

INTERNATIONAL SATELLITE ORGANIZATIONS: FROM MONOPOLY TO CARTEL

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Abstract

International telecommunications satellite organizations have traditionally been viewed by many as exceptional institutional models in the area of space cooperation. These organizations are now coming under attack and criticism. Technology, economics, and law are radically transforming these organizations providing fuel for criticisms and attacks by analysts and the business community.

This paper examines the changing role and nature of international satellite organizations. By examining the life cycle of these organizations, from infancy to maturity, we are more clearly able to understand newly emerging national laws, bilateral agreements, and international and regional agreements regarding satellite communications. Intelsat has been selected as a case study, because it is the oldest, the largest, and the most widely known satellite organization. I argue that Intelsat, originally a pioneer monopoly organization, did not become a cartel like structure until the early 1980s.

The factors responsible for the transformation from a pioneering monopoly structure that provided efficiency to that of a cartel like structure included: the maturation of communications satellite technology, the national regulatory regimes, and developments of the private financial markets. This paper concludes with a prediction of the structures that are likely to emerge from the ashes of these current organizations.

I. Introduction

The rapid changes that confront international satellite organizations are a fitting and appropriate topic to discuss at a conference whose theme is "Discovery, Exploration and Cooperation." The founders of international satellite organizations can be characterized as pioneers discovering new massive scales of business, exploring new technologies and ways of business, and importantly forging a new era of international cooperation that allowed for discovery and exploration.

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International satellite organizations have been championed by the space law community as the premier example of international cooperation in outer space. In recent years there have been proposals put forward for a world space organization, a global remote sensing organization, as well as a number of proposals which seek to emulate the structure of international satellite organizations.

Nearly all the fundamental aspects relating to international satellite organizations including technical, regulatory, and economic are undergoing radical transformation. In this paper I argue that International Satellite Organizations are no longer agents of efficiency, but have become cartel like structures.

The history of time provides an interesting metaphor for clearly understanding the current and impending changes in international satellite organizations.

A Brief History of Time as a Metaphor for Change

The abstract notion of time emerged during the Renaissance with the development of the first mechanical clock. The Norwich cathedral tower clock in England was initiated in 1321 and completed in 1364.

"Due to the expense and complexity of construction, the clocks that regulated village and monastic life were the exclusive property of royalty and clergy...From churches and castles, time marched onward to the streets and byways of Europe. Miniaturized for the pocket or the coach, the "watch" was born...Brazilian aviation pioneer Albert Santos-Dumont wanted a device to keep track of time while at the controls of his airship. Fumbling for a pocketwatch simply threatened life and limb. So the Brazilian aviator commissioned French jeweler Louis Cartier to devise a solution beyond the pocket and pennate watches in vogue at the time. His solution in 1904 was the first modern wristwatch."¹

The development of time keeping instruments is a historical example of a shift from technological centralism to technological democratization. In a similar fashion the brief history of satellite communications is a shift from technological centralism to technological democratization.

Similar to the clock tower, satellites and large scale earth stations, have been prohibitively expensive. Substantial costs, accompanied by the intricacies of developing and integrating leading edge technologies imposes an economies of scale that encourages centralization. This centralization is understandable when we consider that satellite technology emerged from military and civilian space programs that to this day remain largely the providence of the state. However, like the shift from the clock tower to the wrist watch, satellite communications have become increasingly accessible to a greater number of organizations and people.

Rapidly changing industry economics, regulations, and technology relating to satellite telecommunications are creating a fundamental impact on emerging and future supplements to space law.

II. International Satellite Organizations

Numerous international satellite organizations are headquartered throughout the world. While each of these organizations is distinct they all share common characteristics. Satellite organizations including Intelsat, Eutelsat, Arabsat, Inmarsat, were created to provide regional and global coverage. These organizations are predicated on the need to provide critical telecommunications infrastructure. Furthermore it has been argued that these multilateral arrangements not only allow for the formation of a large critical mass where network economies can be achieved, but that truly "universal service" can be obtained. (That is that service can be provided beyond those commercially viable routes of urban areas supported by concentrated populations and profitable business traffic.)

During the pioneering era, from the 1960s to the early 1980s, international satellite organizations and users profited from technological centralization and government support and protection. We have passed this era of development and international satellite organizations are no longer functioning at a level of efficiency but rather resemble that of cartel structures. This can better be understood by examining the ownership of international satellite organizations.

III. The Power of Privatization and Liberalization

The owners of international satellite organizations are

generally national monopoly telephone companies or PTTs (Post Telephone and Telegraph organizations). PTTs are generally owned by the state. In the majority of countries the telephone customers are to a large extent subsidizing, through their phone bills, the money losing post offices as well the general treasury. In addition in many countries it is illegal to compete directly with the PTT provider. PTTs are generally inefficient, overstaffed, overpriced, and unaccountable to the customers. Experts forecast that customers are overcharged \$10 billion annually for international telecommunications services.²

A recent issue of Public Networks was devoted to reforming Europe's PTTs:

Competition in telecoms operating is in vogue--as a theory. In practice, few countries have taken the plunge by subjecting national monopolies to competition. There are still confirmed believers in the "efficient monopoly" but to others this is a contradiction in terms.

Europe's traditional operators are either changing or are having change thrust upon them. Liberalization scenarios vary tremendously, but all of them necessitate a farewell to old attitudes and the adoption of a new outlook. It may come as a surprise to some of our readers, but the "telephone company" is not a publicly revered institution in most European countries.³

It is precisely this increasing realization of the inefficient down side to monopoly PTT structures that has fueled in the 1990s a movement to privatize, and liberalize the regulatory environment surrounding with the telecommunications hardware and services market in many countries throughout the world.⁴

Telecommunications Privatization In the 1990s

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Central and South America		Western Europe	
Argentina	1990	Portugal	1992
Mexico	1990	Netherlands	1992
Puerto Rico	1990	Ireland	1993
Venezuela	1991	Denmark	1993
Colombia	1993	Belgium	1993
Brazil	1993	Germany	1995
Paraguay	1994		
<hr/>			
Central Europe		Middle and Near East	
Hungary	1991	Israel	1992
Poland	1993	Saudi Arabia	1992
Czech Rep.	1993	Turkey	1993
Africa		Asia & Pacific	
S. Africa	1992	New Zealand	1990
Nigeria	1992	Malaysia	1990
Kenya	1992	South Korea	1991
		Australia	1991
		Singapore	1991

"The Myths and Realities of Telecommunications Privatization World Progress and Prospects," Jack Stockdale, Telecommunications Research Centre, CSIS, September 26, 1990.

Telephone companies are owned and operated in a number of diverse styles ranging from government department, state corporation, state partial shareholding, and full private ownership. The trend toward privatization of PTT entities and the radical shift toward liberalization-- allowing competition in those services traditionally monopolized by PTTs forces a fundamental review of international satellite organizations. The forces of privatization and liberalization have set into motion an irrevocable process. This process is creating a new regulatory and legal framework for international satellite organizations.

To appreciate the fundamental changes that are reshaping international satellite organizations it is helpful to examine Intelsat, the largest and oldest international satellite organization, as a case study.

IV. Intelsat A Case Study: From Monopoly to Cartel

Monopoly

Intelsat's origins can be traced to U.S. legislation adopted thirty years ago. From a single satellite in 1965, Intelsat has expanded to a network of 19 satellites connecting over 750 earth station antennas. The justifications for creating Intelsat as a global satellite cooperative was based on some of the same premises used to establish national monopoly phone companies. Intelsat was created because it was felt that the satellite system by its sheer scale and complexity was a natural monopoly.⁵

A monopoly is simply defined as:

a single seller who has exclusive control of the supply and marketing of some product or service. This exclusivity frequently enables the monopolist to set a selling price that is likely to be higher than it would be if competition with other sellers of the same product existed. A telephone company serving a community is an example of a monopolist.⁶

The economies of scale of building a global satellite network, particularly when considering the high risk nature of early satellite technology, required vast financing resources and large national and technically literate partners. The PTT's, aside from space agencies, were the only national entities that were capable of meeting these criteria. What essentially became a PTT cooperative, also enabled the cross subsidization that allowed for service to thin routes and the provision of universal service. An important driver of what led to "the most impressive U.S. foreign policy victory" in creating Intelsat was old style Cold War policy making, which encouraged competition with the Soviets in space and what was later to emerge as the competing Soviet Intersputnik satellite system.

As Dr. Joseph Pelton has pointed out:

In the '60s, the nascent International Telecommunications Satellite Organization (Intelsat) was the freshest concept of its time. President John F. Kennedy's idea for a new multinational

mechanism to harness the potential of space for world telecommunications and global cooperation was a key part of his "New Frontier" policy. Kennedy announced his decision to send astronauts to the moon together with his plans for a global satellite system that would benefit the whole world. In fact, the televised landing of Neil Armstrong on the moon in 1969, transmitted to many countries via satellite, would not have been a global event if Kennedy had not launched Comsat and Intelsat when he did. By then, a worldwide satellite communications system was in operation.⁷

A 1985 U.S. government white paper described the benefits that Intelsat had brought to the nation:

Intelsat's manifest success has: provided a dramatic example of U.S. leadership in the peaceful use of space...; contributed to meeting evolving U.S. commercial needs for efficient international communications services; provided developing countries with improved communications at reasonable and affordable rates; confined the Soviet Intersputnik system to a relatively small portion of the world; supplied developing countries with access to the geostationary orbit and satellite radio frequencies; provided benefits to U.S. companies through open international procurements [of] equipment and services.⁸

From a network business and engineering perspective Intelsat has generated very concrete benefits.

Satellite Capacity: From the Intelsat I to Intelsat 6 satellites, the effective capacity measured in bandwidth/years-in-orbit increased by almost 2000 times.

Reliability of the Intelsat space segment quickly went to 99 percent and has been above the 99.8 percent level since the early '80s.

Costs and Tariffs: The cost of Intelsat capacity in orbit per year of lifetime over the last quarter century has decreased by nearly 2000 times and the basic unit of utilization charge for capacity, adjusted for inflation, has dropped by almost 150 times. Only the computer industry has achieved more impressive results.⁹

There is a consensus among Intelsat supporters and detractors alike, that Intelsat has provided a necessary

and critical role in the development of satellite communications. The controversy focuses on the current and future utility and role of the organization. Those who support Intelsat argue that the organization has changed and continues to adapt to a rapidly evolving environment. Intelsat supporters generally are of the school that small adjustments are sufficient to preserve the essential Intelsat structure and spirit.

Intelsat critics argue that the organization is anachronistic and that fundamental changes are necessary in order to allow for a just, effective, and efficient international satellite provider and services industry to develop.

Cartel

Critics of Intelsat argue that the organization has impeded competition in the area of international satellite services. A cartel is defined as:

an organized group of producers formed to obtain higher prices, restrict production, or divide the market. To achieve its ends, the cartel must usually control production and thus limit the market supply, particularly in times of slack demand. As long as the members of the cartel maintain discipline, their price objectives are likely to be met. The history of cartels shows, however, that they tend to break down...¹⁰

Until the 1980's the benefits of the Intelsat monopoly structure outweigh its negative impact. However, since 1980s the structure has had adverse effects on the telecommunications market. Prior to the 1980s communications satellite technology was still maturing and was prohibitively expensive. The national regulatory regimes, governing the landing and transmitting of satellite signals as well as interconnection to the public networks made as a result competitive international satellite system illegal. However, during this time regulation was not *actively* used as an impediment to competition during the early pioneering era.

Two technologies have fundamentally altered the economics of international satellite organizations. The first, fiber optic communications has been the most compelling competitor to satellite communications. The loading of traffic on fiber has created a low cost pricing alternative lowering the basic threshold of satellite pricing. The second

technological driver has been the Very Small Aperture Satellite Terminals (VSATs) that have fundamentally lowered the earth segment cost structure, permitting small telecommunications providers and businesses to play in the satellite telecommunications environment.

In the 1980s satellites were considered a mature and proven technology. It was also during this period that the financial markets produced numerous examples of large capital offerings that cut across industry lines. It was at this point where technology and finance converged that it can be said that the members of international satellite organizations *actively* conspired to impede competition in the area of international satellite services.

International satellite organization reformers reject the argument that Intelsat provides "universal service" as a result of cross-subsidization of thin routes from thick route revenues. They point out that Intelsat's rate structure does not contain direct cross-subsidy provisions.¹¹ Those who support Intelsat suggest that separate satellite systems are "cream skimming," that is focusing on high traffic countries, while ignoring less developed markets. The counter argument is that many of these less developed markets are in developing countries that are from a regulatory perspective the most restrictive. Also one can point out that separate systems Asia Sat and Pan Am Sat are serving some of these less developed markets.

Intelsat has obstructed competition by utilizing Article XIV (d) of the Intelsat Operating Agreement.

Under that article, all parties to the Intelsat agreement commit themselves to consultation with Intelsat's Assembly of Parties before they allow non-Intelsat satellites to operate. Members agree to prove that a proposed satellite system will meet three criteria. First, it must not result in harmful radio frequency interference to Intelsat; second, it must not cause "significant economic harm" to Intelsat; third, it must not endanger Intelsat's ability to provide direct communications links among all the participants in the global system. Under Article XIV (d), Intelsat can issue recommendations against the establishment of any separate system.¹²

Intelsat promotional literature is correct when it states that "There are no geographical barriers to global satellite communications." What the document fails to mention are the numerous regulatory barriers to

global satellite telecommunications.

This point is illustrated in the following Intelsat chart showing the increase in consultations that were conducted between Intelsat and potential alternative satellite providers.

Article XIV (d) Consultations

Year	Number of Consultations	Year	Number of Consultations
1973	0	1982	31
1974	2	1983	1
1975	0	1984	0
1976	3	1985	87
1977	0	1986	0
1978	2	1987	76
1979	4	1988	15
1980	6	1989	179
1981	0		

Source: Intelsat BG-86-21E, July 1990

By squeezing out competition, critics charge that Intelsat, and its signatories have not had to be as responsive to customer requirements, have lacked flexibility, have overcharged customers, and even slowed the growth of the satellite industry. Rene Anselmo, Chairman of the Board, of Alpha Lyracom and the operator of PanAmSat argues that the Intelsat convention is "an agreement among thieves."¹³ There have even been accusations that the U.S. government has supported the Intelsat monopoly because of the government's ability to monitor calls for national security purposes.

To understand the extent of the cartel practices by the signatories of Intelsat it is useful to compare the pricing structure between the signatories and PanAmSat.

Comparison of Cartel Pricing between Intelsat Signatories and PanAmSat 64 KBPS Monthly Charges

Country	PTT	PanAmSat
France	\$4,416	\$3,000
Germany	\$5,585	\$3,000
U.K.	\$4,573	\$3,000
Italy	\$9,172	Reader fill in this blank spot
Spain	\$7,206	Reader fill in this blank spot

Source: 1992 Intercontinental Digital Services: Leased Line Services For North America, Europe and the Far East, KJH Communications

In the chart above I have requested that the reader fill in the blank on the cost of utilizing PanAmSat in Spain and Italy. Below the answer is provided:

Spain and Italy as Examples of Cartel Pricing for Satellite Service

Service	PTTs Charge for PanAmSat
Italy	\$9,172
Spain	\$7,206

The reader should be confussed by Italy and Spain's insistence to mark-up and collect on a service that does not even belong to them. In fact , if a businessman attempted to avoid the PTT altogether and install a satellite dish on his own premises in order to utilize the PanAmSat, services the PTT would charge the businessman a higher rate.

For instance, in Spain, Telefonica would charge a businessman \$8,262 if he attempted to use his own satellite dish to access PanAmSat. Telefonica adds no value, yet regulations in Spain permit this cartel pricing structure to continue.

One of the world's largest user groups, the Paris based ICC has recently called for the elimination of monopolies in the telecommunications field. Their

latest position paper argues: "The burden of proof [must] shift from those who defend continued monopoly provision; from those who advocate economically more efficient prices to those who defend a continuation of hidden subsidies."¹⁴ The paper is supported by statistics and case studies demonstrating the increased efficiencies produced by competition in the telecommunications sector.

While Intelsat has recently permitted competitive separate satellite systems they have prevented competition by limiting their access to the Public Switched Telephone Network (PSTN). The PSTN debate has involved a technical and often arcane discussion that has evolved from completely limiting PSTN connection to permitting certain maximum thresholds.¹⁵ Initially Intelsat did not allow separate systems to interconnect to the PSTN. Under intense pressure Intelsat signatories finally allowed 100 circuits, and ultimately just this summer agreed to allow up to 1,250 circuits to be interconnected by competitors.¹⁶

A major barrier to competition is the national regulations that prohibit access to the Intelsat network without paying substantial margins to the national monopoly Intelsat signatories. A recent article in CommunicationsWeek International on proposed regulatory changes in the European Community stated: "Tough action may also be forthcoming in the area of satellite communications. Restrictions on satellite usage by Eutelsat and Intelsat, particularly on the issue of direct access to space segment capacity, are seen as an abuse of the competition rules of the Community...The plain truth is that the inertia of history may at last be countered by forces leading the way to a free market-- a market that users, equipment manufactures and even public network operators deserve."¹⁷

V. Direct Victims of the Intelsat Cartel

Alpha Lyracom's PanAmSat

Alpha Lyracom is perhaps the best known organization that has attempted to compete with Intelsat. Alpha Lyracom (also known as PanAmSat) launched its PAS-1 satellite in 1988. To this day PanAmSat is limited in the services that it can offer by Intelsat and its signatories. The following provides a

short-update on the legal challenge being conducted by PanAmSat:

Although Alpha Lyracom has been successful in marketing its services to foreign users, it brought a complaint against COMSAT in the Federal District Court for the Southern District of New York, alleging that COMSAT had engaged in anti-competitive schemes which had prevented the company from competing in particular markets. Judge John F. Keenan dismissed the complaint on the grounds that COMSAT, by virtue of its position as U.S. representative to INTELSAT, was immune from liability of federal antitrust laws under certain international agreements. On review, the United States Court of Appeals reversed and remanded the case upon a determination that COMSAT should be subject to antitrust liability in its role as a common carrier, but immune as to its role as U.S. representative to INTELSAT.¹⁸

Columbia Communications

A recent article in the Economist described the difficulty a recent start-up satellite organization had in coordinating with Intelsat:

For proof of stupidity of much international telecoms regulation, look at the history of Columbia Communications, a tiny satellite firm based in Hawaii. Columbia signed up its first customer a few weeks ago, nearly three years after it first tried to launch a service. The process took that long not because of lack of demand for Columbia wares, nor because of lack of satellite capacity, but because of an endless tangle of red tape and the opposition of Intelsat, the consortium of 121 national telephone companies that clings to a virtual monopoly of the transmission of satellite signals between continents.¹⁹

An Attempt to Use Intersputnik

In February 1987, Kenny Schaffer, a New York businessman, representing Belka and Orbita, attempted to coordinate the broadcast of sixty-six hours of Soviet television in the United States from the Soviet Intersputnik satellites. forty-eight hours before the broadcast was suppose to begin the U.S. Federal Communications Commission denied the request stating that this would violate the Intelsat charter. As a result the businessman and his lawyers

had to devise a way to get around the ban by persuading:

the Soviets to make Belka [the New York company] temporary owner of the four satellites--in effect, turning them into domestic American satellites, thus eliminating the basis of the F.C.C.'s disapproval. Doing this involved getting in touch with the Soviet Minister of Communications at his dacha at three o'clock in the morning and pressing him to have the necessary documents prepared in Moscow and telexed to both the F.C.C., in Washington, and the International Telecommunications Union in Geneva--and all at the speed at which the Soviet bureaucracy is unaccustomed to operate. Surprisingly, the Soviets agreed to the plan, and Orbita became the official leaseholder of the satellites for the following week.²⁰

After all the creative space lawyering, Belka in the end, decided that Intelsat provided the least regulatory risk to those Western commercial entities involved with the project.

There are a number of indirect victims of the Intelsat cartel these include those end users and intermediate providers that have been overcharged and restricted in the services that they could otherwise have been offered.

While Intelsat has recently agreed to eliminate restrictions on non-switched satellite services, the organization maintains its right to invoke Article XIV (d) to prevent technical or economic harm.²¹

VI. Current State of the Intelsat debate

There is a consensus by both supporters and critics of Intelsat that the organization is indeed changing toward a more competitive entity. What there is not consensus on, is whether this change is desirable from a higher level policy perspective, and for the overall satellite services industry as a whole.

In all fairness to Intelsat, if the organization changes it comes under attack, if the organization maintains the status quo it also would attract criticisms, the organization has found itself in a classic no win predicament.

When Irving Goldstein the current Intelsat Director General (to reflect fundamental shift in commercial emphasis his new title is now CEO), was running for his current position he ran on the premise of transforming Intelsat into a more competitive organization. In his campaign letter, which was sent out to telecommunications authorities around the world he stated:

Irving Goldstein has instituted changes at Comsat that enabled it to break out of its traditional role as a single service provider of space segment capacity. I am coming from a company that has transitioned itself from a stodgy organization to a commercially-oriented organization. That kind of thing has to be done at Intelsat.²²

At the March 1992 Board of Governors Meeting, the first action announced was the adoption of "major organizational changes" recommended by Goldstein. In July of this year Intelsat concluded its first major long-term financing by floating Eurobonds for \$200 million dollars. The July offering represents about an 8-9% debt ratio. The intended goal is to seek additional financing that would bring debt up to about a 30% ratio, which would certainly be consistent with an aggressive campaign to bring commercial financing mechanisms to the organization.²³

While Intelsat is attempting to change the way it is doing business, critics have struck back. On April 20, 1992, PanAmSat released the "White Paper: A New, Private Enterprise Intelsat" was released attacking Intelsat:

...without adequate oversight by the U.S. and the other governments that created it, Intelsat has changed its priorities and purposes. Although it retains all of its governmentally-based treaty privileges and immunities Intelsat now is determined to become an aggressive global competitor, relying upon private financing and construction of facilities and creating new services designed solely for competitive purposes. Unless that treaty status is changed Intelsat will stifle the telecommunications competition that the U.S. and other countries are trying to encourage.

This White paper demonstrates that the Intelsat treaty status not only is an anachronism in today's competitive market, it actively undermines that

market. The White Paper, therefore, focuses on key features of a policy review that should be initiated immediately, in order to establish a new legal framework for Intelsat as a private enterprise entity. While that policy review is underway, there should be a moratorium on Intelsat's *de facto* commercialization, which, left unchecked, will allow it to establish an irreversible dominance over its competitors.²⁴

While this conflict rages on, agreement will only be found in narrow areas such as that suggested recently by retired Eutelsat Director General Andrea Caruso, who argued that the basic structure of Intelsat and Eutelsat are: "in conflict with the present reality as it has emerged from the marketplace." Continuing, he suggested "there is a need to update the Intelsat and Eutelsat conventions to "introduce necessary changes so that the principles of deregulation will apply to all."²⁵

VII. Conclusions

To illustrate the shift that has taken place in international satellite organizations, from monopoly to cartel, I have primarily emphasized the Intelsat case study. Nevertheless, other international satellite organizations share the same cartel-like characteristics. Not only are organizations such as Intelsat, Eutelsat and Inmarsat rapidly changing, but so too are the national and regional regulatory structures throughout the world.

The revolutionary changes in privatization, liberalization, finance and telecommunications economies, and the developments in technologies including satellites, the development of VSATs, and the explosion of fiber optics has irreversibly impacted international satellite organizations. These organizations can no longer automatically be seen as ideal models for other areas of international space cooperations to emulate.

Reformers of international satellite organizations are attempting to pressure these organizations in order to force them into a strictly commercial domain. To create a "level playing field" reformers are seeking to have these organizations removed from the regulatory process, and to eliminate diplomatic immunities for these organizations and their employees.²⁶

International satellite organizations have "seen the writing on the wall" and they are attempting to implement change to blunt the impact of reformers.

The general model that I believe ought to be used for deregulating international satellite organizations, should be similar to the deregulatory model that took place in the U.S. during the break-up of AT&T from the regional Bell operating companies. Those seeking to use capacity from international satellite organizations ought to be allowed direct access. This can be accomplished by developing a standard cost based pricing formula. This would contrast with the current system of arbitrary pricing and sometimes harsh pricing.

Such a model will allow for the co-existence of private satellite systems, regional satellite systems, international satellite systems, and will bring back efficiency to the domain where monopolies currently frolic.

To return to the metaphor of time with which we begin this paper: for international satellite organizations the hourglass has been inverted, and the sand that cascades to the bottom gives warning that time is not on the side of the clock tower and the monopoly phone providers, but on the side of the wristwatch and the telephone consumer. The challenge for those in the space policy and law communities, not only in the sphere of telecommunications but in other pursuits as well, will be to build environments and structures that balance cooperation and competition while producing utility and efficiency for all mankind.

Notes

¹ Cavileer, Sharon, From Sundials to Wristwatch: Timing is Everything," Here!, p14-16.

² Dawkins, William, "Concern at \$10 bn Phone Overcharging," Financial Times, 12-5-90, p. 9.

³ Public Network, "Reforming Europe's PTTs, October 1991, Vol 1, No 10, pgs 27,41.

⁴ In PanAmSat "White Paper: A New, Private Enterprise Intelsat," April 20, 1992 p. 3, suggests: "...by conservative estimate, Intelsat's ownership today is well over 50% private, and will increase as privatization continues."

⁵ The legislative hearing for the Satellite Act reveal interesting thoughts on whether COMSAT was designed to prevent competition or encourage competition. The

following dialogue between members of the Senate Commerce Committee and a U.S. government official:

Mr. KATZENBACH...Senator Kefauver, as I understand him, seemed to feel that in some way the antitrust laws were suspended by the creation of this corporation. That is certainly not the view of the Department of Justice. They aren't in any sense suspended. The antitrust law apply to what is done in this corporation, to any conspiracies which are created with an intent to dominate or to lessen competition. Indeed, the whole thrust of the Department has been to make the communications system more competitive and to use this as a device for insuring that no single carrier would get monopoly control over this great new satellite system. And that has been our thrust. We believe that this bill, as drafted, accomplishes that purpose insofar as it is possible to accomplish it.

See Brillson, Paula, "The Empire Strikes Back In the International Satellite Telecommunications Industry...But, is Alpha Lyracom's Right to Bring Antitrust Action Against COMSAT Really a Triumph for Private Sector Competition?" Rutgers Computer & Technology Law Journal, Vol 18 1992 pgs 381-402.

Also see: Hearings before the Senate Comm. on Commerce, 87th Cong., 2d Sess. 284 (1962) (transcript).

⁶ Compuserve Encyclopedia Service. The citation continues: "In the United States, however, because every telephone company is treated as a PUBLIC UTILITY, the prices it charges are fixed by state and federal regulatory agencies."

⁷ Pelton, Dr. Joseph N., "How Intelsat was 'Privatized' When No One Was Looking," Via Satellite, March 1992, p.38.

⁸ Mueller, Dr. Milton, "Intelsat and the Separate System Policy: Toward Competitive International Telecommunications," Policy Analysis, No. 150 March 21, 1991, The Cato Institute, p. 17.

See also: Senior Interagency Group on New International Satellite Systems, "A White Paper on New International Satellite Systems, February 1985.

The SIG included representatives from the Departments of State, Commerce, Justice, and Defense as well as the U.S. Trade Representative, the National Security Council, the Central Intelligence Agency, the U.S. Information Agency, the Board for International Broadcasting, the Agency for International Development, the National Aeronautics and Space Administration, and other organizations.

⁹ Dr. Joseph N. Pelton, "How Intelsat was 'Privatized' When No One Was Looking," p. 38.

¹⁰ Compuserve encyclopedia service.

¹¹ Dr. Milton Muller, "Intelsat and The Separate System Policy: Toward Competitive International Telecommunications," pp 15-16.

¹² Dr. Milton Muller, "Intelsat and The Separate System Policy: Toward Competitive International Telecommunications," pp 8-9.

¹³ Chase, Scott, "Future Scenarios: Separate Systems Proponents Spar Over Role of Intelsat," Via Satellite, p. 32.

¹⁴ Gilhooly, Denis, "Competition Call: ICC Targets Voice, Infrastructure," CommunicationsWeek International, November 19, 1991.

¹⁵ See Frieden, Rob, "The New Turf Battle: Should Separate Systems Access the PSTN?," Via Satellite, March 1991, pp 28-31.

¹⁶ Schenker, Jennifer, and Hayes, Dawn, "Intelsat On Guard," CommunicationsWeek International, July 6, 1992.

¹⁷ Forum, Editorial, "The Plain Truth," CommunicationsWeek International, November 18, 1991.

¹⁸ Brillson, Paula, "The Empire Strikes Back in the International Satellite Telecommunications Industry...But, is Alpha Lyracom's Right to Bring its Antitrust Action Against COMSAT Really a Triumph for Private Sector Completion," Rutgers Computer & Technology Law Journal, Vol 18, 1992, pg. 384-385.

¹⁹ "Intelsat Upon," The Economist, February 22, 1992, p. 65.

²⁰ Profiles, "Opening Windows," New Yorker, December 2, 1991.

²¹ Schenker, Jennifer, and Hayes, Dawn, "Intelsat On Guard," CommunicationsWeek International, July 6, 1992.

²² In The News, "Irving Goldstein: The Newly Elected Director General of Intelsat Wants to Make the Global Satellite Consortium More Like a Corporation," CommunicationsWeek International, December 16, 1992, p.39.

²³ Interview with Larry Alpert of Intelsat, August 10, 1992. Also see Euroweek July 10, 1992, and International

Financing Review July 11, 1992.

²⁴ PanAmSat "White Paper: A New, Private Enterprise Intelsat," April 20, 1992 p.1.

²⁵ Chase, Scott, "Future Scenarios: Separate Systems Proponents Spar Over Role of Intelsat," Via Satellite, p. 34.

²⁶ PanAmSat "White Paper: A New, Private Enterprise Intelsat," April 20, 1992 p.1.

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