. At the time he appointed the Task Force, President Johnson said:

> A global system eliminates the need for duplication in the space segment of communications facilities, reduces the cost to individual nations, and provides the most efficient use of the electromagnetic frequency spectrum through which these communications must travel.[6]

Satellite communications are potentially efficient and beneficial. Older nations, which support heavy communications flow among themselves, stand to benefit from

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[5] Communications Satellite Corporation Annual Report 1967, COMSAT, Washington, D.C. (1968), p. 7.

[6] Message on Communications Policy to the Congress of the United States, p. 4.

a satellite communications system. But the President also made special note of the value of satellite communications for underdeveloped nations He said:

> A global system is particularly important for less developed nations which do not receive the benefits of speedy, direct international communications. Instead, the present system of communications--
>
> --encourages indirect routing through major nations to the developing countries
> --forces the developing nations to remain dependent on larger countries for their links to the rest of the world, and
> --makes international communications service to these developing nations more expensive and of lower quality.7

To clarify the United States' position in international communications, President Johnson enumerated our objectives. Although COMSAT is a profit-making corporation, one of his major concerns is the development of an international communications satellite system in the public interest. This system must not be extended only to the nations which support the heaviest traffic flow and contribute the most to economic gains. It should emphasize communications growth in the lesser developed nations where, perhaps, there is the greatest need. With this in mind, and with the knowledge that technologists are advancing rapidly, the Presidential Task Force has set out to better define the U.S. role in the system.

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7 Ibid.

Advancing Technology

The public, generally, is aware that space exploration is increasing at an amazing rate. What the public may not realize is that many of the predictions so often made in current publications are technically feasible today or will be within a few years' time. But there are organizational, economic and political problems. For example, TV Guide[8] recently predicted that by 1980 broadcasting directly into the home from any point on the globe would be a reality. This prospect may seem visionary to some but the fact is that direct transmission could be technically feasible within two years. The organization of this technology will take much more time. Who will control such a system? How will it be financed? These are some of the complexities involved.

Just to lend some perspective to the rapid development of international communications, a brief look at present systems is appropriate. It was not until 1956 that the first transoceanic voice cables were installed. Transatlantic conversations before that time were conducted via radio. This first telephone cable system, supporting thirty two-way circuits, was installed by the American Telephone and Telegraph Company (AT&T) at a cost of about

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[8] "What Television Will be Like 5, 10, 20 Years From Now," TV Guide (April 13-19, 1968), p. 12.

fifty million dollars.[9] Now, in 1968, four underwater cables have been installed, spanning the Pacific, and connecting North America with the Orient.[10]

During the mid-1950's another form of international communications was initiated. The Soviet Union was experimenting with launching a space communications vehicle. The first artificial satellite was sent up by the Soviets on October 5, 1957, establishing a milestone in the era of communications.[11] This achievement brought into focus three realizations: 1) launch vehicles are powerful enough to lift into orbit artificial satellites; 2) artificial satellites can function in space; and 3) the use of artificial satellites for communication purposes is feasible.

Most likely, the first real attempts to use artificial satellites for communications were made by the United States. On August 12, 1960, the National Aeronautics and Space Administration (NASA) launched Echo I, a passive satellite designed to reflect communication messages sent from one point on earth to another.[12] This was accomplished

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[9]"Are We Planning Effectively for the Use of Tomorrow's Communications Resources?," Speech delivered by Dr. Joseph V. Charyk, President, Communications Satellite Corporation, Washington, D.C. (February 5, 1968), p. 3.

[10]"New Communications Era," Communications Satellite Corporation, Washington, D.C. (1967), p. 3.

[11]From Semaphore to Satellite, International Telecommunication Union, Geneva (1965), p. 283.

[12]Ibid., p. 291.

four short years after the installation of the first AT&T transatlantic voice circuit cable. Great technological steps were being made.

On July 10, 1962, NASA launched the first active satellite geared for communications. Telstar I was capable of not only receiving communication messages, but also of re-transmitting these signals in an amplified form.[13] Several forms of communication were transmittable via Telstar: telegraphy, telephony, television and data collection were a part of this multipurpose system. The first live television transmissions shared by the United States, England and countries on the European Continent were dramatic.

These experimental forms of international space communications were to lead to the establishment of INTELSAT I and INTELSAT II satellite systems, connecting two-thirds of the world in instantaneous, multipurpose communications.[14] And twenty-five years ago we would not have dared to dream . . .

Creating the Communications Satellite Corporation

During this early period of satellite development, the Congress of the United States became concerned with

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[13] Ibid., p. 292.

[14] Dallas W. Smythe, "Public Benefit vs. Private Privilege," Nation, CLXLIII (October 21, 1961), p. 264.

establishing a satellite system. Interests also were being aroused in many sectors of American life. Common carriers, involved for many years with the establishment of efficient communications both in the U.S. and abroad, turned their attention toward satellite communications. These companies included: American Telephone and Telegraph Company (AT&T), Radio Corporation of America (RCA), International Telephone and Telegraph (ITT) and Western Union International (WUI).

American Telephone and Telegraph, which had done much advance research in communications exhibited special interest. As early as 1960, AT&T suggested it be given the exclusive rights to experiment with and establish a commercial satellite communications system serving the United States, Great Britain and Western Europe.[15] But this request was not realized because U.S. congressmen did not want to hastily grant one company a monopoly in space communications.[16]

The aircraft industry also felt it had a contribution to make. Lockheed Corporation proposed that a satellite corporation be formed by the communications and space equipment industries in which cooperative efforts would be made under one management.[17] This was not only a method of getting the aerospace industries involved in the coming

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[15] Ibid., p. 265. [16] Ibid.

[17] Smythe, p. 264.

space communications, but was, Lockheed directors thought, a way of securing an efficient program for immediate advancement.[18]

Hughes Aircraft Corporation had also done a considerable amount of research. Many of the early launching facilities came out of the Hughes laboratories, and the National Aeronautics and Space Administration had first contracted with Hughes to develop a synchronous orbit satellite.[19]

At the same time, there were individuals and groups concerned with the political implications of this new communications system. How would problems regarding program exchange be handled? Would a commercially oriented system be able to handle effectively international relationships? Would conflicting national interests be resolved?

An international communications sytem would involve exchanges with private as well as governmental agencies of other countries. Careful political maneuvering would be required. Senators Kefauver and Long were the two principal opponents of a privately owned corporation. They proposed establishing a governmentally owned and operated system. They gave two reasons for this: 1) A government agency could be guided by the Department of State, which

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[18] Ibid.

[19] "Hughes Urges Profit-Making Public Communications Satellite System," Aviation Week and Space Technology, LXXV (November 13, 1961), p. 26.

was accustomed to handling political relationships, 2) U.S. citizens had been paying taxes allocated to space research, and because of these payments, the citizens had a rightful interest in the satellite system. It should therefore be a government system representative of all people.[20]

By the time Telstar I was launched in July, 1962, congressmen had already spent a great deal of time in debate. The issues with which they were concerned had to do with the ownership and control of the system. Resolving these issues and writing legislation would be difficult. Yet decisions had to be made promptly if forthcoming technology was to be utilized effectively.

The bill to establish a privately owned and operated communications satellite system entered the House in May, 1962. This bill did not meet as much opposition as did a similar bill introduced in the Senate. There, heated debates ensued between those favoring a private system and those backing a government system. In May, a bill to establish the private company was approved in the House; and in August after two-hundred proposed amendments, a similar bill was finally approved by the Senate.[21]

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[20]"U.S. Skeptical of Satellite Ownership Plan," Aviation Week and Space Technology, LXXV (November 13, 1961), p. 26.

[21]Orrin E. Dunlap, Jr., Communications in Space, New York, 1964, p. 131.

On August 31, 1962, President Kennedy signed the Communications Satellite Act. This law prescribes the structure of the Corporation, sets forth its duties, responsibilities and its relationships with foreign communication entities. This Act states:

> Section 102) The Congress hereby declares that it is the policy of the United States to establish, in conjunction and in cooperation with other countries, as expeditiously as practicable, a commercial communications satellite system, as part of an improved global communications network, which will be responsive to public needs and national objectives, which will serve the communications needs of the United States and other countries, and which will contribute to world peace and understanding.[22]

The Act further provides that the President of the USA shall:

> (Section 201) . . . aid in the planning and development and foster the execution of a national program for the establishment and operation, as expeditiously as possible, of a commercial communications satellite system.[23]

The National Aeronautics and Space Administration is concerned with technical research and development. Besides contributing to research design, it provides launching facilities for the Communications Satellite Corporation (COMSAT), the costs of which are to be paid by COMSAT on a reimbursable basis.[24]

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[22] "The Communications Satellite Act of 1962," p. 1.

[23] Ibid., p. 3.

[24] Ibid.

The Federal Communications Commission has the responsibility of regulating COMSAT as provided in amendments to the Communications Act of 1934.[25] The FCC also enforces the procurement regulations designated in the Communications Satellite Act.[26]

The Corporation itself was set up under the rules of private corporations in the District of Columbia.[27] As a private corporation, COMSAT is authorized to "plan, initiate, construct, own, manage and operate itself or in conjunction with foreign governments or business entities a commercial communications satellite system."[28] Through the 1962 Communications Satellite Act, COMSAT has been given the responsibilities of shaping the direction of the United States' participation in an international communications satellite system.

The Developing Philosophy

The Communications Satellite Corporation has a protean character. Its multiple positions are: 1) the privately operated corporation responsible to its stockholders; 2) the U.S. representative in INTELSAT; and 3) the manager of INTELSAT, an International Consortium of sixty-two nations engaged in communication exchange via satellite.

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[25] Ibid., p. 4 [26] Ibid.

[27] Ibid., p. 5 [28] Ibid., p. 7.

James McCormack, chairman of COMSAT, has expressed satisfaction with the structure of the agency and its pattern of operation, and speculates on greater achievements:

> The commercial utilization of space for communication purposes--a dream for the future when Congress passed the Satellite Act--is today a reality. In this sixth year of the Act, there can be no question as to the bright hopes for the future of global satellite communications. To the extent that this new ability to communicate can indeed help to bring peace and understanding to this troubled world, we shall all have reason for gratification.[29]

> We want to bring into being as the formative period of the global system is rounded out, a set of satellites which will give the world a quality of communications, a reliability of service, a flexibility and versatility of service, such as has not before been known except in limited, highly developed areas.[30]

> That is, our objective is to such a good job that everyone will want to keep us in it--at least for a few more years while we complete the initial task of a first class global system.[31]

It can be said that there are four distinct communications capabilities inherent in satellites which have changed world communications:

1) Satellites potentially have a very high capacity for circuits at a low cost.
2) Satellites potentially have high quality transmission.
3) Satellites have versatility, that is, they can serve a multimedia function.
4) Satellites have flexibility; they are capable of multi-point networking.[32]

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[29]"Statement of Chairman James McCormack on the Occasion of the Fifth Anniversary Commemoration of COMSAT," Communications Satellite Corporation, Washington, D.C. (1968), p. 2.

[30]Ibid., p. 7. [31]Ibid.

[32]"Are We Planning Effectively for the Use of Tomorrow's Communication Resources," pp. 2-3.

These factors make it possible to look at international communications in a new light. No longer is there total dependency on traffic through major communications centers of the world, often resulting in delays in transmission. Instantaneous and continuous service should be available to all nations, large and small. Within the framework of a satellite system, this goal is possible. Here is an opportunity to free nations of the world from archaic international communications structure.

But much of satellite development has been and still is dependent on the American Communications Satellite Corporation. This corporation has provided a useful mechanism and effective leadership for progressive development. Now five years since its inception, the corporation has advanced far enough to make evaluation possible.

In forming this corporation, the Congress of the United States knew that an entity to guide technological advancements was needed. It knew that whatever entity was formed would establish a basis for world-wide satellite communications. It knew that both private and public interests were involved. With these factors in mind, Congress created COMSAT. This paper deals first with the need for an organization to guide technological advancement. Secondly, it considers the factors which influenced the decisions to make the Communications Satellite Corporation the unique

structure it is, a private corporation with public responsibilities. And thirdly, it touches on the important problems which must be met to make the corporation and its work most effective.

CHAPTER II

CONQUERING LONG DISTANCE COMMUNICATIONS

Conquering long distances has been among the most fascinating phases in man's attempt to communicate with others. One of the first men to conquer distance was Frenchman Claude Chappe, who completed his 230 kilometer semaphore system between Paris and Lille in 1793.[1] The French Revolution was taking place then, and the efficient communications system aided King Louis XVI in locating and controlling revolutionary forces. Chappe's semaphore communications, as well as systems to follow, had an impact on the immediate environment.

The semaphore had not been installed throughout Europe before experimentation began on a faster means of communication. One of the first men to exhibit his invention was S. T. Von Soemmerring, who demonstrated his crude telegraph for a group of scientists and friends at the Munich Academy of Science in 1809.[2]

Baron Schilling, a Russian diplomat assigned to Munich, was one of the fortunate men who observed Von

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[1] From Semaphore to Satellite (Geneva, 1965), pp. 11-12.

[2] Ibid., pp. 22-23.

Soemmerring's telegraph.[3] Schilling experimented with a similar model, and it was then that a third man became very interested.

William E. Cooke stopped in Munich on his return to England from military duty in India. There he saw Schilling's telegraph and took his observations back to London with him.[4] Once in London, Cooke set out to convince investors to finance experimentation. While he obtained support from some people, his earnest attempt to install a telegraph system along the Liverpool-Manchester Railway line was vetoed by the owners. They felt the telegraph was a frivolous toy.[5]

Cooke's efforts were boosted by the aid of a noted British scientist, Charles Wheatstone. Together they secured a contract to install telegraph lines with the Great Western Railway. The telegraph proved to be so helpful in establishing an efficient train schedule that within the next twenty years, telegraph lines had been erected by almost every major railway company in England.

The social impact of the rapid telegraph system was demonstrated in the capture of a murderer on January 1, 1845. The telegraph operator in the London Paddington Station received a message from Slough.

> It informed him that a murder had been committed, and that the suspect had boarded the

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[3] Ibid. [4] Ibid., p. 25. [5] Ibid.

> 7:42 train to Paddington, sitting in the last compartment of the second first class carriage. Policemen waited for him at the Paddington Station and when John Tawell, the murderer, was later hanged, the telegraph had indeed become the talk of the town.[6]

The public was aware that they had entered a new communications world.

Coincidently, it was that same day, January 1, 1845, that Samuel Morse made history in the United States. He opened a telegraph line between Baltimore and Washington, D.C. His first message, "What hath God wraught?" began a new communications era in the United States.[7] By this time, many advanced countries were ready to participate effectively in the long distance communications breakthrough.

On the European continent five years later, Julius Reuter completed his telegraph line connecting Berlin with Brussels and Paris. This line became an important means of quick communication of political, financial, and economic news of Western Europe.[8]

Following the establishment of the Reuter's New Continental Service came the challenge to connect the European continent and the British Isles with the new world. The combined knowledge of American and British scientists produced a durable underwater cable to protect the telegraph lines. After a few unsuccessful attempts

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[6] Ibid., p. 27 [7] Ibid., p. 28. [8] Ibid., p. 29.

to lay the cable, completion finally came in 1858. The success of the first transatlantic telegraph cable was due in large part to the persistent efforts of American Cyrus W. Field, who was able to connect Valentia, Ireland with Trinity Bay, Newfoundland. The first message was sent on July 28, 1858. It simply announced the completion of the cable.[9]

Broadcasting Comes of Age

It was some time before the marvel of telegraph systems was to be surpassed. Although experiments were being carried out in many countries, the man generally credited with the invention and development of the wireless is Guglielmo Marconi. His early experiments were conducted at his family's estate near Bologna, Italy. But because Marconi did not receive much encouragement in his own country, he moved to London, where he established the Wireless Telegraph and Signal Company Ltd. in 1897.[10]

Marconi's experimental wireless was successful. Land to ship transmissions were made before 1900, and in 1901 the first transatlantic wireless message was sent. George Kempt and George Paget sent the message--a simple letter "S"--from Cornwall, England to Newfoundland, where Marconi received it.[11] This success meant that the laying

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[9] Ibid., p. 30.

[10] Ibid., p. 129.

[11] Orrin E. Dunlap, Jr., Communications in Space (New York, 1964), p. 12.

of underwater cables could be overcome by the transmission of a single wireless message. The world was growing smaller.

About the same time Marconi was working on developing the wireless, Reginald Fessenden, a Canadian, was dreaming of transmitting voice via the air waves. Fessenden maintained that voice transmission should be a continuous wave, not the interrupted burst Marconi was using. On Christmas Eve 1906, Fessenden transmitted the human voice to ships at sea.[12] With this accomplishment, radio was on the way to becoming the best and most efficient medium for long distance communication yet devised.

Television is often thought of as the video eye of radio. But quite surprisingly, experiments to transmit a picture were recorded more than a decade before Marconi experimented with wireless at his country villa. The German scientist, Paul Nipkow, invented a mechanical scanning disc capable of transmitting a crude picture in 1884.[13]

A few years later, in 1895, Sir William Crookes of England invented the cathode-ray tube, which was through scientific gadgetry at the time.[14] But Karl F. Braun

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[12]Erik Barnouw, A Tower in Babel (New York, 1966), p. 19.

[13]Dunlap, p. 71.

[14]Ibid., p. 75.

discovered ten years later that the cathode-ray tube was capable of emitting light rays. He subsequently invested a series of components necessary for the electronic transmission of pictures--the electronic gun, the deflecting plates and the flourescent screen.[15]

Braun's apparatus was capable of transmitting still pictures, but moving pictures were yet to be perfected. This was left to the ingenious Vladimir K. Zworykin, a Russian scientist who had moved to the United States. Zworykin continued experiments until he produced an electronic scanning eye, which could receive signals from a moving electronic gun. His invention was called the iconoscope and it was demonstrated in 1923.[16] Television, as we know it, was then available in a rather crude form.

Although much experimentation was conducted during the following decade, television design was for the most part halted during the Second World War. Science was concentrated in other areas. But following the war, television was developed and the medium became popular in many parts of North America and Europe.

Man struggled to conquer long distances with radio and television as he did with other forms of communications. Greater triumphs came in 1962 with the launching of the

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[15] Ibid. [16] Ibid.

Telstar Satellite. The satellite provided the link needed for efficient intercontinental television service as well as another link for radio, telephone, telegraph and data transmission.[17] The satellite, like communication milestones before it, became a symbol of a new age. Again, the world stood on the threshold of an exciting new communications era.

The Evolution of Satellites

Man's dreams of the distant and mysterious, coupled with scientific research, have often lead him down unexplored but profitable pathways. Such was the birth of communications satellites.

Karl Frederick Gauss dreamed of communicating in space as far back as 1850.[18] He thought the language of space communications would be a mathematical one. Gauss labored over elaborate communication systems, but was unable to produce even a crude model.

The first real indication that sizable rockets could be lifted off the ground came in 1944. The Germans had attacked London in September, 1944, with liquid fuel V-2 rockets.[19] These weapons were to pave the way for

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[17] Ibid., p. 292.

[18] From Semaphore to Satellite, p. 291.

[19] Ibid., p. 283.

more powerful and efficient launch vehicles, which would ultimately transport satellites into space.

The following year, British scientist Arthur Clarke published an article in the Wireless World Journal predicting revolutionary trends in space communications. Clarke had big dreams and his predictions indicated this:

> It would be possible to construct a space station . . . The station would be provided with living quarters, laboratories and everything needed for comfort of its crew who would be relieved and provisioned by a regular rocket service . . . It could be provided with receiving and transmitting equipment, and could act as a repeater to relay transmissions between any two points on the hemisphere beneath . . . [20]

Clarke's predictions of space stations is yet to be realized, but his design of communication transmission was soon to be fulfilled.

Certain essential technological capabilities were needed before space communications could be initiated. The first of these was a large and powerful launch vehicle. This rocket must "be accelerated to a minimum speed to overcome permanently the effects of gravity. That speed is known as the velocity of escape and is a little more than 7 miles per second or 25,000 miles per hour."[21]

Once this capability was realized with the successful launch of German rockets, satellites were loaded

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[20]Arthur C. Clarke, Voices From the Sky (New York, 1965), p. 121.

[21]Dunlap, p. 128.

abroad and sent into space. The first satellite was orbited by the Soviets in 1957, and with it the door to communication satellites was opened.[22]

It became apparent that gathering information from satellites fell into two distinct categories. The first of these is tracking information, which provides necessary data on the location of the satellite.[23] The second category is telemetry, which provides information on the condition and operation of the satellite, and the communications speaker.[24] On the basis of these two types of information, the ground tracking and data-handling system computes bearing data and determines proper commands to be transmitted to the satellite.

Also many different commands are needed to operate communication satellites properly. These commands take the form of radio signals, and they order mechanisms to perform duties such as starting and stopping data transmission, firing a rocket and operating cameras.[25]

A fourth essential function is control. Control is the ability to direct the spacecraft and the network of ground stations in cooperative efforts. Control is divided into two types. The first is control of the

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[22] From Semaphore to Satellite, p. 291.

[23] G. E. Mueller and E. R. Spangler, Communication Satellites (New York, 1964), p. 180.

[24] Ibid.

[25] From Semaphore to Satellite, p. 284.

orbital velocity and the altitude of the satellite in orbit.[26] The second is control of earth station equipment to properly track, transmit and receive communication signals.[27]

With the perfection of these four interrelated functions--tracking, telemetry, command and control--productive ventures into communication satellites were possible. The United States government and private industries collaborated on satellite design and development.

Satellite Design

The United States' pioneering efforts to launch satellites paid off late in 1958 when the Score satellite was put into orbit. This satellite was equipped with a radio and tape recorder which repeated messages upon command. The United States Signal Corps launched Score on December 18, 1958, and the satellite remained operational for twelve days.[28]

Our first passive satellite specifically designed for communications was Echo I, which was launched by NASA on August 12, 1960. Echo I was a 100-foot aluminized plastic balloon which reflected the first two-way satellite relay telephone conversations across the United States.[29]

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[26] G. E. Meuller and E. R. Spangler, p. 95.

[27] Ibid.

[28] Dunlap, p. 137.

[29] Ibid.

On January 25, 1961, NASA launched Echo II, which was also designed for communications. Experimentation with Echo II was performed jointly by American and British scientists, who found operations in good order.[30]

By the summer of 1961, several private industries had announced their experimental satellite programs. All these programs dealt with perfecting active satellites, capable of receiving signals, translating them into the appropriate frequency or form, and then retransmitting them greatly amplified. Passive satellites merely reflect signals which strike their surface. Because of the difference in amplification, active satellites require less complicated ground equipment for sending and receiving signals. In order to promote the least complex ground network, United States companies strove to perfect better satellites.[31]

Among the active satellite designs were those of AT&T and General Electric. Both companies planned a low altitude, random orbit network of thirty to sixty-five satellites providing global coverage.[32] The advantage of the low altitude satellite was that rockets capable of orbiting a satellite at an altitude of 3,000 to 6,000 miles were already available. However, as many as fifty or sixty satellites would be needed to give complete global coverage.

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[30] From Semaphore to Satellite, pp. 271-272.

[31] Dallas W. Smythe, "The Space Giveaway," The Nation, CXCIII.

[32] Ibid.

Also, very complex tracking equipment was needed to follow the satellite in its orbit around the earth.

A completely different satellite system was proposed by Hughes Aircraft. It was a high altitude, synchronous orbit system. The advantage of the high altitude satellite is that the orbit is synchronous with the earth's rotation, and the satellite appears stationary. This stationary target requires less complicated ground equipment for tracking and is less expensive. Also, only three or four satellites are needed for global coverage. Unfortunately, this system had an apparent disadvantage--rockets were not yet powerful enough to place the satellite 23,300 miles above the earth, the orbital path needed for a synchronous system.[33]

By summer, 1962, some private companies were ready to launch their satellites. The first one was Telstar I, the low altitude satellite built by AT&T and launched by NASA on July 10. Telstar I transmitted telephone conversations, television pictures and telephoto data within a few hours after the launch.[35] Earth stations at Andover, Maine, Pleumur-Bodou, France, and Goonhilly, England participated in these Telstar transmissions.

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[33] Ibid. [34] Ibid.

[35] Philip J. Klass, "Telstar Performs Perfectly in Early Test," Aviation Week and Space Technology, LXXVII (July 16, 1960), p. 26.

Results of the Telstar experiments were so favorable that Leonard Jaffe, a NASA director, declared that NASA would favor a Telstar type satellite system. Jaffe made this statement in September of 1962, at which time he predicted the synchronous orbit satellite would not be functional until 1967.[36] Hughes Aircraft, which was developing the synchronous orbit system, bitterly denounced Jaffe's statement and guaranteed successful orbit of their Syncom satellite by 1964.[37]

In December, 1962, RCA and NASA announced the launch of the Relay satellite, the first active communications satellite. On December 13, Relay was put into random orbit, but because of technical problems, the satellite was not operational until January 3.[38] Tests demonstrated that Relay could perform retransmission functions, and for the first time, scientists were sure the active satellite was a usable communications tool. Relay's first communications took place between the United States and Brazil, but later experiments also included Western Europe and Japan.

During this same period, late in 1962, the military's Advent satellite program was under attack from the House

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[36]"NASA Sees Telstar-Type Satellite as Best for World-Wide System," Aviation Week and Space Technology, LXXVII (September 24, 1962), p. 40.

[37]Ibid.

[38]Dunlap, p. 151.

Space Sciences Subcommittee. The Advent project was referred to "as breeding a lack of cooperation between the Army and the Airforce, and was said to have little to show for the $120 million invested in the project."[39] Controversy over project Advent deterred progress and was discouraging to researchers working on the synchronous orbit satellite.

However, competition was not to subside. Hughes Aircraft provided the breakthrough in developing the high altitude satellite. On February 14, 1963, almost a year ahead of schedule, Hughes' Syncom I was launched. Many scientists at Bell Laboratories and at NASA had doubted the Hughes satellite could be placed in orbit, but Syncom I proved this was possible.[40] Ironically, it was the communications device onboard which failed to operate, making the Hughes effort rather disappointing.

Syncom II was to follow in July, 1963. Ground stations were erected in Lakehurst, New Jersey and Lagos, Nigeria for these experiments.[41] Perfect transmission of telephone, teletype and facsimile processes took place. In an historic telephone conversation with Prime Minister Balewa of Nigeria, President John F. Kennedy praised syncom as a technical Tour De Force.[42]

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[39] "Subcommittee Urges Strong Single Manager for New Advent Program," Aviation Week and Space Technology, LXXVII (November 19, 1962), p. 117.

[40] From Semaphore to Satellite, p. 293.

[41] Dunlap, p. 153.

[42] Ibid.

Rising Controversy

Technological developments did not advance without disagreements among the competing companies. The scramble to develop the first satellite system was motivated by many factors--by the desire to have a system accepted by the government, by the drive to become established in space communications and, perhaps most of all, by the profit-making motive.

The estimated profit margins ranged widely. In 1961, Dr. Berkner, a space scientist reporting to the FCC, estimated a communications satellite system would be a $100 billion business by 1980.[43] He also estimated that communication rates would be reduced by 20 per cent.[44] Contrarily, Leland Johnson of the Rand Corporation, suggested the system would not even be profitable until 1970.[45]

But no matter what the estimate, the main factor remained--that companies were proposing satellite systems and pursuing research projects in hopes of securing a part of that "pie in the sky." General Electric, even formed the Communication Satellites, Inc., to handle its research and future contracts.[46]

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[43] Asher Brynes, "Big Business in Space," New Republic, CXLVI (April 23, 1962), p. 9.

[44] Ibid.

[45] U.S., Congress, Senate, Committee, on Judiciary, Anti-Trust Problems of Space Satellite Communication System, Hearing before Sub-Committee on Anti-Trust and Monoply of the Committee of Judiciary, Senate, 87 Cong., 2nd Sess., 1962, 75.

[46] Ibid., p. 85.

Another interested company, AT&T, proposed a $170 million investment in its research program. This particular program was planned under the assumption that AT&T would be given government support.[47] As previously mentioned, RCA was also investing in a satellite project which was to become their Relay system.

Two major aerospace industries were investing heavily in space research. By 1961, Lockheed had already put $500,000 into designing satellite components.[48] And Hughes Aircraft undoubtedly invested heavily in research, for Hughes contributed much scientific knowledge towards developing high altitude satellites.

While these several industries engaged in competitive systems and conflicting dialogue, the FCC was studying the problem. In 1961, an FCC report seemed to favor keeping the investments in satellite communications within the international communications field. One report said "The result of encumbering the system with complicated and costly corporate relations is the disrupting of operational patterns that have been established in the international common carrier industry, and the impeding of effective regulation of the rates and service of the industry."[49]

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[47] Ibid., p. 84.

[48] Ibid., p. 85.

[49] "General Electric, with prospect dimed by the FCC, Drops bid for Communication Satellite," Science, CXXXIV (October 6, 1961), p. 993.

So the emphasis seemed to be on the five international common carriers--the American Telephone and Telegraph Company, International Telephone and Telegraph, Radio Corporation of America, Western Union International and Hawaiian Telephone Company.

In addition to FCC opinions, there were other factors pressing the Government into forming some communications satellite policy. In July, 1961, the United Research Corporation reported to the Government on the management of a satellite system. The corporation recommended that private ownership be deferred while an interim public ownership company be established to get the satellite network under way.[50] This report also said that private investment should be included at a later date if the government felt a private communications company could be operated in the public interest.

Later that year, the United States Information Agency (USIA) also pressured the United States Government, urging decisions concerning future satellite management. USIA directors urged a system be established as quickly as possible by whatever method or organization.[51]

These pressures forced the government to produce a communications satellite policy. The private industries

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[50]"Prospect of Federal Ownership Arises for Communication Satellite," Aviation Week Aid Space Technology, XXV (July 3, 1961), p. 31.

[51]Ibid., p. 34.

were chanting about their respective plans, the FCC was issuing opinions and research corporations were making recommendations.

Prompted by all this, President Kennedy asked Congress to investigate the various problems and proposals and to embody into law a national policy for the control and development of satellite communications.

CHAPTER III

TECHNICAL, POLITICAL, ECONOMIC AND LEGAL DELEMMAS

Presidential Policy

President Kennedy became aware of the need for an organization to guide space communication development as technology was advancing. In order to establish guidelines for the structure of the system, an official policy was formed. On July 24, 1961, he held a press conference to call attention to this policy:

> On May 25, 1961, I asked Congress for additional funds to accelerate the use of space satellites for world wide communications. Also, on June 15, I asked the Vice President to have the Space Council make the necessary studies and policy recommendations for the optimum development and operation of such a system. This has been done. The primary guideline for the preparation of such recommendations was that public interest objectives be given the highest priority.
>
> I again invite all nations to participate in a communications satellite system, in the interest of world peace and closer brotherhood among peoples throughout the world.[1]

The President also listed specific policy requirements. This policy was formed after research and recommendations by several government agencies and was as follows:

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[1]John F. Kennedy, Department of State Bulletin, XLV (July-December, 1961), p. 273.

A. Policy of Ownership and Operation of the U.S. portion of the system is favored, providing that such ownership and operation meet the following policy requirements:

1. New and expanded international communication services be made available at the earliest practicable date;

2. Make the system global in coverage so as to provide efficient communication service throughout the whole world as soon as technically feasible, including service where individual portions of the coverage are not profitable;

3. Provide opportunities for foreign participation through ownership or otherwise in the commercial satellite system;

4. Nondiscriminatory use of and equitable access to the system by present and future authorized common carriers;

5. Effective competition, such as competitive bidding, in the acquisition of equipment used in the system;

6. Structure of ownership or control which will assure maximum possible competition;

7. Full compliance with antitrust legislation and with the regulatory controls of the Government;

8. Development of an economical system, the benefits of which will be reflected in overseas communication rates.[2]

The Government responsibilities were also delineated and equally demanding:

B. Policy of Government Responsibility

In addition to its regulatory responsibilities, the U.S. Government will:

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[2] Ibid.

1. Conduct and encourage research and development to advance the State of the Art and to give scientific and technological progress;

2. Conduct or maintain supervision of international agreements and negotiations;

3. Control all launching of U.S. spacecraft;

4. Make use of the commercial system for general governmental purposes and establish a separate communications satellite system when requested to meet unique Government needs which cannot, in the national interest be met by the commercial system;

5. Assure the effective use of the radio frequency spectrum;

6. Assure the ability to discontinue the electronic functioning of satellites when required in the interest of communication efficiency and effectiveness;

7. Provide technical assistance to newly developed countries in order to help attain an effective global system as soon as practicable;

8. Examine with other countries the most constructive role for the United Nations, including the ITU, in international space communications.[3]

President Kennedy also urged cooperation of the government agencies:

> I have urged the full cooperation of all agencies of the government in the vigorous implementation of the policy stated herein. The National Aeronautics and Space Council will provide continuing policy, coordination and will also have responsibility for recommending to me any actions needed to achieve full and prompt compliance with the policy. With the guidelines provided here, I am anxious that

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[3] Ibid., p. 274.

> development of these new technologies bring the farthest corner of the globe within reach by voice and visual communication, fairly and equitably available for use, and proceed with all possible promptness.[4]

This presidential policy had great impact on the debates concerning initial ownership and operation of the satellite system during the next thirteen months. This policy was to be bitterly debated, strongly supported by some and adamantly opposed by others. During the long and tedious hearings on communication satellites, the President's statement was the real focus of attention and discussion.

A part of Kennedy's space communications had ties with the political past. While still in office in 1959, President Eisenhower issued a policy statement consistent with the Republican tradition of private ownership:

> The government should aggressively encourage private enterprise in the establishment and operation of satellite relays for revenue producing purposes.[5]

Although Democratic liberalism prevalent in Kennedy's administration was more favorable to Government participation, Kennedy chose to follow the private enterprise route for space communication control. Considering the times and the values that Americans generally attach

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[4] Ibid.

[5] H. Margolis, "Space Communications: the Future is not far away but the Major Policy Questions are Unresolved," Science, CXXXIII (June 19, 1961), p. 1813.

to private enterprise, the Kennedy Administration made a viable choice. To support private enterprise in space would be controversial, but to support government ownership contrary to general societal values would be much more extreme.

The Real Issue: Public Versus Private Ownership

Discussion was directed toward the question of ownership. Should the U.S. support a privately owned company and if so, should it be owned by the communications common carriers or by private individuals? Or should the communications satellite company be publically owned and operated by the Government?

Many agencies made recommendations to the President concerning these questions. The administration's National Aeronautics and Space Council (NASC) recommended that the corporation be conducted by private enterprise, operated in the public interest, and encouraged to develop rapidly.[6]

Further support for private enterprise came from the Department of Justice. Assistant Attorney General, Nicholas Katzenbach, emphasized this point in hearings before the Senate Subcommittee on Antitrust and Monopoly. He stated that the Justice Department was in full support of private enterprise according to the Presidential policy

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[6]H. Margolis, "Science and the News," Science, CXXXIV (July 21, 1961), p. 178.

of July 24, 1961. He also placed emphasis on public interest and the importance of competition.[7]

A somewhat different perspective was voiced by Assistant Secretary of Defense John H. Rubel, who discussed communication needs. He pointed out that the Defense Department was one of the major users of existing communication facilities and would also use a satellite system extensively. But for security reasons, the Department of Defense needed some communication facilities separate from commercial cable facilities and probably would need some separate satellite facilities too. He concluded: "I do not think that our primary concern is in the manner in which ownership is finally vested; I think a major concern, however, is in the manner in which the operation is conducted."[8]

Added to these opinions of government agencies were many opinions from private industry. From all these recommendations, three major management proposals emerged: 1) a private corporation owned by the communication common carriers; 2) a private corporation owned by stockholders

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[7]U.S., Congress, Senate, Committee on the Judiciary, Antitrust Problems of the Space Satellite Communications System, Hearings before the Subcommittee on Antitrust and Monopoly of the Committee on the Judiciary, Senate, 87 Cong., 2d Sess., A62, p. 26.

[8]U.S., Congress, Senate, Committee on Small Business, Space Satellite Communications, Hearings before the Subcommittee on Monopoly of the Select Committee on Small Business, Senate, 87 Cong., First Sess., 1962, p. 63.

from the general public; and 3) a public corporation owned by the government.

One of the most impressive studies in support of common carrier ownership was submitted to the FCC by the Lockheed Corporation on April 3, 1961. This proposal was titled "Telesat," and it outlined recommendations for technology, ownership, operation, financing and foreign participation.[9] In its original form, the plan called for a wide-base ownership, but it was later changed to support common carrier ownership.

The Lockheed report was followed by an FCC-appointed consortium composed of ten common carriers. On October 13, 1961, the consortium reported favoring common carrier ownership. The American Telephone and Telegraph Company was to contribute $50 million for initial operations, with other companies contributing lesser amounts. The board was to be made up of two representatives from each company investing over $500,000, three members appointed by the government and one member representing all other companies investing less than $500,000.[10]

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[9] U. S., Congress, House, Committee on Science and Astronautics, Communication Satellites, Hearings before the Committee on Science and Astronautics, House of Representatives, 87 Cong., First Sess., 1961, p. 411.

[10] H. Margolis, "The Consortium Proposal: Private Industry Offers a Plan for Developing Satellite Communications," Science, CXXXIV (October 20, 1961), p. 1226.

Of the ten common carriers, only Western Union submitted a dissenting opinion favoring wider ownership.[11] Protests against the consortium proposal came from other private industries. General Electric opposed the Consortium's plan with its proposal for Communications Satellites, Inc., which was to be open to all interested companies.[12] The General Electric plan was supported by the Justice Department, which encouraged maximum participation in the space field.

The Hughes Aircraft Corporation also favored a corporation open to all interested companies. It, like other aerospace companies, did not want to be excluded from a potentially profitable market.[13]

Another proposal favored government ownership. Senators Estes Kefauver (D. Tenn.) and William Fitts Ryan (D. NY.) were major contenders for this proposal. They made two main arguments--one concerning vested public interest; the other, competition.

Kefauver and Ryan quoted Dr. E. Welsh of the Administration's Space Council as saying that 90 per cent of

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[11] Ibid.

[12] "G.E. Moves Fast for Place in Space," Business Week (May 6, 1961), p. 29.

[13] "Hughes Urges Profit Making Public Communications Satellite System," Aviation Week and Space Technology, LXXV (November 27, 1961), p. 75.

our space communications capability had been financed with taxpayers' money.[14] Because of this vested interest, the senators believed the public had a right to ownership, and that this right should be exercised through a government agency.

Secondly, they argued that in forming one private company to own and operate satellite communications the government would be granting a monopoly.[15] A monopoly by definition, would preclude competition.

Dallas Smythe, professor at the University of Illinois, added a third argument. The military was probably the biggest user of international communication facilities. As its major user, he argued, the government should have some right to ownership. These three positions, common carrier ownership, wide-base ownership, and government ownership, were the major issues being debated during the July, 1961, to August, 1962, period.

Technical Involvement

Technical terminology pervaded much of the discussion in the formation of a communications satellite corporation.

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[14]Estes Kefauver and William Pitts Ryan, "Big Business in Space: A Case for Government Ownership," New Republic, CXLVI (June 11, 1962), p. 18.

[15]Ibid., p. 20.

[16]Dallas W. Smythe, "The Space Giveaway," Nation, CXCIII (October 14, 1961), p. 243.

But of all the factors involved, this one seemed to have the least bearing on the type of corporation formed. Regardless of the corporate structure or ownership, the goal of establishing the most efficient global network remained.

An important question was: Would satellites provide an efficient communications system? They were thought to have distinct advantages:

1) High capacity, low costs--satellites would be a lot cheaper if the demand for service would be great enough;

2) Versatility--satellites are capable of simultaneous transmission of information; telephone, telegraph, television, radio, data and facsimile; and

3) Flexibility--satellites are capable of relaying communication simultaneously to all points within the line of sight.[17]

Another concern was whether or not there would be any technological advantage in using satellites rather than cables, which already had established major communication pathways throughout the world. If satellites would not yield a better service, then they should not replace cables. But the three distinct characteristics--high capacity, versatility and flexibility--could make satellites very valuable, and probably, provide a good alternative service.

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[17]"Comsat and the Emerging Global System," Dateline, XI (1967), p. 51.

A third technological question related to low versus high altitude satellites. The merits and demerits of each have already been discussed in Chapter two. The low altitude, random orbit satellite was supported by AT&T and General Electric. The high altitude, synchronous orbit satellite was favored by Hughes, Lockheed and RCA. The National Aeronautics and Space Administration was simultaneously working on the projects with all these companies in a total effort to develop the best technical system.

To the extent that technology became involved in the communication satellite debates, time became a crucial factor. It was important that a workable system and corporate structure be established as quickly as possible. The investigations in the Senate and the House were directed toward this end.

Political Complications

The government was greatly concerned with the relationship between foreign relations and the communications satellite system. There were two basic questions: How can the system be made truly global, available to all nations, large and small? And, how can this be accomplished and still be consistent with traditional American foreign policy? If a private satellite system was to be established, how would foreign relations be conducted and international contracts made and be in accord with Department of State policies?

The United States sought advice from the United Nations. The U. N. had developed a space program, the fourth part of which dealt with space communications. This policy stated that with the aid of satelites, communications among the continents would be immeasurably easier.[18] The U. N. resolution also stated:

1. That satellite communication should be available to the nations of the world as soon as practicable on a global and non-discriminatory basis;

2. That the U. N. should be able to use the communication satellites in communicating with representatives around the world and for broadcasting programs of information and education; and

3. That technical assistance and economic aid to develop the internal communication systems of the lesser developed countries (LDC) should be given.[19]

The United States Government recognized the value of this plan, and President Kennedy made it a part of the national policy.

Other questions were raised regarding U. S. relations with the Soviet Union. Could East and West take part in a single system? In 1962, the United States and the Soviet Union reached an agreement to cooperate with the World Meteorological Organization (WMO) to establish a world-wide weather forecasting system.[20] Negotiations for data

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[18]U.S. Department of State Bulletin, XLVI (January-June, 1962), p. 589.

[19]Ibid., pp. 589-590.

[20]C. Brownlow, "Cooperative Satellite Programs to be Discussed by U.S.--U.S.S.R.," Aviation Week and Space Technology, LXXVI (June 25, 1962), p. 76.

collection centers were agreed upon.[21] However, there were problems. Some argued that if the U. S. created a privately owned satellite system, the Soviets would not participate because they would not be favorably disposed to a capitalistic corporation.

Turning to another crucial question, how could the State Department effectively guide private enterprise toward establishing desirable international relations? Mr. James E. Dingman, vice president of AT&T, related the State Department's function in the past:

> . . . the State Department has been very helpful in working with us in working out these agreements with these countries, and the communication agencies in these countries, whatever they may be. We would expect the State Department would still continue to be very helpful.[22]

As explained by Mr. Dingman, private industry accepted the State Department's guidance in negotiating international agreements. And, the State Department seemed to accept private enterprise as a workable organ if the criteria set forth by President Kennedy were met.[23]

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[21] Ibid.

[22] U. S., Congress, Senate, Committee on Small Business, Space Satellite Communications, Hearings before the Subcommittee on Monopoly of the Select Committee on Small Business, Senate, 87 Cong., First Sess., 1961, p. 260.

[23] U. S., Congress, House, Committee on Interstate and Foreign Commerce, Communication Satellites, Hearings before the Committee on Interstate and Foreign Commerce, House of Representatives, 87 Cong., First Sess., 1961, pp. 172-173.

Philip J. Farley, representing the Department of State, elaborated on the necessity for cooperation between private industry and the government in dealing effectively with foreign governments:

> Accordingly, international factors can be expected to have a direct bearing on the authorizing and regulatory functions of the FCC if the United States is to approach this field through a private venture and if such a private venture is to be fully responsive to needs of public policy. The longstanding effective working relationship between the FCC and the Department of State will provide a firm basis for the joint consultation and consistent action that may be increasingly necessary in the field.[24]

The director of the United States Information Agency (USIA) at that time, Edward R. Murrow, expressed approval of a privately owned satellite system. Murrow thought a private enterprise system was satisfactory for the dissemination abroad of news and information about the U.S. However, his major concern was getting services at low costs so that the USIA would be able to afford them.[25]

This point lead to another question. Would a privately owned satellite corporation supply low cost services to the U.N. and special U.S. Agencies such as the USIA? And would the corporation provide service to lesser

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[24] Ibid.

[25] U.S., Congress, Senate, Committee on Commerce, Communications Satellite Legislation, Hearings before the Committee on Commerce, Senate, 87 Cong., Second Sess., 1962, p. 280.

developed nations even if it meant a financial loss? These were some of the questions raised by those who opposed the privately owned system.

Senator Wayne Morse (D. Ore.) argued that a corporation established as a profit-making enterprise would not attempt to furnish these services at a loss, and that government regulation would not sufficiently guarantee these services.[26] If a privately operated system were established and profitable, it would be very difficult if not impossible to change its structure to accommodate foreign policy, he said.[27] Accordingly, Morse favored government operation.

Economic Implications

Debates over the economics of a satellite system were among the most controversial. The biggest question was whether the space system would be profitable, and if so, when. As mentioned in chapter two, estimates ranged from a $100 billion business by 1980 to the possibility of no profit until 1970.[28]

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[26] U.S., Congress, Senate, Committee of the Judiciary, Antitrust Problems of the Space Satellite Communications System, Hearings before the Subcommittee on Antitrust and Monopoly of the Committee of the Judiciary, Senate, 89 Cong., Second Sess., 1962, p. 75.

[27] Ibid.

[28] Asher Brynes, "Big Business in Space," New Republic CXLVI (April 23, 1962), p. 9.

Two major topics in economics were presented: 1) Can satellites provide a better means of communications than conventional cable systems and do it at lower costs? 2) How will the cost of satellite communications effect the rates charged by the common carriers?

Satellites can be more or less expensive than cables depending on the demand for service. Mr. Leland L. Johnson of the Rand Corporation attempted to clarify this:

> The primary importance for which communication satellites hold promise is to provide long distance, primarily transoceanic voice channels at a cost lower than that entailed in alternative communication techniques, such as employment of submarine cables. Two salient characteristics of nearly all proposed satellite systems are (1) they embody a voice-channel capacity large relative to those typically observed between major cities around the world, and (2) they entail a large initial cost. In order to make the cost per voice channel competitive with that of alternative transmission techniques, the demand for communication services must be relatively high to absorb the large capacity offered.[29]

There was evidence at that time to indicate the demand would be increasing. Overseas telephone traffic had steadily increased since 1946. If the growth rate remained constant, the annual number of overseas messages would reach ten to twelve million by 1970 and forty million by 1980.[30] Traffic growth increased even more during

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[29]U.S., Congress, Senate, Committee on Small Business, Space Satellite Communications, Hearings before the Subcommittee on Monopoly of the Select Committee on Small Business, Senate, 87 Cong., First Sess., 1961, pp. 87-88.

[30]William Meckling, "Economic Potential of Communication Satellites," Science, CXXXIII (June 6, 1961), p. 1890.

the 1955 to 1961 period and, based on those increases, there might be as many as twenty million messages per year by 1970 and one hundred million by 1980.[31] In any case, a substantial increase in demand was indicated. Either many additional cables or a satellite system would be needed to meet this demand. The debates centered around determining which would be the better investment.

A second topic concerned rates charged for service. Hopefully, the new high capacity satellite would be able to provide services at lower costs. Yet, satellites had not yet been proven capable of performing high capacity communication skills. Besides technological uncertainties, there remained many uncertainties about establishing a satellite network. Since no precedent existed, speculation was the only method of forecasting future expenditures and future receipts as well as forecasting the demand for service.[32]

With these risks involved, the international common carriers thought they would be best suited to take these risks because of their past experience. The common carrier consortium, which reported in October, 1961, suggested the satellite corporation be a non-profit one. Instead, they asked to be allowed to absorb the costs of establishing

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[31] Ibid.

[32] Ibid., p. 1885.

the satellite system in their rate base structure.[33] Representing the FCC, chairman Newton Minow explained the rate-making process:

> Under ordinary circumstances involving the introduction of new facilities, carriers are able to include in their general rate bases the relatively high costs of their existing plant and thus, in effect, average such costs for ratemaking purposes. Thereby, a return on the capital invested in the new facilities is not dependent solely upon the revenues produced by those facilities during their initial years of operation. This has the advantage of facilitating the introduction and application of new facilities in an orderly systematic manner with a minimum of impact on rates charged the public.[34]

Although the carriers seemed to agree to this structure, there were two positions opposing this plan. The first related to AT&T's ability to own so much of the common carrier system and thereby have so much influence over expenditures and receipts, and subsequently determine the rate base. Fear that AT&T would contract for equipment solely with its own subsidiary, Western Electric was expressed. Contracts made with only one company would eliminate competition among suppliers of space equipment and would be contrary to the Presidential policy based on competition. Not only would competition be eliminated, but AT&T could be paying Western Electric exorbitant prices for equipment and, in turn, using these expenditures

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[33]Katherine Johnson, "U. S. Skeptical of Satellite Ownership Plan," Aviation Week and Space Technology, LXXV (November 13, 1961), p. 26.

[34]U. S. Congress, House, Committee on Interstate and Foreign Commerce, Communication Satellites, Hearings before the Committee on Interstate and Foreign Commerce, House of Representatives, 87 Cong., First Sess., 1961, p. 403.

as a basis for determining rates. In this way, AT&T would be making profit on both transactions.

Senator Kefauver questioned FCC chairman Minow on this possibility. Since the FCC has regulatory power over rates it can investigate rate structure. It can also investigate costs for equipment but does not have legal power to change these costs, even though it can make suggestions for change. Chairman Minow told of recently conducted investigations into Western Electric prices. The FCC indicated prices ought to be lowered and as a result, prices had been reduced by almost $32 million.[35]

This reduction indicated that the FCC did have influence over the operations of the communications industries. Still, more evidence against FCC effectiveness was submitted. Until 1960, there had never been an investigation into international rates because there were not enough people on the FCC staff to perform the task.[36] This was of particular interest because satellite services would be international. Past records indicated that charges for services would be left pretty well to the controlling commercial company. For this reason, Senator Kefauver and others doubted the FCC's regulatory effectiveness.

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[35]U.S., Congress, Senate, Committee on the Judiciary, Antitrust Problems of the Space Satellite Communications System, Hearings before the Subcommittee on Antitrust and Monopoly of the Committee on the Judiciary, Senate, 87 Cong., 2d Sess., 1962, p. 283.

[36]Ibid.

The second position opposing the common carrier rate structure was that of conflicting interests. The international common carriers already controlled the conventional communications systems. If they also controlled the satellite system, they would be controlling two systems in competition with one another for the same communication services, namely telephone, telegraph, data and facsimile. Since the common carriers had stockholders for whom they had been making a profit, they would be obligated to continue producing profits by means of conventional systems. This meant the satellite network would not be used until the conventional systems were filled.

Mr. John Hartman representing ITT spoke about this conflict: "I think it is safe to say . . . that the communication carriers will use the most efficient, least expensive route available to them."[37] This statement implied that the communication systems would operate strictly on cost per service competition. Regardless, the fact remained that common carriers would own both the satellite system and its competitors.

Finally, profit estimations entered the discussion. If the space communication business was profitable, and if only one company operated the business, this company would receive a guaranteed profit. Arguments developed

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[37] Communications Satellite Legislation, testimony of John Hartman, pp. 212-215.

challenging the government's right to create this monopoly. From this challenge evolved the most controversial issue--antitrust and monopoly.

Controversy of Antitrust and Monopoly

During 1960, overseas telephone traffic increased 20 per cent.[38] Growth and demand in international communications were so great that putting money into satellite research, with the hopes of developing a less expensive system, appeared justified.

Accordingly, in April, 1960, the FCC began investigations into commercial satellite ownership. The purpose of the inquiry was to determine various methods by which all interested companies could participate.[39] A report was issued (FCC docket 1402), which held that ownership should be limited to the common carriers in the communications industry. Also announced was the FCC plan to form a consortium of international common carriers to advise on the corporate structure.[40] The consortium was to report to the FCC by October 13, 1961.

The American Telephone and Telegraph Company had an initial plan for the consortium before the first meeting

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[38]"Enterprise in Space," New Republic, CSLV (September 11, 1961), p. 6.

[39]"FCC Begins Exploratory Probe of Communication Satellite Issues," Aviation Week and Space Technology, LXXIV (April 10, 1961), p. 34.

[40]Dallas W. Smythe, "Public Benefit vs Private Privelege," Nation, CXCIII (October 21, 1961), p. 265.

took place. This plan included total ownership by the international common carriers, with the operation being fully subject to regulatory jurisdiction of the FCC.[41] This proposal was supported by RCA, providing all carriers would have access to all communication facilities, particularly to voice transmission over which AT&T had a monopoly at the time.[42]

It was apparent that AT&T would play a dominant role in the consortium's decision and would be the largest investor in the proposed company. At that time AT&T controlled about 80 per cent of international communications and was expected to contribute about that percentage of the initial capital for the establishment of the satellite corporation.[43]

As was discussed previously in this chapter, the consortium did recommend a non-profit communications satellite corporation, owned jointly by the common carriers. As was also pointed out, an initial contribution of $50 million was to be made by AT&T, with other carriers contributing lesser amounts. Each company giving more than $500,000 would be represented by two board members, and

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[41]Philip J. Klass, "Joint Satellite System Gaining Support," Aviation Week and Space Technology, LXXIV (May 8, 1961), p. 34.

[42]Ibid.

[43]"Satellite Competition Potential Disputed," Aviation Week and Space Technology, LXXV (August 14, 1961), p. 33.

the government would name three members. Companies contributing less than $500,000 would collectively have one member.

It was during investigations in 1962 that FCC chairman Minow presented his rationale for the Commissions support of the common carrier design. The touchstone for resolving the conflict over ownership was the factor of "public interest."[44] "Public interest" was considered to be the "universal extension of the benefits of space communication; that is, improved tele-communication service at the reasonable rates to the using public as rapidly as possible."[46]

Chairman Minow's rationale was based on the following:

1) Communication service in this country is furnished by privately owned companies subject to federal regulation.

2) Several companies are involved in international communications--the major ones being AT&T; Western Union; Hawaiian Telephone Company; RCA; IT&T; Press Wireless, Inc.; and General Telephone and Electronics.

3) Communication via satellite, though a new technology, is just another means of providing international communications. Under no circumstances should satellites replace other services, but rather a diversification in services should be maintained and integrated.

4) The cost of satellites and launch vehicles makes a joint effort by all common carriers the

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[44] U. S., Congress, House, Committee on Interstate and Foreign Commerce, Communications Satellites, Hearings before the Committee on Interstate and Foreign Commerce, House of Representatives, 87 Cong., First Sess., 1961, p. 402.

[45] Ibid. [46] Ibid., pp. 402-403.

only sensible approach to supplying this service to the public.

5) The common carriers have the experience and responsibility of previous international communication services and therefore best know the needs and demands. These carriers can best integrate satellite service if they operate the services themselves instead of going to another party to do so.

6) International communications requires agreements with other nations and entails various technical standardization. The common carriers can best do this through their previous experience.

7) The initial cost of satellite operation will be high, and this investment can best be financed through the rate base structure of the common carriers.[47]

Despite the past experiences of the common carriers in international communication service, the Justice Department spoke out against this plan and in favor of broadening the base for ownership. Mr. John James of the Justice Department requested the FCC seek alternative ownership plans.[48]

At that time, the Assistant Attorney General, Lee Loevinger, speaking for the Justice Department, enumerated antitrust factors:

A) To assure competition in the satellite communication system, if it is to be privately owned,

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[47]Philip J. Klass, "Commercial Satellite Ownership Limits will be Reconsidered," Aviation Week and Space Technology, LXXIV (June 12, 1961), p. 34.

[48]"Justice Studies Carriers Plan for Non-Profit Satellite Operator," Aviation Week and Space Technology, LXXV (October 23, 1961), p. 28.

should be so organized that no single company is able to dominate the system through ownership or through patent control;

B) All communication common carriers should have equitable and nondiscriminatory access to the system;

C) All interested manufacturers should have an unrestricted opportunity to participate in the furnishing of equipment; and

D) Research and development conducted under Government contact or supported by public funds should be available to all companies interested in satellite communications.

The Justice Department opposed the AT&T and the consortium plans because it felt these criteria would not be effectively met. Rather, the Justice Department voiced approval of a broad-base ownership corporation because it felt such a plan took into consideration participation by all interested companies. Competition was thought to be better supported through this plan.[50]

The Department of Justice strictly upheld its opinions on competition, based upon President Kennedy's policy statement. By excluding aerospace and manufacturing companies from ownership, the Justice Department voiced concern for fair competition. The communications companies involved in ownership might subcontract work to their own subsidiaries, as indicated by previous records of AT&T.

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[49] U. S., Congress, Senate, Committee on Small Business, Space Satellite Communications, Hearings before the Subcommittee on Monopoly of the Select Committee on Small Business, Senate, 87 Cong., First Sess., 1961, p. 26.

[50] Ibid.

Representative James Roosevelt (D. Calif.) pointed this out: if AT&T, whose assets of $23 billion were greater than Standard Oil of New Jersey, General Motors and United States Steel combined, was given a dominant position in the satellite system, it could be expected to do as it had done in the past--namely purchase virtually every piece of equipment from its wholly owned supplier, Western Electric, and conduct its research in the Bell Laboratories.[51]

Senator Wayne Morse emphasized the danger of monopoly. Monopolies by definition represent the antithesis of free enterprise, for they are free from competition.[52] Morse maintained that only the government would ensure competitive use of government and private resources needed to speedily build the satellite network.[53]

United Research attempted to dispel fears of monopoly. It suggested the corporation be initially owned by the government, with the clear understanding that later a private enterprise system would be adopted. Hopefully, this plan would avoid corporate complications.

Confusion and uncertainty prevailed during the communication satellite debates. Whether the issues were

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[51]"General Electric, with Prospects Dimmed by FCC, Drops Bid for Communication Satellite," Science, CXXXIV (October 6, 1961), p. 993.

[52]"Satellite Competition Potential Disputed," p. 33.

[53]Antitrust Problems of the Space Satellite Communications System, Part 2, Testimony of Wayne Morse, p. 76.

technological, political, economic or legal, there was difficulty in achieving concensus, which further complicated the problem. This uncertainty pervaded the debates in Congress and in the legislation proceding the passage of the Communications Satellite Act.

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[54] Ibid.

CHAPTER IV

LEGISLATIVE HISTORY AND REGULATORY CHANGES

By December of 1961, many complications had arisen concerning the communications satellite system. Several companies had formed individual plans for developing a satellite network. There were different recommendations from special advisory committees and the Consortium for an initial corporate structure. Nearly every government agency related to space exploration had envisioned some organization which would be consistent with its own policy. Most of the tentative plans called for initial cooperation between government and private industry in establishing a network; however, different organizational and operational plans were suggested. Early in 1962, the many suggestions for managerial structure were reduced to three basic proposals.

Senator Kerr's Proposal: Common Carrier Ownership

The first proposal for a satellite system brought before the Senate supported communications common carrier ownership. On January 11, 1962, Senator Robert Kerr (D. Okla.) introduced Senate bill 2650 which embodied the

basic ideas set forth by the common carrier consortium in October of 1961.[1]

This bill proposed that the initial capital of $500 million be raised through the sale of 5,000 shares of stock costing $100,000 each. It was stipulated that only communication common carriers authorized by the Federal Communications Commission would be allowed to buy stock in the corporation.[2]

Since the stock was not to yield dividends, the common carriers would have been allowed to raise their rates to absorb the cost of the stock. This financial structure was similar to the original consortium suggestion that the common carriers invest in the satellite system without dividends and without profit, but with a provision that net costs to be included in rate justifications.[3]

The board of directors was to be composed of two members from each company purchasing a minimum of $500,000 of stock. Two additional members were to be named by the

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[1]U.S., Congress, Senate, Senator Kerr speaking on the amendment of the National Aeronautics and Space Act of 1958, S. 2650, 87 Cong., 2d Sess., Jan. 11, 1962, Congressional Record, CVIII, 84.

[2]U.S., Congress, Senate, Senator Kefauver speaking on S. 2650, S. 2890, 87 Cong., 2d Sess., Feb. 26, 1962, Congressional Record, CVIII, 2854.

[3]H. Margolis, "Communication Satellites: Private Ownership and Public Control, Neatly Packaged," Science, CXXXV (February 23, 1962), p. 653.

users of the system which had made less than the minimum $500,000 stock purchase.[4]

The Kerr proposal had the support of most international common carriers. Newton Minow, FCC chairman, also supported this plan for it was his opinion and the opinion of the Commission that this corporate structure would most quickly and efficiently establish the satellite system.[5]

The Administration's Bill

Disagreement with Kerr's proposal was voiced by many. The aerospace companies and the communication equipment industries wanted a wider ownership base. The Justice Department repeatedly urged that ownership be open to all interested companies as well as private citizens.[6] The most influential supporter of this private ownership plan was President John F. Kennedy. Shortly after the Kerr bill was introduced in the Senate, the Administration proposed Senate bill 2814.[7]

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[4]U.S., Congress, Senate, Senator Kefauver speaking on S. 2650, S. 2890, 87 Cong., 2d Sess., Feb. 26, 1962, Congressional Record, CVIII, 2854.

[5]"Satellite Ownership," New Republic, CXLVI (March 12, 1962), p. 653.

[6]U.S., Congress, Senate, Committee on the Judiciary, Antitrust Problems of the Space Satellite Communications System, Hearings before the Subcommittee on Antitrust and Monopoly, Senate on S. Res. 258, 87 Cong., 2d Sess., 1962, p. 27.

[7]U.S. Congress, Senate, Senator Kerr speaking on the Administration's Communication Satellite Bill, S. 2814, 87th Cong., 2d Sess., Feb. 7, 1962, Congressional Record, CVIII, 1847.

The primary difference between S. 2650 and S. 2814 was ownership. The principle new feature of the Administration's bill was the provision for two classes of stock:

> Class A. Stock--This would be open to the public to purchase at $1,000 per share. One million shares would initially be offered, but no individual would be allowed to purchase more than 15% of the authorized stock or more than 25% of the outstanding stock. Voting rights and dividends would be confined to class A stock.[8]
>
> Class B. Stock--This would be purchasable only by communication common carriers authorized by the FCC. These 10,000 shares at $25,000 each would not carry voting or dividend privileges, but rather, the investments would be included in the rate base.[9]

By proposing two equal stock classifications, the Administration hoped to foster maximum participation in the corporation, and it also hoped to limit the influence of any one company.[10] In addition, the administration set the price of class A stock at $1,000 in order to limit speculation by private citizens.[11]

A second major difference between Kerr's bill and the Administration's proposal was government control. The Administration stipulated tighter government control on service rates and procurement, as well as a more active State Department role in negotiations with foreign countries.[12]

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[8] Ibid. [9] Ibid.

[10] H. Margolis, "Communication Satellites: Private Ownership and Public Control, Neatly Packaged," Science, CXXV (Feb. 23, 1962), p. 653.

[11] Ibid.

[12] "Kennedy's Satellite Relay Plan," Business Week, (February 10, 1962), p. 36.

The Administration's bill; S. 2814, was introduced in the House as H.R. 11040. Other similar proposals for some form of private satellite corporation were embodied in H.R. 10115; H.R. 10138; H.R. 10747; H.R. 10772; H.R. 11063; H.R. 10808; and H.R. 10978, all of which came from the Committee on Interstate and Foreign Commerce.

The Minority Opposition

The greatest opposition to the private enterprise proposals came from a small block of senators who wanted to establish a government-controlled Communications Satellite Authority. Senators Kefauver, Morse, Yarborough and Gore introduced Senate bill S. 2890 for this purpose.[13]

Senator Kefauver cited the necessity of extensive government participation as a primary factor in his decision to support the Authority. Kefauver noted the government would have the following responsibilities:

1) to supervise all relationships with fireign bodies;
2) to insure foreign participation;
3) to coordinate research and development;
4) to launch satellites;
5) to insure nondiscriminatory and equitable use of the system; and
6) to regulate the ratemaking process.[14]

According to Kefauver, it would be in the public interest to have the government in control of the entire system to

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[13] U.S. Congress, Senate, Senator Kefauver speaking on the establishment of a Communications Satellite Authority, S. 2890, 87th Cong., 2d Sess., Feb. 26, 1962, Congressional Record, CVIII, 2854.

[14] Ibid.

guarantee that these responsibilities would be effectively met.

In the name of public interest, Kefauver introduced bill S. 2890:

1) to create the Communications Satellite Authority, an agency of the U.S. Government to own and control the U.S. portion of the international system;
2) to lease communication channels to those authorized by the FCC;
3) to participate with foreign governments and to provide technical assistance to those countries needing it;
4) to have a board of nine appointed by the President, four of the members being selected from government positions and five from private industry;
5) to propose policies and board programs in the public interest; and
6) to establish an authority with an initial capitalization of $500 million in bonds, with the principle and interest payable solely from net proceeds of the communication system.[15]

Avoiding a monopoly was the greatest concern of Kefauver and his colleagues. Since the government would be using the services extensively, use of the satellite system would be guaranteed. The assertion was that the government would not be fostering private enterprise through a private corporation, but rather a private monopoly.[16]

There were two additional bills introduced in the Senate which took a similar point of view. House bill

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[15] Ibid.

[16] U.S. Congress, Senate, Senator Gore speaking on the Commercial Communications Satellite System, 87 Cong., 2d Sess., June 18, 1962, Congressional Record, CVIII, 10748-9.

9907 was to amend the Aeronautics and Space Act of 1958 to provide for a Communication Satellite Authority under government control.[17] The second bill, H. R. 10629, made a like proposal.[18]

The Administration's Modified Proposal

As the three proposals were presented to Congress, it became apparent that concessions would have to be made for any single proposal to gain sufficient support. Attorney General, Robert Kennedy, spearheaded the attempt to curb the common carrier proposals by making several compromises:

1) reduction of the price of class A stock from $1,000 to $100 per share in order to make the stock more available to the common public;
2) concession of permitting the common carriers to build, own and operate their own ground stations; the common carriers wanted this concession because they insisted the ground stations should function as a separate unit in the global system, and be operated independently;[19]
3) reduction of the extensive authority of the U. S. President to direct and intercede in the private corporation; and
4) recasting of the role of the State Department to that of foreign policy advisor and policy

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[17]U. S. Congress, House, House Representative W. F. Ryan speaking on the Communications Satellite System, H. R. 9907, 87 Cong., 2d Sess., Jan. 25, 1962, Congressional Record, 998.

[18]U. S. Congress, House, House Representative Kowalski speaking on the Communications Satellite System, H. R. 10629, 87 Cong., 2d Sess., March 8, 1962, Congressional Record, CVIII, 3794.

[19]U. S. Congress, Senate, Committee on Aeronautical and Space Sciences, Senate Reports on Public Bills, Report for the Committee on Aeronautical and Space Sciences, Senate Report 1319, 87 Cong., 2d Sess., 1962, p. 5.

director instead of negotiator with foreign governments.[20]

These concessions were made in an attempt to unify support for a single private enterprise bill. After Robert Kennedy's revisions, the merging of these factions began. Senator Robert Kerr offered an analysis of this complex compromise: this is a compromise with which no one is entirely satisfied, but against which there would be no unified and vigorous opposition.[21] The Congressional debates subsequent to the compromise did not prove this true.

Legislation in the House and Senate

Modification of the Administration's bill was introduced in the House. Discussion arose over ownership of the ground stations, the State Department's participation and FCC regulation. The House Committees on Interstate and Foreign Commerce and Science and Astronautics had reviewed and approved the bill. It was then passed with minor changes on May 3, 1962 with the vote of 354 yeas, 9 nays and 74 abstentions.[22]

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[20]"Administration is Ready to Modify Its Stand on COMSAT," Aviation Week and Space Technology, LXXVI (March 26, 1962), p. 23.

[21]"Senate Space Committee Agrees on Compromise Comsat Measure," Aviation Week and Space Technology, LXXVI (April 2, 1962), p. 20.

[22]U. S. Congress, House, Vote on House Bill 11040, H. R. 11040, 87 Cong., 2d Sess., May 3, 1962, Congressional Record, CVIII, 7712.

Opposing this bill were the senators who supported the Communications Satellite Authority. Debate in the Senate ran the entire gamut of subjects from technology to foreign policy, and all debate was directed at denying private industry's ownership and operation of the satellite system.

Senator Russell Long (D. La.) attacked the Administration's bill as violating the anti-trust laws. He maintained a privately owned corporation created by the government would violate sections one and two of the Sherman Act and section seven of the Clayton Act, both of which are designed to abolish monopoly.[23]

Another argument against the Administration's bill opposed the regulation policy. The opposition claimed the FCC would not adequately regulate space communications because it could not adequately perform the regulatory aspects of domestic communication systems. This conclusion was based on a 1962 report by management consultants Booz, Allen and Hamilton, titled "An Organizational and Management Survey of the Federal Communications Commission." This report concluded that the Common Carrier Bureau of the FCC did not have adequate resources, facilities, staff, or budget to fulfill its statutory obligations. It was therefore concluded that it would not be possible for this

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[23]U. S. Congress, Senate, Senator Long speaking on Communication Satellite System, 87 Cong., 2d Sess., August 11, 1962, Congressional Record, CVIII, 16198-9.

bureau to adequately perform additional regulation in space communications.[24]

Senator Long also suggested the possibility of merger among the international telephone and telegraph companies to provide the most efficient service. The telegraph traffic was serviced by several companies, while only AT&T was licensed to handle voice traffic. Long argued that the technological capabilities of the satellite permitted integration of the communication systems. And distinctions complicating present telephone and telegraph service should be abolished and placed under government operation to better serve the public.[25]

Other arguments related to questions pertaining to ratemaking, the taxpayers vested interest in the space program and the State Department's responsibility. The issues were still being debated on the Senate floor in August, and no solution seemed evident. The legislative process added many political and procedural complications, clouding hopes of passing any bill. Opponents of the Administration's bill resorted to filibustering and a stalemate ensued.

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[24]U.S. Congress, Senate, Senator Long on Communications Satellite System, H.R. 11040 (S. 2814), 87 Cong., 2d Sess., August 17, 1962, Congressional Record, CVIII, 16830.

[25]U.S. Congress, Senate, Senator Long speaking on the Communications Satellite System, 87 Cong., 2d Sess., August 11, 1962, Congressional Record, CVIII, 16207.

Action had to be taken to side step the more than 200 amendments being proposed by the opposition. Many people involved in political life, including Secretary of State Dean Rusk and Secretary of Defense Robert McNamara, were called upon to testify on behalf of the Administration's bill.

Rusk assured the Senate that the proposed private corporation was in keeping with the policy of the Department of State. As he had told the Senate Committee on Foreign Relations, "the corporation . . . is in fact another evidence of the pragmatic ability of Americans to devise new institutions, new techniques and new organizational forms to meet the practical demands of new situations."[26] Rusk emphasized that the bill provided ample government protection to insure the public interest. And in this regard he urged the integration of governmental and industrial research.[27]

Tension mounted in the Senate. The cloture ruling had been requested several times, and each time it was denied. Cloture had not been voted in 35 years, but after persistent requests, the ruling was finally brought

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[26]Dean Rusk, "Foreign Policy Aspects of Space Communication," Department of State Bulletin XLVII (August 27, 1962), p. 316.

[27]Ibid.

to vote and passed on August 14.[28] This limited the debate on the Communications Satellite Bill to one hour per senator, and subsequently brought the bill to a vote.

On August 17, a vote was finally taken, and H.R. 11040 was passed. There were 55 yeas, 11 nays and 23 votes were not cast.[29] The House concurred with the Senate, and the Communications Satellite Act of 1962 (subsequently referred to as the Act) was signed into law by President Kennedy on August 31, 1962.[30] This law created a unique corporation--a governmentally created private corporation.

Implementing Change

The Communication Act of 1962 delineates responsibilities of the corporation, the agencies of government and of the President. Policy and purpose are defined, as well as the corporation's (COMSAT's) structure. However, many of the responsibilities and definitions were not made specific because there were many uncertainties at the time the Act was signed.

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[28]"Satellite Bill in Clear," Business Week (August 18, 1962), p. 29.

[29]U.S., Congress, Senate, Vote on H.R. bill 11040, 87 Cong., 2d Sess., August 17, 1962, Congressional Record, CVIII, 16926.

[30]U.S. Congress, H.R. 11040, An Act to Provide for the Establishment, Ownership, Operation, and Regulation of a Commercial Communications Satellite System, and for other Purposes, H.R. 11040, 87 Cong., 2d Sess., August 13, 1962.

Since August, 1962, action has been taken by the FCC in an attempt to make the corporation and its functions efficient and its contracts equitable. Clarification of stock ownership was the first of these decisions, and it was made effective December 31, 1962.

The authorization of common carriers was not made clear. The FCC decided that all common carriers were eligible to apply for authorization by the FCC, but they would not be able to own stock without authorization. Secondly, stock already purchased by an authorized carrier could be sold or traded to other authorized carriers without first notifying the FCC. However, authorized carriers could not, under any circumstances, sell, trade or negotiate stock with an unauthorized carrier without the commission's permission. This provision was entered as amendment 25.510.

Modification of this regulation became effective on August 10, 1964, upon the FCC's approval or fules in adoption of Docket No. 15495 regarding the transfer of stock. This provision stipulated that regulation pertaining to the purchase of stock be applicable until June 1, 1965. Also, an additional statement was added forbidding the Corporation to take part in any transaction not approved by the FCC. This was the first time a specific ruling was made regarding the Corporation's responsibilities in stock purchases and trade.

A second point needing clarification was the procurement regulation. The Act merely gave the FCC the responsibility of insuring that all services, equipment and supplies be contracted on a competitive basis. The procurement regulations were established to guarantee fair competition. Docket 15123 clarifies the reasoning behind these regulations, which were made effective on February 24, 1964.

Incorporated in FCC Docket 15123 are the Corporation's responsibilities pertaining to contracting. The methods of procurement are explicit:

1) formal advertising by competitive bids and awards as prescribed further in the
   a. contents of the invitation for bids,
   b. publicizing the invitation for bids,
   c. submission of bids by prospective contractors and
   d. evaluation and awards of bids;[31]

2) two-step procurement, consisting of the request for, and the submission, evaluation, and if necessary, discussion of, technical proposals without pricing; secondly, formally advertised procurement limited to contractors submitting technically acceptible proposals in step one,[32] and

3) negotiation, under the circumstances allowing negotiation, which are limited to situations where it is not feasible or practicable to procure property or service through either formal advertising or two-step procurement, or if otherwise specifically authorized by the Commission.[33]

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[31] U.S. Federal Communications Commission, Amendment of Part 25 of the Commissions' Rules and Regulations with respect to the Procurement of apparatus, equipment, and services required for the establishment and operation of the communications satellite system and satellite terminal stations. Docket no. 15123, Washington, D.C., 1964.

[32] Ibid. [33] Ibid.

Another important decision included in this amendment was the listing of situations to which the procurement rules would be applicable. Any procurement in which the cost was $25,000 or more would be subject to procurement regulation, excepting cost of utilities, counseling services, and government services.[34]

In addition to these regulations, the FCC also recommended cooperation with the Small Business Administration (SBA). The FCC requested the advice of the SBA be sought even in contracts where the amount was less than $25,000 in order to insure equitable opportunity for all interested companies.[35]

Slight modifications in these procurement regulations were made in February, 1968, when the State Department recommended the FCC adopt the international procurement regulations of INTELSAT.

On February 2, 1968, INTELSAT's Interim Communications Satellite Committee (ICSC) adopted regulations governing Procurement.[36] The stipulation slightly modified terminology and altered methods of procurement. The two-step

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[34] Ibid. [35] Ibid.

[36] U.S. Federal Communications Commission, Amendment to Part 25, of the Commissions' Rules and Regulations, with respect to the procurement of apparatus, equipment, and services required for the establishment and operation of the communications satellite system and satellite terminal stations. Docket no. 12338, Washington, D.C., 1968.

method of procurement was eliminated, but two additional methods were added:

1) direct source procurement, in which the party making procurement determines that competitive procurement is not possible, and

2) emergency procurement, when timely prior consultation with the committee (FCC) is not possible.[37]

The FCC found these modifications acceptable and made them a part of the U.S. regulations.

A third major decision pertained to the ownership and operation of the ground stations. The FCC had five possible courses to consider in shaping a policy. Ownership privileges could be granted to:

1) COMSAT alone;
2) A communications common carrier alone;
3) COMSAT and one or more common carriers jointly;
4) One or more common carriers jointly; or
5) Any other alternatives possible under Section 201 (c) (f) of the Act.[38]

The FCC decision was in favor of COMSAT, giving the Corporation the sole responsibility for the design, construction and operation of the three initial stations. The reasoning behind this decision was to provide for maximum unity among the ground operations and get the network organized as quickly as possible. This amendment became

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[37] Ibid.

[38] U.S. Federal Communications Commission, Amendment to Part 25 of the Commission's Rules and Regulations with respect to ownership and operation of initial earth stations in the United States for use in connection with the proposed global commercial communications satellite system Docket no. 15735, Washington, D.C., 1965.

effective June 22, 1965, and was to expire in June, 1967, unless the Commission saw fit to change the ruling prior to the expiration date.[39]

Modification of this policy was made in December, 1966, at which time the Commission did feel a change was necessary. The number of earth stations was growing and the common carriers were interested in owning and operating the new stations. After soliciting opinions from the Corporation and the authorized common carriers, the FCC decided that a 50 per cent ownership by COMSAT and 50 per cent ownership by the common carriers would be equitable. Whereas COMSAT owned all of the three initial stations, it would now own 50 per cent of those and 50 per cent of the three proposed operations. Quotas for carrier ownership were distributed according to the size of the company and the location of the earth stations.[40]

Company	Coterminous States	Hawaii	Puerto Rico-Virgin Islands
COMSAT	50.0%	50.0%	50.0%
AT&T	28.5%	---	---
Hawaiian Telephone	---	30.0%	---
ITTPR-ITTVI	---	---	30.0%
ITT	7.0%	6.0%	11.5%
RCAC	10.5%	11.0%	40.0%
WUI	4.0%	3.0%	4.5%
	100.0%	100.0%	100.0%

[39] Ibid.

[40] Ibid., 15735, Room 644.

Under the rapidly developing satellite system, the FCC felt this distribution was most equitable and encouraged speedy construction of ground facilities.

The final decision issued by the FCC was the Authorized Users decision. "During April, May and June, 1965, the Commission received requests from several concerns (including press wire services, a newspaper, a television network and an airline) for information regarding procedures to be followed in order that such concerns might be authorized to obtain satellite telecommunication services directly from the Communication Satellite Corporation."[41]

A decision had to be made specifying the authorized users of the Corpoartion's services. After reviewing the Act and soliciting opinions, the FCC drew these conclusions:

a) COMSAT may, as a matter of law, be authorized to provide service directly to non-carrier entities;
b) COMSAT is to be primarily a carrier's carrier and in ordinary circumstances users of satellite facilities should be served by the terrestrial carriers,* and
c) In unique and exceptional circumstances COMSAT may be authorized to provide services directly to non-carrier users; therefore, the authorization to COMSAT to provide services is dependent upon the nature of the service, i.e., unique or exceptional, rather than the identity of the user. The United States Government has a special position because of its unique or national interest requirements; COMSAT may be authorized to provide service directly to the Government, whenever such service is required to meet unique governmental needs or is otherwise required in

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[41]U.S. Federal Communications Commission, Authorized entities and authorized users under the Communications Satellite Act of 1962, Docket no. 16058, Washington, D.C., 1966.

*AT&T, Hawaiian Telephone, IT&T, RCAC, WUI.

> the national interest, in circumstances where the governments needs cannot be effectively met under the carrier's carrier approach.[42]

Although the Commission did not intend to authorize non-carrier users, provisions were made for authorization.

These four topics--stock ownership, procurement ownership, earth station ownership and authorized users have constituted the major decisions made by the FCC amending the Act of 1962. Other decisions will undoubtably be forthcoming, but major decisions will probably be withheld until the Presidential Task Force has reported its findings.

In the interim, COMSAT is carrying out its duties according to present law. The relationships of COMSAT to our industries, the U.S. government agencies and the global communications satellite network are complex, and its problems are multiplying.

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[42] Ibid.

CHAPTER V

OPERATIONS IN A COMPLEX STRUCTURE

The Communications Satellite Corporation has assumed many roles since its inception in February of 1963. As a private corporation subject to governmental regulation, COMSAT has several responsibilities; its operations are many and complex. Besides dispersing business contracts among private industries, COMSAT must also coordinate operations with seven government agencies, with INTELSAT and with the communications common carriers.

Cooperation Between COMSAT and Government Agencies

Coordination of COMSAT and government activities is the responsibility of the U.S. President. Three offices come under his jurisdiction, and all three help to guide national policy pertaining to COMSAT.

The first of these is the National Aeronautics and Space Council (NASC), of which the U.S. Vice President is chairman. The NASC was created by the National Aeronautics and Space Act of 1958 but has only been active

since 1961.[1] Its primary function is to provide "for effective cooperation among all departments and agencies of the United States engaged in aeronautical and space activities."[2]

The second office responsible to the President is that of the Special Assistant for Science and Technology, which has two distinct functions: (1) to coordinate the science efforts in government agencies through the Federal Council for Science and Technology, and (2) to bring together eminent scientists from government, industry and the universities to advise the President through the President's Science Advisory Committee.[3]

The office of Emergency Planning (OEP) is the third advisory reporting to the President. The responsibility for making radio frequency assignments was transferred to OEP from the now defunct Office of Defense Mobilization (ODM). As far as COMSAT is concerned, OEP is the administrator of radio frequencies used for space communications. All of these offices, then, NASC, OEP and the Special Assistant for Science and Technology, guide the President in making policy statements pertaining to COMSAT's domestic and foreign operations.

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[1]U.S., Congress, Senate, Committee on Aeronautical and Space, Communication Satellites: Technical, Economic, and International Developments, Staff Report for the Committee on Aeronautical and Space Sciences, Senate, 87 Cong., 2d Sess., 1962, p. 13.

[2]Ibid. [3]Ibid., p. 14. [4]Ibid., p. 17.

The National Aeronautics and Space Administration (NASA) is vital to the operations of COMSAT because it provides launch facilities for communication satellites. The National Aeronautics and Space Act of 1958 gives NASA the responsibility of planning, directing and conducting aeronautical and space activities.[5] Accordingly, NASA is to provide launch facilities for COMSAT on a reimbursable basis upon request.

The Department of Defense (DOD) also has some relationship with COMSAT. The Defense Department is responsible for "activities peculiar to or primarily associated with the development of weapons systems, military operations or the defense of the United States."[6] In order to fulfill these duties, the Department of Defense may utilize communication facilities provided by COMSAT, by any other common carrier or it may operate through its own system, the National Communications System (NCS). It is evident, therefore, that COMSAT is a competitor for DOD's business.

In 1966, DOD and COMSAT prepared a contract without negotiating through the common carriers. This contract later became a test case for the Authorized User decision. The Department of Defense needed thirty communication channels in the Pacific. COMSAT offered to supply the

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[5] Ibid., p. 15.

[6] Ibid., p. 16.

channels at $8,000 per month, which was one-third the price charged by the common carriers for the same service.[7] The carriers protested this contract. The FCC ruled in favor of the common carriers providing they would reduce their rates, which they did. The thirty channels have since been occupied by the Department of Defense, but COMSAT has been ordered to yield the contract to the common carriers.[8] In this Thirty-Circuit decision, the FCC was very strict in its interpretation of the authorized users ruling, and COMSAT's attempt to expand its service on its own initiative was repressed.

The FCC is given the responsibility for the regulation of the technical activities of COMSAT. Accordingly, it has much influence on the carriers' relationship to COMSAT; rates charged for service; construction, ownership and operation of earth stations, and the expansion of services. The future direction of the carriers and the COMSAT will be determined by the FCC.

Guidance in foreign affairs is the responsibility of the Department of State.[10] There are two basic functions of the State Department which effect COMSAT (1) initiating

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[7]"Satellites Going Up, Prices Going Down," Business Week (October 1, 1966), p. 116.

[8]Communications Satellite Corporation Annual Report 1967 (February, 1968), p. 14.

[9]U.S. Congress, Communications Satellites: Technical, Economic, and International Developments, p. 18.

[10]Ibid.

and preparing for international conferences on communications, and (2) meeting with Government-industry committees in the early stages of planning international meetings to call attention to relevant foreign affairs.[11]

The Department of State also performs auxiliary functions, many of which are directed toward promoting cooperation among the U. S. and foreign governments. A special meeting sponsored by the State Department called together 100 delegates from forty-three foreign countries for intensive briefings on ground stations. This meeting was held not only to disseminate new information, but also to encourage more countries to participate in the INTELSAT program which COMSAT directs.[12] Thus, during formal agreements and informal meetings, the Department of State acts as a liaison for international affairs.

COMSAT and International Relations

COMSAT's board of directors had initial responsibilities of forming not only the domestic but also the international communications satellite system. The first objective was to secure a segment of the radio frequency spectrum for experimental satellite communications. In order to obtain those frequencies, COMSAT representatives went to the 1963 Geneva Conference of the International

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[11] Ibid., p. 19.

[12] "Satellites: A Fight at Home. . . . A Hard Sell Abroad," Business Week (May 21, 1966), p. 47.

Telecommunications Union, where revisions in international frequency assignments were being made. After reviewing requests for frequency assignments, the conference awarded the largest single allocation to the Communications Satellite Corporation.[13] This task completed, COMSAT directors proceeded with conferences designed to create a workable international communications organization.

During the remainder of 1963 and 1964, COMSAT officials and members of the Conference of European Post and Telegraph (CEPT) met and discussed plans for an international organization. COMSAT sought international participation in a COMSAT global network, while CEPT representatives insisted on actually owning and operating part of the system.

The last of these conferences was held in Washington, D.C., in August, 1964. Seventeen nations drew up two agreements which created the International Telecommunications Satellite Consortium (INTELSAT). The first was an intergovernmental Agreement Establishing Interim Arrangements for a Global Communications Satellite System. The second was a Special Agreement concluded among governments or their designated communication entities. The intergovernmental Agreement provides that all ITU members may

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[13]Leonard Jaffe, "Satellite Communications of the Future," Telecommunications Journal, XXXII (May 15, 1965), p. 194.

join INTELSAT and that these agreements will stay in effect until reviewed on or before January 1, 1970, when revision will be required by law.[14]

The Interim Communications Satellite Committee (ICSC) was established by the intergovernmental agreement and is responsible for the design, development, construction, establishment, maintenance and operation of the space segment of the global system. The space segment includes the communication satellites and the related equipment needed for tracking, control and command of the system.[15] The ICSC is composed of members represented on a quota basis, with one representative from each member or group of members whose investment quota is not less than 1.5 per cent of the total operational cost.[16]

COMSAT was designated as manager of INTELSAT by the initial members, and according to the policies of the ICSC, will direct the design, establishment, operation and maintenance of the space segment.[17]

INTELSAT's Achievements

Several months of planning by INTELSAT members were rewarded by a successful launch in April, 1965. The first

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[14]"International Conference Concludes Agreements Establishing Interim Arrangements for Global Communications," Department of State Bulletin, LI (August 24, 1964), p. 281.

[15]Ibid.

[16]U.S. Government, "International Telecommunications Satellite Consortium (Intelsat)," Treaties and other International Acts, Series 5646, p. 4.

[17]Ibid.

international communications satellite, Early Bird (Atlantic I), was put into an elliptical orbit and later maneuvered into synchronous orbit 23,300 miles above the equator. Early Bird was to have an eighteen month service period, but now, more than three years later, Early Bird is still providing communication service to North America and Europe.[18]

The first satellite in the Pacific region was launched late in 1966, but it failed to achieve synchronous orbit. Consequently, it provided only minimal communications between the U.S. mainland and Hawaii.[19]

Pacific I was the first INTELSAT II satellite, and it was launched on January 11, 1967. This satellite, like the following series II satellites, has a capacity of 240 voice circuits. Service is provided by Pacific I between the U.S. and the Far East. The second satellite in this series was Atlantic II, which was placed in orbit on March 22, 1967, and it provides service to North America and Europe.[20] The third satellite was Pacific II, launched on September 27, 1967, and it provides service for the U.S., Philippines and the Far East.[21] A fourth INTELSAT II satellite is kept in storage for emergency needs.[22]

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[18] Communications Satellite Corporation Annual Report 1967, p. 6.

[19] Ibid. [20] Ibid. [21] Ibid. [22] Ibid.

The INTELSAT II satellites are larger than those now deployed, having a capacity of 1,200 voice circuits. There are three satellites planned for this series: one over the Atlantic, one over the Pacific and one over the Indian Ocean. This series should be completed by mid-1969, and will complete the global satellite network.[23] For the first time, we will experience complete and instantaneous world communications.

An INTELSAT III 1/2 satellite was planned. It was to be similar to the INTELSAT III satellites, but this one was to have a directional antenna, concentrating communications between North America and Europe. However, before COMSAT obtained FCC approval of this satellite, AT&T proposed the TAT-5 transatlantic voice cable at the request of the FCC. The criteria set up by the FCC for acceptance of the cable were: (1) furnishing details which would clearly demonstrate that the cable would be in operation by early 1970; (2) agreement to reduction of transatlantic service rates by 25 per cent; and (3) agreement on the proportionate fill of the cable and satellite facilities.[24]

Prior to the FCC's approval of the TAT-5 installation, there were reports submitted by the common carriers claiming the cable to be the most economical system, while COMSAT praised the benefits of the satellite network. The

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[23] Ibid. [24] Ibid.

Commission did approve TAT-5, which was to be jointly owned by AT&T, ITT World Com, RCA Communications and WU International in conjunction with Portugal, Spain and Italy.[25] This approval precluded plans to orbit INTELSAT III 1/2, limiting INTELSAT's expansion and favoring the conventional carriers.

INTELSAT IV satellites are being designed. These will have a capacity of 5,000 voice circuits, and three or four will be launched to expand the capacity of the global network.[26]

Satellites are not the only link needed for satellite communications; ground stations are needed to send and receive signals. The initial stations were located in Andover, Maine, Goonhilly Downs, England, and Pleumeru-Bodou, France. Since these stations were erected in 1964, the number has grown to sixteen. INTELSAT plans to have forty earth stations in the global network by the end of 1969.[27]

In the U.S., COMSAT has helped to build six ground stations, each costing three to five million dollars. The first three are located in Andover, Maine; Brewster Flat,

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[25]Katherine Johnsen, "US Discloses Satellites vs. Cable Policy," Aviation Week and Space Technology, LXXXVIII (February 26, 1968), pp. 19-20.

[26]Communications Satellite Corporation Annual Report 1967, p. 6.

[27]Ibid., p. 9.

Washington; and Paumalu, Hawaii. A second group of stations is scheduled to be completed at the end of 1968. These will be located at Etam, West Virginia; Jamesburg, California; and Cayey, Puerto Rico.[28] COMSAT owns 50 per cent of each of these stations. In addition, the Corporation also owns three portable ground stations which are located in Maine, Hawaii and the Philippines.[29]

INTELSAT has obligations in addition to establishing a satellite and ground network. The Consortium also offers technical assistance to underdeveloped countries which would like to participate in the satellite system. Over forty countries have been aided in planning their future communication needs.[30]

COMSAT, as the director of INTELSAT, must lead developments on the international scale. However, COMSAT is also responsible for domestic developments in space research. The Corporation is in the process of building research facilities in Montgomery County, Maryland. COMSAT laboratories will research satellite systems, radio frequency transmission, communications processing, spacecraft engineering and space physics.[31]

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[28] Ibid. [29] Ibid. [30] Ibid.

[31] Communications Satellite Corporation Annual Report 1966 (February, 1967), p. ii.

International Challenges

COMSAT is being called upon to meet domestic and international challenges. Since INTELSAT has been operational, the positions of COMSAT have been clarified by the Executive Office of the President, the Department of State and the FCC: COMSAT is (1) a U. S. corporation responsible both to its stockholders and for the public interest; (2) the U. S. representative to INTELSAT, and (3) the manager of INTELSAT. COMSAT accordingly must face the total of domestic and international problems.

Conventional cable systems are being challenged by communication satellites in the age-old problem of vested interests versus the new technology. The challenge is an economic one. COMSAT has lowered the rates for satellite service a few times, and each time, the owners of the cables have been forced to lower their rates. In October, 1966, the common carriers made their first major rate reduction in response to COMSAT's offer to supply the Department of Defense with thirty voice circuits in the Pacific. The carriers offered the following reductions in voice circuit rates:[32]

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[32]"Satellites Going Up, Prices Going Down," p. 116.

Area	1966 Rate Per Month	Reduced Rate Per Month, Oct. 1966
San Francisco-Hawaii	$16,922.50	$14,000.00
San Francisco-Philippines	29,026.50	
San Francisco-Japan	30,000.00	
San Francisco-Australia	30,000.00	
Hawaii-Japan	24,000.00	22,000.00

This trend in rates will continue as the satellite network expands and pressures the conventional systems to lower rates, as was the case in the TAT-5 decision.

Growth in satellite traffic has not been as rapid as once hoped. In February, 1968, 534 (55 per cent) of the 960 circuits available had been leased.[33] The remaining circuits have been used mostly for periodic television broadcasts. There are several reasons for this slow increase in use of satellites. Timing has been important. The number of ground stations has been slowly increasing and the global ground network will be completed during the 1969-70 period. Installing land lines connecting ground stations to the central points of distribution has also taken time. When the ground stations and interconnecting lines are completed, demand for satellite service will increase. Additionally, conventional carriers have leased satellite circuits and have been slowly filling satellites to capacity. The leased satellite circuits are

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[33]Katherine Johnsen, "U. S. Discloses Satellite vs. Cable Policy," p. 20.

expected to be filled during 1968, when expansion will be needed.[34] During this period, INTELSAT III satellites will be placed in orbit and expansion of the system will begin.

Meanwhile, an international issue is developing over the establishment of regional satellite systems. INTELSAT's present goal is "to establish a single global commercial communications satellite system as part of an improved global communications network . . . which will contribute to world peace and understanding."[35] COMSAT has been working toward this end, and its position has been reinforced by President Johnson as official U.S. policy. Yet, factions have risen within INTELSAT.

The Europeans have formed their own space research programs. The European Launcher Development Organization (ELDO) and the European Space Research Organization (ESRO) have attempted to place a satellite in orbit. Their satellites have been patterned after the INTELSAT series, but their projects have not yet been successful.[36]

The European countries can choose from three alternatives for using their technology. They can continue to develop their own program, turn their efforts toward

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[34] Ibid.

[35] U.S. Government, "International Telecommunications Satellite Consortium (INTELSAT)," p. 1.

[36] "European Communications Satellite Doomed," in the New York Times, Sunday, April 28, 1968, p. 42.

developing the INTELSAT program or they can insist on the reorganization of INTELSAT during the 1969 meetings. The French have suggested a regional system in which INTELSAT would be changed to a regulatory body for "insuring continuity in a global communications satellite system and preventing interference of regional systems."[37] Included in these proposals were two additional stipulations: (1) that each nation should be represented by government agencies and not by private companies like COMSAT, and (2) four private consortiums should be established to finance, build, launch and operate the four major systems in the global network. The four systems suggested were:

(1) West Atlantic: to serve the United States, Canada, North and South America, and across the Atlantic;

(2) East Atlantic: to serve intra-Europe, Europe-Africa and Europe-Middle East regions;

(3) Indian Ocean: to serve Eastern Europe, Soviet Union and Indian Ocean countries;

(4) Pacific Ocean: to serve Southease Asia, Australia, the Orient and across the Pacific.[38]

The French are striving for localization of control and investment and increased regional participation. Also, the French maintain that the Soviet Union might incorporate its own Molniya Satellite system into this regional plan,

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[37] D. E. Fink, "Europe Unifying Policy for INTELSAT Talks," Aviation Week and Space Technology, LXXXVIII (November 27, 1967), p. 69.

[38] Ibid.

in which the Soviets would have a larger influence than they would have in a single global system directed by a U. S. Corporation.[39] The final form of European policy, which undoubtedly will be influenced by the French, will have an effect on the reorganization of INTELSAT in 1969.

COMSAT will be looking toward maintaining a single system; but in order to do this, U. S. dominance probably will have to be reduced. COMSAT has recently established a separate division within the Corporation for the purpose of handling INTELSAT's affairs.[40] Before this reorganization, both domestic and international affairs were conducted by the same staff. This division now leaves the domestic branch with two positions--the first as the U. S. representative to INTELSAT, and the second as manager of COMSAT Laboratories. Although the separation reduces the responsibilities of the domestic corporation, separating domestic and international business might put COMSAT into a better bargaining position during the 1969 meetings, at which time it hopes to reaffirm its position as manager.[41]

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[39] Andrew G. Haley, "Competition in Satellite Communications?" Telecommunications Journal, XXXII (August, 1965), p. 323.

[40] "New COMSAT Unit to Manage Global Network," Aviation Week and Space Technology, LXXX (January 15, 1968), p. 39.

[41] Ibid.

INTELSAT's reorganization will have quite an impact on the future of satellite communications. Both the demand for satellite service, which will be influenced by the expansion of cable systems, and the possibility of initiating regional satellite services will effect reorganization. The position of regional systems in relation to the global network will have to be clarified. Relationships among partners in the system pertaining to investments and responsibilities will have to be outlined. And finally, the appointment of the next manager will have to be made and the manager's role redefined.

COMSAT Involvement in Domestic Issues

COMSAT must deal with problems on the domestic as well as the international scene. A domestic counterpart of the international move for regional satellites is represented by the plea for private domestic satellite systems. In 1966, the American Broadcasting Company (ABC) submitted a request to the FCC for its own satellite to feed programs to ABC affiliates.[42] The FCC did not grant this request, but instead asked for opinions from industry and COMSAT on this matter; a series of replies followed.

The Ford Foundation proposed the Broadcasters' Non-Profit Satellite Service (BNS) operate a satellite

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[42]"Fourth Network," New Republic, CLV (September 17, 1966), p. 13.

system solely for television. The three commercial networks, American Broadcasting Company, Columbia Broadcasting System and National Broadcasting Company, would pay for the satellite, while educational television would receive free service. In addition, the estimated $30 million per year difference between the cost of land lines and satellite service would be put back into educational television, which operates on a modest $10 million yearly budget.[43]

About the same time Ford Foundation made its proposal, several other industries requested satellites. Among those submitting requests were some petroleum and trucking industries and the National Association of Manufacturers.[44]

COMSAT was quick to submit a reply in opposition to separate domestic systems. In 1966, COMSAT revealed a $100 million plan for domestic satellites to include: (1) wide-band width digital data links; (2) interconnection of computer links, and (3) educational and commercial television connections.[45] Since then, COMSAT has offered a second proposal which it believes is better and more

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[43] Ibid., p. 14.

[44] Katherine Johnsen, "COMSAT Reveals $110 Million Plan for Mid-1970's Domestic System," Aviation Week and Space Technology, LXXXV (August 8, 1966), p. 27-28.

[45] Ibid.

realistic. The system would cost about $57 million and would give complete communication service to the U.S., southern Canada and northern Mexico. Besides serving telephone, telegraph, data transmission and broadcasting needs, this plan also offers free color transmission to educational stations in each time zone.[46] COMSAT's opposition to other domestic satellite proposals is based on its claim to control of the domestic domain according to the Communications Satellite Act of 1962. The FCC has not yet issued a statement on domestic systems; action on this matter is pending until the decision is made.

A second domestic issue concerns the merger of the international carriers. COMSAT is encouraging a merger of all common carriers in order to make the system more efficient.[47] The American Telephone and Telegraph Company presently has a monopoly on international voice circuits, while several companies compete for the telegraph and data transmission business. The problem among common carriers is interconnection. Seldom does one company control enough of the cable system to complete the route of a message, thus interconnection among the carriers is required.

Furthermore, the international carriers deemed authorized users, AT&T, Hawaiian Telephone, ITT World Com,

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[46] "COMSAT Shows its Hand," Business Week (August 5, 1967), p. 98.

[47] Katherine Johnsen, "AT&T, COMSAT Clash on Merger Proposal," Aviation Week and Space Technology, LXXXIV (June 27, 1966), p. 28.

RCA Communications and WU International do all the contracting for international service via satellite. These companies can choose whether to send the message via cable or satellite, and in this sense, the carriers are the controllers and competitors of the satellite system. This duel role played by the common carriers, coupled with the necessity for interconnection, produces problems and inefficiencies in the U.S. communication network.

Some common carriers have voiced an opinion on merger. Western Union and AT&T have supported a merger of the telegraph industries, and Western Union will probably concede to a merger of telephone and telegraph industries, while AT&T will not.[48] As the only carrier with voice grade international circuits, AT&T wants to keep its monopoly. However, AT&T officials have also stated that if a merger is recommended, it would support a total merger which would abolish the present voice, non-voice distinction.[49] The reasoning behind this is that, as COMSAT proposed, only complete merger will correct the inefficiencies in the U.S. system.

Presidential Task Force

The Presidential Task Force was appointed in August, 1967 for the purpose of examining U.S. telecommunication

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[48] Ibid. [49] Ibid. [50] Ibid.

service and policy; the findings are to be reported before September, 1968. The decisions of this committee headed by Under Secretary of State Eugene V. Rostow will shape the future of U.S. conventional and satellite communication systems. The report is expected to follow President Johnson's policy for a single global communications network. However, some revisions to present policy are indicated: (1) COMSAT owns 54 per cent of INTELSAT's stock and will probably be expected to sell some of this; (2) COMSAT also may be called upon to yield the directorship.

The Task Force will also study other pressing matters: (1) the use of the electromagnetic frequency spectrum and how it can be employed most effectively; (2) the possibilities for a domestic satsllite system; (3) who should own the domestic system(s) and whether the satellites should serve a specific purpose or be of a multipurpose nature; (4) whether or not there should be a merger of international carriers; and (5) how will these decisions effect COMSAT and its relationship to INTELSAT.

Observations and Inferences

COMSAT, as a corporation created by Congress, has been directed to perform certain duties. The Corporation must organize and operate U.S. communication satellites and must work toward establishing an international satellite network. COMSAT's efforts in INTELSAT have been

defined; COMSAT, as manager, has attempted to create a single global satellite network.

Direction of the domestic operations has not been as clearly stated. In legislating the Act, congressmen solved the ownership dilemma, but left unclear many other questions. Controversy has risen over the question of competition with the carriers, the share of the market between cables and satellites, access to the satellite system, ownership of ground stations and the structure of the domestic satellite system. These controversies have led to further arguments because COMSAT has attempted to compete with the terrestrial carriers. COMSAT has assumed the right to compete because original legislation did not specify that it could not.

Decisions made by the FCC subsequent to the Act have made it quite clear that COMSAT will not compete with but rather be an extension of the common carriers. A review of the important decisions will focus attention on the narrowing of COMSAT's business adventures.

COMSAT originally owned all the ground stations and facilities, a privilege granted by the FCC in June, 1965. In December, 1966, the FCC modified this decision so that the carriers would own 50 per cent of the ground network. The next question will be whether the carriers will be permitted to own the entire ground network, removing station ownership completely from COMSAT's domain.

The Authorized Users decision further restricted COMSAT by limiting access to satellite communications to the international common carriers, except in special cases of national concern. The Thirty-Circuit decision refused COMSAT the right to deal directly with the Department of Defense, indicating that special cases were not going to be easily justified. This reinforced the Authorized Users decision.

Finally, the TAT-5 decision indicated that the FCC will attempt to divide communications traffic equally between the cables and satellite systems. This safeguards the vested interests common carriers have in conventional systems and regulates the growth of the satellite network.

The combination of these decisions presents a narrowing picture of COMSAT's functions, but disagreements arising in these situations will continue as long as COMSAT's rights and privileges are unclear. Continual hassles over the expansion of communication systems, the share of the business and accessibility to the satellites have been exasperating for all concerned. Perhaps the merger of common carriers would alleviate some discontent.

Delaying the decisions on the domestic satellite issue will only lead to further complications, more arguments over who will control the domestic system, how traffic will be divided, what kind of satellites should

be used and how the radio spectrum will be allocated. For the answers to these questions, those concerned must look to the report of the Presidential Task Force and subsequent rulings by the FCC. In order to reduce the reoccurring conflicts among the communication industries, modified legislation is needed. Clearer boundaries must be placed on COMSAT's rights and privileges. And finally, government agencies dealing with COMSAT, especially the FCC, should fulfill their duty of guiding a precise and comprehensive reform.

APPENDIX

WORLD LISTING*

LISTING OF EXISTING AND PROPOSED EARTH STATIONS THROUGH 1972

January 10, 1968

	COUNTRY	STANDARD STATION	OCEAN	DATE OF OPERATION	SOURCE
1.	Algeria	X	Atlantic	1972	Atlantic Ad Hoc 6/67
2.	Argentina	X	Atlantic	1969	Atlantic Ad Hoc 6/67
3.	Australia (Carnarvon)**	Non-standard	Pacific	Operational	
	Moree**	X	Pacific	1968 (March)	Area Coordinators Meeting-Pacific-12/67
	Ceduna, S.A.	X	Indian	1969 (Sept.)	Area Corrdinators Meeting-Indian-12/67
4.	Bahrain**	X	Indian	1969 (July)	Area Coordinators Meeting-Indian-12/67
5.	Brazil**	X	Atlantic	1969 (Jan.)	Application to I.C.S.C.
6.	Cameroon	X	Atlantic	1970	World Plan Meeting 11/67

	COUNTRY	STANDARD STATION	OCEAN	DATE OF OPERATION	SOURCE
7.	Canada				
	Mill Village #1**	X	Atlantic	Operational	Application to
	Mill Village #2**	X	Atlantic	1968 (Aug.)	I.C.S.C.
8.	Ceylon	X	Indian	1970	Area Coordinators Meeting-Indian-12/67
9.	Chile**	X	Atlantic	1968 (July)	Application to I.C.S.C.
10.	China (Rep. of)**	X	Pacific	1969 (March)	Area Coordinators Meeting-Pacific-12/67
11.	Columbia	X	Atlantic	1969	World Plan Meeting 11/67
12.	East Africa (Kenya)	X	Indian	1970	Area Coordinators Meeting-Indian-12/67
13.	Ecuador	X	Atlantic	1969	Atlantic Ad Hoc 6/67
14.	Ethiopia	X	Atlantic	1970	Atlantic Ad Hoc 6/67
15.	France				
	Pleumeur Bodou #1**	X	Atlantic	Operational	
	Pleumeur Bodou #2	X	Atlantic	1969 (July)	World Plan Meeting 11/67
16.	Germany				
	Raisting #1**	X	Atlantic	Operational	
	Raisting #2	X	Indian	1969 (July)	World Plan Meeting 11/67

	COUNTRY	STANDARD STATION	OCEAN	DATE OF OPERATION	SOURCE
17.	Greece	X	Atlantic	1970	World Plan Meeting 11/67
18.	Hong Kong #1**	X	Pacific	1969 (July)	Area Coordinators Meeting-Pacific-12/67
	#2	X	Indian	1969	Area Coordinators Meeting-Indian-12/67
19.	India**	X	Indian	1969 (March)	Area Coordinators Meeting-Indian-12/67
20.	Indonesia #1** (Djatiluhur)	X	Indian	1969 (March)	Area Coordinators Meeting-Indian-12/67
	#2	X	Pacific	1971	Area Coordinators Meeting-Pacific-12/67
21.	Iran	X	Atlantic	1970	Atlantic Ad Hoc 6/67
22.	Israel	X	Atlantic	1972	World Plan Meeting 11/67
23.	Italy				
	Fucino #1**	X	Atlantic	Operational	
	Fucino #2	X	Indian	1969	Area Coordinators Meeting-Indian-12/67
24.	Ivory Coast	X	Atlantic	1969	Atlantic Ad Hoc 6/67

	COUNTRY	STANDARD STATION	OCEAN	DATE OF OPERATION	SOURCE
25.	Japan				
	Ibaraki #1**	X	Pacific	Operational	
	Ibaraki #2**	X	Pacific	1968 (March)	Area Coordinators Meeting-Pacific-12/67
	Yamaguchi**	X	Indian	1968 (Dec.)	Area Coordinators Meeting-Indian-12/67
26.	Korea	X	Pacific	1970	Pacific Ad Hoc 7/67
27.	Kuwait	X	Indian	1969	Indian Ocean Ad Hoc-7/67
28.	Lebanon	X	Atlantic	1970	Chief Engineer, Lebanon PTT
29.	Malaysia	X	Indian	1969	Area Coordinators Meeting-Indian-12/67
30.	Mexico**	X	Atlantic	1968 (Oct.)	Application to I.C.S.C.
31.	Morocco	X	Atlantic	1969	Atlantic Ad Hoc 6/67
32.	New Zealand	X	Pacific	1970	World Plan Meeting 11/67
33.	Nigeria #1	X	Atlantic	1969	Atlantic Ad Hoc 6/67
	#2	X	Indian	1972	World Plan Meeting 11/67
34.	Pakistan, East	X	Indian	1969	Area Coordinators Meeting-Indian-12/67

	COUNTRY	STANDARD STATION	OCEAN	DATE OF OPERATION	SOURCE
35.	Pakistan, West	X	Indian	1969	Area Coordinators Meeting-Indian-12/67
36.	Panama**	X	Atlantic	1968 (July)	Application to I.C.S.C.
37.	Peru	X	Atlantic	1969	Atlantic Ad Hoc 6/67
38.	Philippines**	Non-standard	Pacific	Operational	
	Tanay #1**	X	Pacific	1968 (Apr.)	Area Coordinators Meeting-Pacific-12/67
	Tanay #2	X	Indian	1970	Area Coordinators Meeting-Indian-12/67
39.	Saudi Arabia	X	Atlantic	1970	Atlantic Ad Hoc 6/67
40.	Senegal	X	Atlantic	1969	Atlantic Ad Hoc 6/67
41.	Singapore	X	Indian	1970	World Plan Meeting 11/67
42.	South Africa	X	Indian	1971	Dep. Postmaster General of South Africa
43.	Spain (Canary Isl.)**	Non-standard	Atlantic	Operational	
	Buitrago #1**	X	Atlantic	Operational	
	Buitrago #2	X	Indian	1970	Indian Ocean Ad Hoc 7/67

COURSE	STANDARD STATICN	OCEAN	DATE OF OPERATION	SOURCE
44. Sudan	X	Atlantic	1970	World Plan Meeting 11/67
45. Thailand**	#Non-standard	Pacific	Operational	
Si Racha #1**	X	Pacific	1968 (Apr.)	Area Coordinators Meeting-Pacific-12/67
Si Racha #2	X	Indian	1970	Indian Ocean Ad Hoc 7/67
46. Turkey	X	Atlantic	1972	World Plan Meeting 11/67
47. United Arab Republic	X	Atlantic	1971	Atlantic Ad Hoc 6/67
48. United Kingdom (Ascension Isl.)	**Non-standard	Atlantic	Operational	
Gocnhilly #1**	X	Atlantic	Operational	
Gocnhilly #2**	X	Indian	1969 (Mar.)	Area Coordinators Meeting-Indian-12/67
49. United States				
Andover**	X	Atlantic	Operational	
Etam, W. Va.	X	Atlantic	1968 (Oct.)	Atlantic Ad Hoc 6/67
Puerto Rico	X	Atlantic	1968 (Nov.)	Atlantic Ad Hoc 6/67
Brewster**	X	Pacific	Operational	
Jamesburg, Cal.	X	Pacific	1968 (Dec.)	Area Coordinators Meeting-Pacific-12/67
Paumalu**	#Non-standard	Pacific	Operational	
Paumalu #1**	X	Pacific	Operational	
Paumalu #2	X	Pacific	1968 (Nov.)	Area Coordinators Meeting-Pacific-12/67

COUNTRY	STANDARD STATION	OCEAN	DATE OF OPERATION	SOURCE
50. Venezuela	X	Atlantic	1969	World Plan Meeting 11/67
51. Zambia	X	Indian	1971	Indian Ocean Ad Hoc 7/67

*Approved by I.C.S.C.

#It is anticipated that these antennas will be removed from operation upon implementation of new antennas.

THE WHITE HOUSE

MESSAGE ON COMMUNICATIONS POLICY

To the Congress of the United States:

Man's greatest hope for world peace lies in understanding his fellow man. Nations, like individuals, fear that which is strange and unfamiliar. The more we see and hear of those things which are common to all people, the less likely we are to fight over those issues which set us apart.

[So the challenge is to communicate.]

No technological advance offers a greater opportunity for meeting this challenge than the alliance of space exploration and communications. Since the advent of the communications satellite, the linking of one nation to another is no longer dependent on telephone lines, microwaves or cables under the sea. Just as man has orbited the earth to explore the universe beyond, we can orbit satellites to send our voices or televise our activities to all peoples of this globe.

Satellite communications has already meant much in terms of human understanding.

-- When President Lincoln was assassinated, it took twelve days for the news to reach London. Britons watched and grieved with us at the funeral of John F. Kennedy.

-- Europeans watched Pope Paul speak to the United Nations in New York--and Americans saw his pilgrimage to Fatima.

-- The peoples of three continents witnessed the meeting of an American President and a Soviet Premier in Glassboro.

The future of this new technology stirs our imagination.

In business and commerce --

-- Commercial telephone calls will be carried routinely by satellite to every part of the globe.

-- Rapid and universal exchange of data through satellite-linked computers will encourage international commerce.

-- Productive machinery can be operated at great distances and business records can be transmitted instantaneously.

In education and health --

-- Schools in all lands can be connected by television--so that the children of each nation can see and hear their contemporaries throughout the world.

-- The world community of scholars can be brought together across great distances for face-to-face discussions via satellite.

-- Global consultations, with voice and pictures, can bring great specialists to the bedsides of patients in every continent.

-- The art, culture, history, literature and medical science of all nations can be transmitted by satellite to every nation.

Who can measure the impact of this live, direct contact between nations and their people? Who can assess the value of our new-found ability to witness the history-making events of this age? This much we know: because communication satellites exist, we are already much closer to each other than we have ever been before.

But this new technology--exciting as it is--does not mean that all our surface communications facilities have become obsolete. Indeed, one of the challenges before us is to integrate satellites into a balanced communications system which will meet the needs of a dynamic and expanding world society. The United States must review its past activities in this field and formulate a national communications policy.

U. S. Activities to Date

The Communications Act of 1934 has provided the blueprint for federal involvement in the communications field. That Act, and the Federal Communications Commission it created, have served our national interest well during one-third of a century of rapid communications progress.

The Communications Satellite Act of 1962 established a framework for our nation's participation in satellite communications systems. Congress weighed with care the relative merits of public and private ownership of commercial satellite facilities. The Act authorized creation of the Communications Satellite Corporation (ComSat)--a private corporation with public responsibilities--to establish a commercial satellite system.

In 1964 we joined with 10 other countries in the formation of the International Telecommunications Satellite Consortium (INTELSAT). Fifty-eight nations are now members. Each member contributes investment capital and shares in the use of the system. ComSat, the U. S. representative, is the consortium manager and now contributes 54% of the total investment. All satellites managed by ComSat are owned by INTELSAT--so that commercial satellite communications has from its beginning been a product of international cooperation.

Progress has been rapid. Early Bird was launched in 1965. Now the INTELSAT II series serves both the Atlantic and the Pacific. Twelve ground stations--the vital links for sending and receiving messages--have been constructed over the world. Forty-six are anticipated by the end of 1969.

Today, just five years after the passage of the Communications Satellite Act and three years after the INTELSAT agreement, developments have exceeded our expectations:

-- The synchronous satellite, which rotates with our globe and thus maintains a stationary position in orbit, has been developed well ahead of schedule.

-- Those responsible for U. S. international communications--with ownership divided among a number of surface carriers and ComSat--now look forward to an integrated system which will utilize satellite technology.

-- Proposals are being discussed for the establishment of a domestic communications satellite--either limited to TV transmission or servicing a variety of domestic communications uses.

Because we have been the leaders in the development and use of satellite communications, other countries are deeply interested in our country's position on the continuation of INTELSAT, and in the importance we assign to international cooperation in the field of satellite communications.

On February 28, 1967, I declared in a message to Congress:

> Formulation of long range policies concerning the future of satellite communications requires the most detailed and comprehensive study by the executive branch and the Congress. I anticipate that the appropriate committees of Congress will hold hearings to consider these complex issues of public policy. The executive branch will carefully study these hearings as we shape our recommendations.

A number of important communications issues are presently before the Federal Communications Commission for consideration. Some of them have been discussed in the Senate and House Commerce Committee hearings on the Public Television Act of 1967. ComSat and the State Department have opened discussion of the international questions with our foreign partners and their governments.

In order to place this important policy area in perspective, I want the views of the President to be clear. This message includes a report of the past, a recommendation for the present, and a challenge for the future.

Global Communications System

Our country is firmly committed to the concept of a global system for commercial communications. The Declaration of Policy and Purpose of the Communications Satellite Act of 1962 set forth Congressional intent:

> The Congress hereby declares that it is the policy of the United States to establish, in conjunction and in cooperation with other countries, as expeditiously as practicable a commercial communications satellite system, as part of an improved global communications network, which will be responsive to public needs and national objectives,

which will serve the communications needs of the United States and other countries, and which will contribute to world peace and understanding.

The INTELSAT Agreement of 1964--to which 58 nations have now adhered--left no doubt as to its purpose. Its preamble expressed the desire:

> . . . to establish a single global commercial communications satellite system as part of an improved global communications network which will provide expanded telecommunications services to all areas of the world and which will contribute to world peace and understanding.

Of course, these agreements do not preclude the development and operation of satellite systems to meet unique national needs. The United States is developing a defense system--as will others. But INTELSAT members did pledge that commercial communications between nations would be a product of international cooperation.

Today I reaffirm the commitments made in 1962 and 1964. We support the development of a global system of communications satellites to make modern communications available to all nations. A global system eliminates the need for duplication in the space segment of communications facilities, reduces the cost to individual nations, and provides the most efficient use of the electro-magnetic frequency spectrum through which these communications must travel.

A global system is particularly important for less developed nations which do not receive the benefits of speedy, direct international communications. Instead, the present system of communications--

-- encourages indirect routing through major nations to the developing countries,

-- forces the developing nations to remain dependent on larger countries for their links with the rest of the world, and

-- makes international communications service to these developing nations more expensive and of lower quality.

A telephone call from Rangoon to Djakarta must still go through Tokyo. A call from Dakar, Senegal to Lagos, Nigeria is routed through Paris and London. A call from American Samoa to Tahiti goes by way of Oakland, California.

During the recent Punta del Este conference, I discovered that it usually cost Latin American journalists more than their American colleagues to phone in their stories because most of the calls had to be routed through New York.

Such an archaic system of international communications is no longer necessary. The communications satellite knows no geographic boundary, is dependent on no cable, owes allegiance to no single language or political philosophy. Man now has it within his power to speak directly to his fellow man in all nations.

We support a global system of commercial satellite communications which is available to all nations--large and small, developed and developing--on a non-discriminatory basis.

To have access to a satellite in the sky, a nation must have access to a ground station to transmit and receive its messages. There is a danger that smaller nations, unable to finance or utilize expensive ground stations, may become orphans of this technological advance.

We believe that satellite ground stations should be an essential part of the infrastructure of developing nations. Smaller nations may consider joint planning for a ground station to serve the communications needs of more than one nation in the same geographic area. We will consider technical assistance that will assist their planning effort.

Developing nations should be encouraged to commence construction of an efficient system of ground stations as soon as possible. When other financing is not available, we will consider financial assistance to emerging nations to build the facilities that will permit them to share in the benefits of a global communications satellite system.

Continuation of INTELSAT

The 1964 INTELSAT agreement provides only interim arrangements--subject to renegotiation in 1969. Our representatives to the consortium will soon begin discussions for a permanent arrangement.

We support the continuation of INTELSAT. Each nation or its representative contributes to its expenses and benefits from its revenues in accordance with its anticipated use of the system. The 58 members include representatives from the major nations who traditionally have been most active in international communications. It has

been a successful vehicle for international cooperation in the ownership and operation of a complex communications system.

We will urge the continuation of the consortium in 1969. The present arrangements offer a firm foundation on which a permanent structure can be built.

Some nations may feel that the United States has too large a voice in the consortium. As heavy users of international communications, our investment in such an international undertaking is exceptionally large. The early development of satellite technology in the United States and the size of our investment has made it logical that ComSat serve as consortium manager.

We seek no domination of satellite communications to the exclusion of any other nation--or any group of nations. Rather, we welcome increased participation in international communications by all INTELSAT members. We shall approach the 1969 negotiations determined to seek the best possible permanent organizational framework.

-- We will consider ceilings on the voting power of any single nation--including the United States --so that the organization will maintain its international character.

-- We will support the creation of a formal assembly of all INTELSAT members--so that all may share in the consideration of policy.

-- We favor efforts to make the services of personnel of other nations available to ComSat as it carries out its management responsibilities.

-- We will continue the exchange of technical information, share technological advances, and promote a wider distribution of procurement contracts among members of the consortium.

It is our earnest hope that every member nation will join with us in finding an equitable formula for a permanent INTELSAT organization.

Domestic Communications Satellite Systems

Communications satellites have domestic as well as international applications. Satellites that can beam telephone calls or television programs between New York and Paris

can do the same between New York and Los Angeles. Daring proposals have already been made to tap the vast U. S. domestic market.

Our awareness of the social and economic potential of this new technology is met by similar excitement around the globe. Each nation will be making decisions about how domestic communications needs can best be met. The position taken by the United States is particularly important because our domestic market is so large and our role in international communications is so extensive.

There are important unanswered questions concerning the operation of a domestic system. Assuming these questions are answered favorably, we still must make the decision to move forward with such a system consistent with our international obligations.

The space segment of a communications satellite system is international by its very nature.

-- A synchronous satellite occupies a permanent orbital position in the international domain of outer space.

-- All satellites radiate electro-magnetic energy potentially capable of interference with other communications systems.

-- All satellites use the internationally regulated frequency spectrum.

In view of the international nature of satellite communications and our commitments under the INTELSAT agreement of 1964, we should take no action in the establishment of a domestic system which is incompatible with our support for a global system.

This does not mean that the United States--or any other nation--will give up vital sovereignty over domestic communications. The flow of satellite communications--both domestic and international--is to and from ground stations owned by the individual nation or its representatives. Each country will have to determine for itself whether it wants to use communications satellites for domestic purposes. It must be prepared to bear the expense of such satellite use, just as it will derive any revenues.

It is the space segment--not the ground station--that is of legitimate international concern. How should a nation utilize satellites for domestic communications purposes?

There are several possible choices:

-- A nation can lease circuits from an international INTELSAT satellite.

-- It could elect to operate a separate satellite for its own domestic use.

-- It could join with neighboring countries to operate a separate satellite.

Logically, this decision should be based on economic grounds--whether domestic requirements can be met most efficiently and economically by a satellite owned by INTELSAT, or by a separate satellite. Present studies indicate that a high volume of domestic traffic is necessary for a separate satellite to offset the cost advantage of sharing the use of an international satellite. The same considerations apply if domestic needs are to be met by a satellite shared by several nations.

If the regional satellite is to carry international traffic as well, INTELSAT--the international communications consortium--has an important stake in the result. Adequate provisions must be made so that any international traffic which is diverted will not jeopardize the economic efficiency of the INTELSAT system or limit its extension to developing countries.

INTELSAT members should adhere to INTELSAT supervision in any use of domestic or regional satellites.

Such supervision should include coordination of design so that all communication by commercial satellite is compatible with the global system. We must not sacrifice our goal of direct communications links among all nations. Domestic and international traffic should be able to flow freely through the entire global system, linked only by the technology itself.

Technical regulation is also necessary so that positions in orbit can be assigned, frequencies can be allocated, and energy from satellites does not interfere with other communications systems.

The alternative to this type of coordination is international communications anarchy--lack of inter-connections, needless expense, pollution of frequencies, radio interference, and usurpation of orbital spaces. Nations should have no hesitation in choosing the route of international cooperation.

Participation by Other Nations in INTELSAT

I urge the Soviet Union and the nations of Eastern Europe to join with the United States and our 57 partners as members of INTELSAT. INTELSAT is not a political organization. It holds no ideological goal except that it is good for nations to communicate efficiently with one another. It seeks no diplomatic advantage. It is quite simply a cooperative undertaking of many nations to finance an international communications system which is of advantage to all.

In 1963, this invitation was extended by the governments of those nations which joined in the creation of INTELSAT. Today, I renew that invitation on behalf of our government.

I have stated many times my hope that our commercial activities with the Soviet Union and Eastern Europe will grow, that our contacts will increase, and that we will emphasize those matters in which our interests are common rather than dwelling on those issues which divide us.

Here is a rare opportunity to join in an activity to bring benefits to all nations and loss to none. Recently the Soviet Union ratified the treaty for the peaceful uses of outer space. Nothing could better symbolize the truth that space belongs to all men, than an international undertaking that permits the free flow of communications. I earnestly hope that the Soviet Union and the nations of Eastern Europe will join in this historic action.

The Soviet Union is a leader in satellite technology. I am advised that there is no insurmountable technical obstacle to an eventual linking of the Soviet MOLNIYA system with the INTELSAT system. The peoples of the world could rightfully rejoice if our advances in satellite technology were accompanied by this act of global cooperation.

Of course, this participation would require a revision of investment and voting ratios based on Soviet anticipated use of the system. Our representatives in INTELSAT are ready to participate in immediate discussions to make that membership possible.

International Communications Ownership

Most nations handle their international communications through a "chosen instrument"--generally, a government owned entity. The United States has no chosen instrument. Several

record carriers and one voice carrier handle international traffic. In addition, ComSat provides satellite circuits to these carriers.

Our normal instinct is to favor the existence of multiple companies in each commercial field. We believe that competitive pressures--among technologies as well as companies--will usually generate lower prices for the user. Congress recognized in the 1962 Act that ComSat would be required to deal with several international carriers.

Yet, there is a legitimate question as to whether the present division of ownership continues to be in the public interest. Critics argue that:

-- International communications are provided by an industry which is regulated in its rates and practices. Price competition, as we usually use that term, does not exist.

-- Divided ownership has resulted in the construction and maintenance of expensive, duplicating communications facilities which increase operating costs and result in higher rates for the user.

-- Our nation is in a relatively poor bargaining position on communications matters with foreign counterparts since we do not speak with a single voice.

-- Disputes have existed between ComSat and the surface carriers over who should own the ground stations in the international system.

-- Defense communications in the future could be subjected to delay.

Several proposals have been advanced which would affect our international communications posture. Legislation has been proposed to permit a merger of one or more of the international carriers. It has been suggested that ComSat should be permitted--in certain circumstances--to contract directly with users other than the international common carriers.

Questions have been raised whether additional communications capacity should be developed through surface cables, utilization of satellites, or other technologies.

A continuation of the review of these issues is desirable.

Task Force on Communication Policy

I am appointing a Task Force of distinguished government officials to make a comprehensive study of communications policy.

It will examine a number of major questions:

-- Are we making the best use of the electromagnetic frequency spectrum?

-- How soon will a domestic satellite system be economically feasible?

-- Should a domestic satellite system be general purpose or specialized, and should there be more than one system?

-- How will these and other developments affect ComSat and the international communications carriers?

These are complex questions. Many of them are being presently weighed by the Federal Communications Commission. But a long, hard look must also be taken by all parties with responsibility in this area--for the ultimate decisions will work a revolution in the communications system of our nation.

This Task Force will examine our entire international communications posture. It should investigate whether the present division of ownership in our international communications facilities best serves our needs, as well as which technology can meet new communication requirements in the most effective and efficient manner.

The task force may establish working groups of government and non-government experts to study various technical, economic and social questions.

The task force should also determine if the Communications Act of 1934 and the Communications Satellite Act of 1962 require revision. I am asking the task force to report to me from time to time and to make its final report within one year.

Government Organization

Our government must be organized to carry out its responsibilities in the communications field. Present authority is widely dispersed. The Federal Communications

Commission has heavy responsibilities under the 1934 and 1962 Acts. The President and many agencies have responsibilities under these Acts, various Executive Orders, and as part of their general duties.

Communications is a vital public policy area--and government organization must reflect that challenge.

I have asked the Bureau of the Budget to make a thorough study of existing governmental organization in the field of communications and to propose needed modifications.

Conclusions

This message does not create a new communications policy for our nation. Rather, it proposes the foundation for that policy.

-- It reaffirms our intentions as a partner in INTELSAT.

-- It considers the need for modifications in our international communications posture.

-- It sets in motion the necessary studies for a better understanding of policy needs in domestic and international communications.

The challenge of this new technology is simple--it is to encourage men to talk to each other rather than fight one another.

Historians may write that the human race survived or faltered because of how well it mastered the technology of this age.

Communications satellites now permit man's greatest gifts--sight, expression, human thoughts and ideas--to travel unfettered to any portion of our globe. The opportunity is within our grasp. We must be prepared to act.

Lyndon B. Johnson

The White House,

August 14, 1967

Public Law 87-624
87th Congress, H. R. 11040
August 31, 1962

An Act

To provide for the establishment, ownership, operation, and regulation of a commercial communications satellite system, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

TITLE I—SHORT TITLE, DECLARATION OF POLICY AND DEFINITIONS

SHORT TITLE

SEC. 101. This Act may be cited as the "Communications Satellite Act of 1962". Communications Satellite Act of 1962.

DECLARATION OF POLICY AND PURPOSE

SEC. 102. (a) The Congress hereby declares that it is the policy of the United States to establish, in conjunction and in cooperation with other countries, as expeditiously as practicable a commercial communications satellite system, as part of an improved global communications network, which will be responsive to public needs and national objectives, which will serve the communication needs of the United States and other countries, and which will contribute to world peace and understanding.

(b) The new and expanded telecommunication services are to be made available as promptly as possible and are to be extended to provide global coverage at the earliest practicable date. In effectuating this program, care and attention will be directed toward providing such services to economically less developed countries and areas as well as those more highly developed, toward efficient and economical use of the electromagnetic frequency spectrum, and toward the reflection of the benefits of this new technology in both quality of services and charges for such services.

(c) In order to facilitate this development and to provide for the widest possible participation by private enterprise, United States participation in the global system shall be in the form of a private corporation, subject to appropriate governmental regulation. It is the intent of Congress that all authorized users shall have nondiscriminatory access to the system; that maximum competition be maintained in the provision of equipment and services utilized by the system; that the corporation created under this Act be so organized and operated as to maintain and strengthen competition in the provision of communications services to the public; and that the activities of the corporation created under this Act and of the persons or companies participating in the ownership of the corporation shall be consistent with the Federal antitrust laws.

(d) It is not the intent of Congress by this Act to preclude the use of the communications satellite system for domestic communication services where consistent with the provisions of this Act nor to preclude the creation of additional communications satellite systems, if required to meet unique governmental needs or if otherwise required in the national interest.

DEFINITIONS

SEC. 103. As used in this Act, and unless the context otherwise requires—

(1) the term "communications satellite system" refers to a system of communications satellites in space whose purpose is to relay telecommunication information between satellite terminal sta-

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tions, together with such associated equipment and facilities for tracking, guidance, control, and command functions as are not part of the generalized launching, tracking, control, and command facilities for all space purposes;

(2) the term "satellite terminal station" refers to a complex of communication equipment located on the earth's surface, operationally connected with one or more terrestrial communication systems, and capable of transmitting telecommunications to or receiving telecommunications from a communications satellite system.

(3) the term "communications satellite" means an earth satellite which is intentionally used to relay telecommunication information;

(4) the term "associated equipment and facilities" refers to facilities other than satellite terminal stations and communications satellites, to be constructed and operated for the primary purpose of a communications satellite system, whether for administration and management, for research and development, or for direct support of space operations;

(5) the term "research and development" refers to the conception, design, and first creation of experimental or prototype operational devices for the operation of a communications satellite system, including the assembly of separate components into a working whole, as distinguished from the term "production," which relates to the construction of such devices to fixed specifications compatible with repetitive duplication for operational applications; and

(6) the term "telecommunication" means any transmission, emission or reception of signs, signals, writings, images, and sounds or intelligence of any nature by wire, radio, optical, or other electromagnetic systems.

(7) the term "communications common carrier" has the same meaning as the term "common carrier" has when used in the Communications Act of 1934, as amended, and in addition includes, but only for purposes of sections 303 and 304, any individual, partnership, association, joint-stock company, trust, corporation, or other entity which owns or controls, directly or indirectly, or is under direct or indirect common control with, any such carrier; and the term "authorized carrier", except as otherwise provided for purposes of section 304 by section 304(b)(1), means a communications common carrier which has been authorized by the Federal Communications Commission under the Communications Act of 1934, as amended, to provide services by means of communications satellites;

48 Stat. 1064.
47 USC 609.

(8) the term "corporation" means the corporation authorized by title III of this Act.

(9) the term "Administration" means the National Aeronautics and Space Administration; and

(10) the term "Commission" means the Federal Communications Commission.

TITLE II—FEDERAL COORDINATION, PLANNING, AND REGULATION

IMPLEMENTATION OF POLICY

SEC. 201. In order to achieve the objectives and to carry out the purposes of this Act—

(a) the President shall—

(1) aid in the planning and development and foster the execution of a national program for the establishment and operation, as expeditiously as possible, of a commercial communications satellite system;

(2) provide for continuous review of all phases of the development and operation of such a system, including the activities of a communications satellite corporation authorized under title III of this Act;

(3) coordinate the activities of governmental agencies with responsibilities in the field of telecommunication, so as to insure that there is full and effective compliance at all times with the policies set forth in this Act;

(4) exercise such supervision over relationships of the corporation with foreign governments or entities or with international bodies as may be appropriate to assure that such relationships shall be consistent with the national interest and foreign policy of the United States;

(5) insure that timely arrangements are made under which there can be foreign participation in the establishment and use of a communications satellite system;

(6) take all necessary steps to insure the availability and appropriate utilization of the communications satellite system for general governmental purposes except where a separate communications satellite system is required to meet unique governmental needs, or is otherwise required in the national interest; and

(7) so exercise his authority as to help attain coordinated and efficient use of the electromagnetic spectrum and the technical compatibility of the system with existing communications facilities both in the United States and abroad.

(b) the National Aeronautics and Space Administration shall—

(1) advise the Commission on technical characteristics of the communications satellite system;

(2) cooperate with the corporation in research and development to the extent deemed appropriate by the Administration in the public interest;

(3) assist the corporation in the conduct of its research and development program by furnishing to the corporation, when requested, on a reimbursable basis, such satellite launching and associated services as the Administration deems necessary for the most expeditious and economical development of the communications satellite system;

(4) consult with the corporation with respect to the technical characteristics of the communications satellite system;

(5) furnish to the corporation, on request and on a reimbursable basis, satellite launching and associated services required for the establishment, operation, and maintenance of the communications satellite system approved by the Commission; and

(6) to the extent feasible, furnish other services, on a reimbursable basis, to the corporation in connection with the establishment and operation of the system.

(c) the Federal Communications Commission, in its administration of the provisions of the Communications Act of 1934, as amended, and as supplemented by this Act, shall—

48 Stat. 1064.
47 USC 609.

(1) insure effective competition, including the use of competitive bidding where appropriate, in the procurement by the corporation and communications common carriers of apparatus, equipment, and services required for the establishment and operation of the communications satellite system and satellite terminal stations; and the Commission shall consult with the Small Business Administration and solicit its recommendations on measures and procedures which will insure that small business concerns are given an equitable opportunity to share in the procurement program of the corporation for property and services, including but not limited to research, development, construction, maintenance, and repair.

(2) insure that all present and future authorized carriers shall have nondiscriminatory use of, and equitable access to, the communications satellite system and satellite terminal stations under just and reasonable charges, classifications, practices, regulations, and other terms and conditions and regulate the manner in which available facilities of the system and stations are allocated among such users thereof;

(3) in any case where the Secretary of State, after obtaining the advice of the Administration as to technical feasibility, has advised that commercial communication to a particular foreign point by means of the communications satellite system and satellite terminal stations should be established in the national interest, institute forthwith appropriate proceedings under section 214(d) of the Communications Act of 1934, as amended, to require the establishment of such communication by the corporation and the appropriate common carrier or carriers;

57 Stat. 12.
47 USC 214.

(4) insure that facilities of the communications satellite system and satellite terminal stations are technically compatible and interconnected operationally with each other and with existing communications facilities;

(5) prescribe such accounting regulations and systems and engage in such ratemaking procedures as will insure that any economies made possible by a communications satellite system are appropriately reflected in rates for public communication services;

(6) approve technical characteristics of the operational communications satellite system to be employed by the corporation and of the satellite terminal stations; and

(7) grant appropriate authorizations for the construction and operation of each satellite terminal station, either to the corporation or to one or more authorized carriers or to the corporation and one or more such carriers jointly, as will best serve the public interest, convenience, and necessity. In determining the public interest, convenience, and necessity the Commission shall authorize the construction and operation of such stations by communications common carriers or the corporation, without preference to either;

(8) authorize the corporation to issue any shares of capital stock, except the initial issue of capital stock referred to in section 304(a), or to borrow any moneys, or to assume any

obligation in respect of the securities of any other person, upon a finding that such issuance, borrowing, or assumption is compatible with the public interest, convenience, and necessity and is necessary or appropriate for or consistent with carrying out the purposes and objectives of this Act by the corporation;

(9) insure that no substantial additions are made by the corporation or carriers with respect to facilities of the system or satellite terminal stations unless such additions are required by the public interest, convenience, and necessity;

(10) require, in accordance with the procedural requirements of section 214 of the Communications Act of 1934, as amended, that additions be made by the corporation or carriers with respect to facilities of the system or satellite terminal stations where such additions would serve the public interest, convenience, and necessity; and

57 Stat. 11.
47 USC 214.

(11) make rules and regulations to carry out the provisions of this Act.

TITLE III—CREATION OF A COMMUNICATIONS SATELLITE CORPORATION

CREATION OF CORPORATION

SEC. 301. There is hereby authorized to be created a communications satellite corporation for profit which will not be an agency or establishment of the United States Government. The corporation shall be subject to the provisions of this Act and, to the extent consistent with this Act, to the District of Columbia Business Corporation Act. The right to repeal, alter, or amend this Act at any time is expressly reserved.

68 Stat. 177.
D. C. Code 29-901.

PROCESS OF ORGANIZATION

SEC. 302. The President of the United States shall appoint incorporators, by and with the advice and consent of the Senate, who shall serve as the initial board of directors until the first annual meeting of stockholders or until their successors are elected and qualified. Such incorporators shall arrange for an initial stock offering and take whatever other actions are necessary to establish the corporation, including the filing of articles of incorporation, as approved by the President.

DIRECTORS AND OFFICERS

SEC. 303. (a) The corporation shall have a board of directors consisting of individuals who are citizens of the United States, of whom one shall be elected annually by the board to serve as chairman. Three members of the board shall be appointed by the President of the United States, by and with the advice and consent of the Senate, effective the date on which the other members are elected, and for terms of three years or until their successors have been appointed and qualified, except that the first three members of the board so appointed shall continue in office for terms of one, two, and three years, respectively, and any member so appointed to fill a vacancy shall be appointed only for the unexpired term of the director whom he succeeds. Six members of the board shall be elected annually by those stockholders who are communications common carriers and six shall be elected annually by the other stockholders of the corporation. No stockholder who is a communications common carrier and no trustee for such a stockholder shall vote, either directly or indirectly, through the votes of subsidiaries or affiliated companies, nominees, or any persons subject to

his direction or control, for more than three candidates for membership on the board. Subject to such limitation, the articles of incorporation to be filed by the incorporators designated under section 302 shall provide for cumulative voting under section 27(d) of the District of Columbia Business Corporation Act (D.C. Code, sec. 29-911(d)).

68 Stat. 191.

(b) The corporation shall have a president, and such other officers as may be named and appointed by the board, at rates of compensation fixed by the board, and serving at the pleasure of the board. No individual other than a citizen of the United States may be an officer of the corporation. No officer of the corporation shall receive any salary from any source other than the corporation during the period of his employment by the corporation.

FINANCING OF THE CORPORATION

SEC. 304. (a) The corporation is authorized to issue and have outstanding, in such amounts as it shall determine, shares of capital stock, without par value, which shall carry voting rights and be eligible for dividends. The shares of such stock initially offered shall be sold at a price not in excess of $100 for each share and in a manner to encourage the widest distribution to the American public. Subject to the provisions of subsections (b) and (d) of this section, shares of stock offered under this subsection may be issued to and held by any person.

"Authorized carrier."

(b)(1) For the purposes of this section the term "authorized carrier" shall mean a communications common carrier which is specifically authorized or which is a member of a class of carriers authorized by the Commission to own shares of stock in the corporation upon a finding that such ownership will be consistent with the public interest, convenience, and necessity.

(2) Only those communications common carriers which are authorized carriers shall own shares of stock in the corporation at any time, and no other communications common carrier shall own shares either directly or indirectly through subsidiaries or affiliated companies, nominees, or any persons subject to its direction or control. Fifty per centum of the shares of stock authorized for issuance at any time by the corporation shall be reserved for purchase by authorized carriers and such carriers shall in the aggregate be entitled to make purchases of the reserved shares in a total number not exceeding the total number of the nonreserved shares of any issue purchased by other persons. At no time after the initial issue is completed shall the aggregate of the shares of voting stock of the corporation owned by authorized carriers directly or indirectly through subsidiaries or affiliated companies, nominees, or any persons subject to their direction or control exceed 50 per centum of such shares issued and outstanding.

(3) At no time shall any stockholder who is not an authorized carrier, or any syndicate or affiliated group of such stockholders, own more than 10 per centum of the shares of voting stock of the corporation issued and outstanding.

(c) The corporation is authorized to issue, in addition to the stock authorized by subsection (a) of this section, nonvoting securities, bonds, debentures, and other certificates of indebtedness as it may determine. Such nonvoting securities, bonds, debentures, or other certificates of indebtedness of the corporation as a communications common carrier may own shall be eligible for inclusion in the rate base of the carrier to the extent allowed by the Commission. The vot-

ing stock of the corporation shall not be eligible for inclusion in the rate base of the carrier.

(d) Not more than an aggregate of 20 per centum of the shares of stock of the corporation authorized by subsection (a) of this section which are held by holders other than authorized carriers may be held by persons of the classes described in paragraphs (1), (2), (3), (4), and (5) of section 310(a) of the Communications Act of 1934, as amended (47 U.S.C. 310). 48 Stat. 1086.

(e) The requirement of section 45(b) of the District of Columbia Business Corporation Act (D.C. Code, sec. 29-920(b)) as to the percentage of stock which a stockholder must hold in order to have the rights of inspection and copying set forth in that subsection shall not be applicable in the case of holders of the stock of the corporation, and they may exercise such rights without regard to the percentage of stock they hold. 68 Stat. 197.

(f) Upon application to the Commission by any authorized carrier and after notice and hearing, the Commission may compel any other authorized carrier which owns shares of stock in the corporation to transfer to the applicant, for a fair and reasonable consideration, a number of such shares as the Commission determines will advance the public interest and the purposes of this Act. In its determination with respect to ownership of shares of stock in the corporation, the Commission, whenever consistent with the public interest, shall promote the widest possible distribution of stock among the authorized carriers.

PURPOSES AND POWERS OF THE CORPORATION

SEC. 305. (a) In order to achieve the objectives and to carry out the purposes of this Act, the corporation is authorized to—

(1) plan, initiate, construct, own, manage, and operate itself or in conjunction with foreign governments or business entities a commercial communications satellite system;

(2) furnish, for hire, channels of communication to United States communications common carriers and to other authorized entities, foreign and domestic; and

(3) own and operate satellite terminal stations when licensed by the Commission under section 201(c)(7).

(b) Included in the activities authorized to the corporation for accomplishment of the purposes indicated in subsection (a) of this section, are, among others not specifically named—

(1) to conduct or contract for research and development related to its mission;

(2) to acquire the physical facilities, equipment and devices necessary to its operations, including communications satellites and associated equipment and facilities, whether by construction, purchase, or gift;

(3) to purchase satellite launching and related services from the United States Government;

(4) to contract with authorized users, including the United States Government, for the services of the communications satellite system; and

(5) to develop plans for the technical specifications of all elements of the communications satellite system.

(c) To carry out the foregoing purposes, the corporation shall have the usual powers conferred upon a stock corporation by the District of Columbia Business Corporation Act. 68 Stat. 177. D. C. Code 29-901.

TTLE IV—MISCELLANEOUS

APPLICABILITY OF COMMUNICATIONS ACT OF 1934

48 Stat. 1066.
47 USC 153.
48 Stat. 1070; Ante, p. 64.
47 USC 201-222, 301-397.

SEC. 401. The corporation shall be deemed to be a common carrier within the meaning of section 3(h) of the Communications Act of 1934, as amended, and as such shall be fully subject to the provisions of title II and title III of that Act. The provision of satellite terminal station facilities by one communication common carrier to one or more other communications common carriers shall be deemed to be a common carrier activity fully subject to the Communications Act. Whenever the application of the provisions of this Act shall be inconsistent with the application of the provisions of the Communications Act, the provisions of this Act shall govern.

NOTICE OF FOREIGN BUSINESS NEGOTIATIONS

SEC. 402. Whenever the corporation shall enter into business negotiations with respect to facilities, operations, or services authorized by this Act with any international or foreign entity, it shall notify the Department of State of the negotiations, and the Department of State shall advise the corporation of relevant foreign policy considerations. Throughout such negotiations the corporation shall keep the Department of State informed with respect to such considerations. The corporation may request the Department of State to assist in the negotiations, and that Department shall render such assistance as may be appropriate.

SANCTIONS

SEC. 403. (a) If the corporation created pursuant to this Act shall engage in or adhere to any action, practices, or policies inconsistent with the policy and purposes declared in section 102 of this Act, or if the corporation or any other person shall violate any provision of this Act, or shall obstruct or interfere with any activities authorized by this Act, or shall refuse, fail, or neglect to discharge his duties and responsibilities under this Act, or shall threaten any such violation, obstruction, interference, refusal, failure, or neglect, the district court of the United States for any district in which such corporation or other person resides or may be found shall have jurisdiction, except as otherwise prohibited by law, upon petition of the Attorney General of the United States, to grant such equitable relief as may be necessary or appropriate to prevent or terminate such conduct or threat.

(b) Nothing contained in this section shall be construed as relieving any person of any punishment, liability, or sanction which may be imposed otherwise than under this Act.

(c) It shall be the duty of the corporation and all communications common carriers to comply, insofar as applicable, with all provisions of this Act and all rules and regulations promulgated thereunder.

REPORTS TO THE CONGRESS

SEC. 404. (a) The President shall transmit to the Congress in January of each year a report which shall include a comprehensive description of the activities and accomplishments during the preceding calendar year under the national program referred to in section 201(a)(1), together with an evaluation of such activities and accomplishments in terms of the attainment of the objectives of this Act and any recommendations for additional legislative or other action which the President may consider necessary or desirable for the attainment of such objectives.

(b) The corporation shall transmit to the President and the Congress, annually and at such other times as it deems desirable, a comprehensive and detailed report of its operations, activities, and accomplishments under this Act.

(c) The Commission shall transmit to the Congress, annually and at such other times as it deems desirable, (i) a report of its activities and actions on anticompetitive practices as they apply to the communications satellite programs; (ii) an evaluation of such activities and actions taken by it within the scope of its authority with a view to recommending such additional legislation which the Commission may consider necessary in the public interest; and (iii) an evaluation of the capital structure of the corporation so as to assure the Congress that such structure is consistent with the most efficient and economical operation of the corporation.

Approved August 31, 1962, 9:51 a.m.

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