

Intelsat: Responding to New  
Challenges

by Joseph N. Pelton

Do not quote without the permission of the author.  
©1984 Columbia Institute for Tele-Information

Columbia Institute for Tele-Information  
Graduate School of Business  
Columbia University  
809 Uris Hall  
New York, NY 10027  
(212)854-4222

INTELSAT:  
RESPONDING TO NEW CHALLENGES

by  
Joseph N. Pelton

Director of Strategic Policy  
INTELSAT

November 1984

This paper was presented to a conference entitled: Tracing  
New Orbits: Competition and Cooperation in Satellite Develop-  
ment.

Research Working Paper Series, not for citation, quotation,  
reproduction or distribution without written permission.  
All papers represent solely the author's view and not  
necessarily that of the Research Program or its affiliates.



9 October 1984

INTELSAT: RESPONDING TO NEW CHALLENGES

Dr. Joseph N. Pelton  
INTELSAT

INTRODUCTION

We live in a changing world. This is particularly so in the world of high technology. In a survey of executives in new start-up-venture capital firms, it was found that 43 percent of those surveyed had a computer at their desks, and that these were in use a significant percentage of the time. Let's take another example. It is today possible to transmit a single page of information across the Atlantic Ocean some 50-million times faster than it was a couple of centuries ago. Whichever way one looks -- satellites, computers, television, telematics, or robotics -- the story is the same: innovation, change and economic and social revolution, driven by new technologies.

The combination of computer and communications technology, in particular, seems to be giving rise to not only new services and applications in the world of telematics and informatics, but also is giving rise to productivity gains and to new ways of doing business. The banking community, for instance, has strongly moved toward the implementation of telematics technologies for electronic funds transfers. In doing so, they have found that this has eliminated millions of dollars in expenses associated with the "float" delay accompanying funds transfers. Even more significantly, in economic terms,

however, automated funds transfers have led to productivity gains by lessening the time associated with each transaction. Staff time devoted to such exercises have decreased by over 400 percent, and thus led to fourfold productivity gain.

The German Minister of Posts & Telecommunications in a presentation, recently made an analogy in reverse -- between the computer chip and the dinosaur. He noted that the dinosaur, in moving toward ecological extinction, developed an ever-larger body with a tiny brain, while the electronic computer chip of today is evolving toward a smaller and smaller body, with an ever-increasing "brain."

Few people, in light of this evidence, would disagree with the fact that telecommunications is ever more important to the economic and social fabric of all countries the world over -- regardless of whether these be developed, industrializing, or developing countries.

Although the importance of communications to industrialized countries is often obvious in many ways, there is increasing evidence (reflected in studies commissioned by the ITU and the Organization of Economic Cooperation and Development) that telecommunications is also essential to the economic progress of developing countries. Cost benefits as high as 100-to-1 have been identified in such diverse parts of the world as Egypt, Kenya and India. Examples are often as straightforward

as the Indian farmer who walked with his ox seven days to pick up fertilizer from a supply depot, only to find the stocks exhausted -- returning after a 14-day round trip empty-handed. Had he been able to walk even five kilometers to a telephone to make inquiries, most of the wasted effort could have been eliminated. On the island nation of Tonga it was found that export prices which were negotiated via satellite in the international competitive marketplace increased by as much as 30 percent, while import prices which were also reduced by a similar amount as a result of international quotes and bids. The use of affordable telecommunications to establish import and export prices can lead to remarkable differences when contrasted to prices established by the first ship that steams into port on a market day.

INTELSAT: MYTHS AND REALITIES ABOUT THE GLOBAL SATELLITE  
COOPERATIVE

Thus, if one accepts the overriding economic and social importance of telecommunications as being clear and well-documented, let us now turn to INTELSAT and its particular role in international telecommunications development. In particular, let's focus first on what is INTELSAT? How has it changed the world of global telecommunications, at the national, regional and international levels? And, perhaps most importantly, what changes does it promise for the future? It

is impossible to answer these questions, however, without at first clearly understanding what INTELSAT is. This is particularly true because there are many myths and misunderstandings about INTELSAT; how it operates; its organizational structure; what are its goals, or even the mechanisms by which INTELSAT's accountability to the world community is maintained.

First of all, INTELSAT is an intergovernmental international organization, established under two international treaties. The governments of 109 countries currently adhere to the INTELSAT Agreements, while 109 designated Signatories participate as the working members of INTELSAT. Although INTELSAT is operated on a commercial basis (which means that all members must pay for services received), it is also a non-profit cooperative, and services are made available to all countries of the world on an open and non-discriminatory basis. Thus, while INTELSAT has a membership of 109 countries, it actually provides services to 170 different countries and territories around the world, including countries that are democracies, planned economies, monarchies, and every other form of government.

There have also been attempts at times to characterize INTELSAT as a "typical" international organization -- as being large, bureaucratic, and not being innovative. These unfortunate characterizations are certainly inaccurate in the

case of INTELSAT. It has a small staff (of under 600) that operate the global satellite system, with only 30 percent of revenues devoted to operating cost. INTELSAT has achieved remarkable breakthroughs in cost efficiencies. The cost of INTELSAT's communications capacity in orbit per year has fallen by almost two orders of magnitude since INTELSAT began operations in 1965.

There have also been attempts in the same respect to characterize INTELSAT as some sort of an international or multinational monopoly that arbitrarily controls the international communications marketplace. In this view of INTELSAT, it can, like a monopoly, maintain rates at very high levels and make larger profits. Again, this characterization is almost the exact reverse of the actual situation.

First of all, INTELSAT's rates are remarkably low and will be even lower in the future. Since INTELSAT began operations in 1965 it has reduced its rates on 12 different occasions. Furthermore, if one adjusts for inflation, the cost for INTELSAT service today is almost one-twentieth (or 5 percent) of the charges that applied when operations began with Early Bird, in 1965. Indeed, INTELSAT has done such a good job of reducing rates for all of its users -- large, medium and small -- that today its rates reflect only a very small proportion of what the end-user pays and, in fact, are typically 8 percent or less of the amount paid for a complete international or data circuit.



INTELSAT, indeed, does not have a monopoly on international telecommunications. Since the beginning, INTELSAT has had, and continues to have, serious competition from submarine cables -- most recently in the form of highly cost-efficient fiber optics cable systems. In addition, certain regional systems which were envisioned within the framework of the INTELSAT Agreements have been successfully coordinated with INTELSAT, with regard to services provided within definable regional areas of the world, as reflected in the coordinations of the ARABSAT, EUTELSAT and Southeast Asian PALAPA Systems.

It has also been maintained that the INTELSAT structure is established so that only monopoly PTT organizations can utilize the INTELSAT facilities and, thus, it serves to stifle competition or deregulation at the national level. Again, experience in both the United Kingdom and the United States has demonstrated that this also is an inaccurate characterization of the INTELSAT structure. The United Kingdom's government has authorized establishment of two organizations -- namely British Telecom International and Mercury -- to access the INTELSAT System and to provide services to end users in the United Kingdom. In the United States, the FCC has authorized international carriers who wish to provide either video services or digital business communications services from customer-premise or small earth terminals serving as urban gateways, to own and operate such earth stations and to obtain the services from INTELSAT on a "de-bundled" rate basis, through the U.S. Signatory.

These changes at the national level, reflecting goals to increase competition and deregulation in those countries, have been accommodated with the INTELSAT System. In many ways the INTELSAT System should perhaps be seen as equivalent to an international railway, upon which countries and/or commercial organizations can place their trains or boxcars, or even containerized packages, of information which can be transported on a global basis. There are today, in effect, transoceanic satellite and cable "telecommunications railways," as represented by the INTELSAT System and by submarine cable systems. The question is, how many railways should be built before serious overinvestment occurs?

In this respect, it was recently pointed out to me, by the chief executive of TELECOM Ireland, that the problems posed by a totally unregulated and competitive market in the telecommunications areas (as represented by the United States' approach to international telecommunications) are both potential overinvestment, and attendant great risk of bankruptcy, which has many repercussions. The worst repercussion, as seen by my colleague from Ireland, was the likelihood of very heavy drain of capital away from Europe and third-world countries (where capital investments are desperately and urgently needed) into the U.S. market. This "unbalanced" regulatory approach that skews investments not only at the national level but at the global level as well, is conducted without any reference to social need or redundancy of

investment. This, I believe, is a serious point for discussion. Should there be regulatory distinctions between national and international markets? And if developing countries cannot compete for capital investment successfully, what recourse do they have?

Overcapitalized telecommunications investment in the U.S., in my view could, in the next decade, be among one of the contributing factors in developing countries' not being able to finance and capitalize needed new telecommunications projects. My Irish friend felt this could particularly be so in light of the arbitrarily high interest rates being maintained in the U.S. market. The process by which bankruptcy is the only instrument of accountability in capital investment decisions is thus perceived as grievously indifferent to global telecommunications needs, particularly in third-world countries.

#### INTELSAT'S ACCOUNTABILITY

This leads us to the issue of INTELSAT's own accountability. It has been stated, for instance, by critics of INTELSAT, that it is accountable to no one. This, of course, is demonstrably not the case, but I do feel it is important to explore and examine those instruments of accountability that do exist:

A. Competition

INTELSAT, as previously noted, experiences competition with fiber optics systems. The fact that the competition is at work would seem to be strongly indicated by the fact that INTELSAT's space segment capacity, as measured in megahertz of capacity in orbit per year of operation, is today close to 100 times more cost efficient than when service began in 1965. Furthermore, INTELSAT's rate reductions (which have already been noted) over the last 19 years are among the most dramatic of any service offerings provided in the world, and are perhaps surpassed only by the computer industry. It should be noted that, in an industry in which there are both economies of scale and economies of scope, unlimited competition is not required to produce the highest form of cost efficiency. In fact, all that is needed is sufficient competition to achieve the balance between competitive pressures and the maintenance of economies of scale and scope.

B. Arbitration Procedures

Built into the INTELSAT Agreements are provisions for arbitration, which allow any country or Signatory who disagrees with a major INTELSAT decision to seek redress through arbitration proceedings. It is a great testament to the political efficiency and the objectivity of INTELSAT's decision

making process that no country in the history of INTELSAT has ever invoked or utilized the arbitration proceedings.

It is also perhaps significant to note that, despite elaborate procedures that exist within INTELSAT for voting upon issues where and when necessary, actually resorting to a vote is a rare exception and, indeed, 95 percent of all decisions in the various bodies of INTELSAT are taken by consensus. This, again, is largely a result of having objective measures upon which the merits of decisions can be assessed and consensus achieved. Thus, INTELSAT is dramatically different from the "bloc voting patterns" and political decision making processes represented by the U.N. It is significant to note that the mechanisms to protect objective decision making exist and, most pointedly, these exist in the arbitration provisions of the INTELSAT Agreement.

C. Checks and Balances

Another major element of accountability is the built-in checks and balances of the INTELSAT Organization. There is, within the INTELSAT organizational structure: (1) a Board of Governors where there is weighted vote; (2) a Meeting of Signatories, which gives all countries and their Signatories, who act as owners, a chance to take major policy decisions as well as those involving capitalization limits. The Meeting of

signatories operates on the basis of one-country, one-vote; and (3) finally, there is an Assembly of Parties (which involves only governmental entities). This body also takes major policy decisions concerning INTELSAT, including coordination of other satellite systems and the amendment of the INTELSAT Agreements themselves -- again, on a one-vote-per-country basis.

This decision making structure thus has built into it significant checks and balances: to allow governments to have checks upon Signatories; for all Signatories to have checks upon the Signatories with the largest investment shares of INTELSAT; and, indeed, for the largest Signatories (with the greatest investment in INTELSAT) as represented on the Board, to have some check upon the wishes and desires of the overall membership who might conceivably want to pursue the programs and activities that could be against the best financial interests of those who have invested the greatest amount of capital.

D. Right to Amend the INTELSAT Agreement or Operating Agreement

Any country that believes that the INTELSAT structure, its decision making process, its capitalization procedures, its charging procedures or, for that matter, even approaches to competition, are at variance with the needs of the current

international communications and information marketplace, and the broader world community, has the right to initiate an effort to renegotiate the INTELSAT Agreements. Indeed INTELSAT, which was established in 1964, has already been through a process (1969 to 1971) to amend the INTELSAT Agreements to reflect a new international consensus on how INTELSAT should be structured, how it should operate, how it should charge for service, how it should be capitalized, and other such key issues. It is perhaps somewhat ironic, in this respect, that the country which has the largest say in the initial structure of INTELSAT, and again in its restructuring during the 1969 to 1971 negotiations, is today the country which sees the need for further significant changes to the INTELSAT Agreement.

INTELSAT AND THE U.S. POLICY OF DEREGULATION OF  
TELECOMMUNICATIONS: CONFLICT OR COMPATIBILITY?

The other members of INTELSAT, of course, respect the sovereign right of the United States to seek to move INTELSAT in new directions. The concern is that the United States has shown some inclination to move unilaterally to institute change, without international negotiation, and outside of the procedures established by the INTELSAT Agreements. This is not a minor issue. More than 70 countries have placed letters and diplomatic notes on file with various agencies of the U.S.

government with regard to their concerns about "unilateral" approval of so-called "private" satellite systems. Many of these countries have very clearly stated that if the United States wishes to change the structure of INTELSAT it should do so through the authorized procedures, and not attempt to reinterpret independently the INTELSAT Agreement so as to achieve a restructuring of INTELSAT on a de facto basis.

Recent studies of international U.S. trade policies have shown that previous attempts by the United States to redefine unilaterally multilateral agreements in the transportation field have met with mixed success and, even at times, outright failure and embarrassment to U.S. policy makers. There is no particular reason to suspect that similar uncoordinated and unilateral initiatives in the telecommunications area might not lead to similar results.

INTELSAT, in my view, is not only highly accountable to the international communications and information marketplace, but receptive to constructive proposals for change and innovation. The mechanism that has produced accountability -- namely, the INTELSAT Agreements have also allowed INTELSAT to be an effective global common denominator, a bridge between and among all of the various countries of the world, regardless of their levels of economic development; regardless the sophistication of the telecommunications and information infrastructure; and



regardless of even whether they are members of INTELSAT or not. In this respect, INTELSAT is strikingly unique among other international organizations which, unlike INTELSAT, have frequently been marred by serious political bickering and a decision making process which is often characterized by politics first, and objective decision making on merits last.

.There are many who fear that U.S. government policy issues could not only serve to greatly politicize the INTELSAT organization, but ultimately lead to its demise as an effective international institution. This, I think unlikely. I do feel, however, that it would be a disservice not to underline and emphasize the magnitude of the risk that could be involved if the United States were to proceed to change the nature of the INTELSAT System on a unilateral, de facto basis, rather than to seek formally a new set of rules to reflect a new global consensus.

First, it should be noted, for the sake of clarity, that there are no restrictions that limit the ability of the U.S. to encourage and to achieve new and effective means of deregulation and pro-competitive policies concerning the use of access modes to the INTELSAT System, as long as these were executed on a strictly domestic basis under the regulatory authority of the FCC and consistent with the Communications Act of 1934 and the Comsat Act of 1964, as both have been amended. Indeed, U.S. policy decisions by the FCC have not only been

accommodated by INTELSAT itself, in terms of allowing a large number of new U.S. international carriers to access the INTELSAT satellite system for video and digital communications, but are being accommodated in other parts of the world, in terms of either signed new operating agreements or letters of intent to operate with new U.S. entities. Such letters or agreements have been signed in the United Kingdom, West Germany, Switzerland and elsewhere.

This shift toward international "service" competition in international telecommunications, plus increasingly sophisticated and earnest competition between INTELSAT and fiber optic cable systems, could, without any further facility competition, fundamentally change the focus and duration of international telecommunications. In this respect, U.S. policy makers need to consider what objectives have been or will be achieved under changes now approved and what are the "pros" and "cons" of pushing beyond the scope of changes already made.

#### INTELSAT AND INNOVATION FOR THE FUTURE

The ultimate success of INTELSAT of course will not hinge on the number of mechanisms available to achieve accountability or the protections provided in the INTELSAT Agreements. The ultimate test will be, in fact, the international communications and information marketplace.

In short, will INTELSAT be able to expand the volume, scope and flexibility of its service offerings to effectively meet new emerging demands? Also, can and will INTELSAT keep users happy? In this respect, INTELSAT's record, by objective measures, would appear to be extremely impressive. The INTELSAT System has gone from 0 percent of the international overseas transoceanic telecommunications market to approximately two-thirds of global traffic demand in this area.

INTELSAT has also become the predominant supplier of international video relays on a transoceanic basis, even though new wideband fiber optic systems should be able to provide strong and effective competition in this area. INTELSAT, for instance, in anticipation of future market demands, has recently approved and introduced a digital television service which, within the next five years, should allow the provision of video services at significant rate reductions. In the meantime, different priority levels for video services are allowing cost reductions now. Equally important, television services can now be leased on a full-time basis for different time periods, ranging from 1 to 7 years.

Also for low-volume users, there are now part-time lease services, plus peak and off-peak occasional use rates that allow users to tailor their distribution services to their specific needs. Digital signal processing of the future will allow multiple TV channels to be sent through a single

transponder. Into the same bargain, there can also be a parallel reduction in the size and cost of earth stations that will receive such digital services.

INTELSAT has greatly diversified its services over the last 20 years in all areas -- not just video services. In response to user needs INTELSAT has introduced such innovative new services as leased domestic telecommunications services (now in 25 countries); provision of maritime mobile services (leased to INMARSAT); the provision of new business digital communications services to customer-premise-type earth stations, with this service being known as the "INTELSAT Business Service"; and even a highly sophisticated new data distribution service, called "INTELNET," which can provide data links through microterminals as small as two feet (or 65 centimeters) in diameter.

On the horizon, INTELSAT expects to introduce, in the near-term future, electronic document distribution services. This might ultimately lead to highly interactive INTELNET-type data broadcast and distribution networks. Also by the 1990's, INTELSAT will likely be providing high-definition television services. INTELSAT will also likely move even further toward diversification of a tariffing structure to allow tailored telecommunications and broadcasting needs to respond to new market demands.

Although it is in many ways clear and reasonable to compare INTELSAT's technological and service innovations record with that of domestic satellite systems, such as exist in the United States, Canada, Japan, Europe and, indeed, a number of developing countries such as India, Indonesia, Mexico and Brazil, the one area of significant difference between INTELSAT and such other systems should be particularly highlighted. INTELSAT, more than any other system in the world, has as its objective the provision of global interconnectivity. At times, much attention is directed to the tradeoff between the use of radio frequencies and power levels, in order to achieve a maximum amount of capacity. INTELSAT must, however, design its satellites and its services on the basis of a three-way trade among radio frequencies, power levels and interconnectivity. Global interconnectivity, particularly for low-density traffic routes, does not come cheaply or easily.

It is the INTELSAT objective of achieving global interconnectivity that forces the INTELSAT space segment design, in terms of its use of frequency and power, to be less cost effective than domestic systems. It is, in fact, only due to such aspects as lifetime extensions, economies of scale and scope, that INTELSAT transponder costs per year in orbit, have been able to be maintained in surprisingly close proximity to domestic systems. The INTELSAT System, for instance, provides on a global basis some 1,500 earth station-to-earth station pathways. It is significant to note in this respect that half

of these pathways (that is, in excess of 750 of them) provide INTELSAT with less than 10 percent of its revenues. Furthermore, it is equally significant that about 10 percent of the pathways represent approximately 50 percent of INTELSAT's revenues.

Thus, if one were to point to a single characteristic that is unique, special and fundamental to the INTELSAT global system design, it would be this aspect of serving as the global common denominator that links developing countries, newly industrializing countries, planned-economy states and highly advanced countries, all together into a vast network that is the INTELSAT global system. On the average, each INTELSAT satellite in operation provides 100 international pathway links. No other satellite system comes close to achieving this type of global interconnectivity.

This aspect of INTELSAT is important in another way -- in the conservation of the use of the orbital arc. INTELSAT's 17 satellites from only 17 orbital locations serve 170 different countries and territories for international services. They also provide 8 international television networks, 25 domestic satellite systems, and an important element of mobile services to the world maritime community. In an era of satellite proliferation, the world's largest common user satellite system is the most effective conservator of the geosynchronous orbital arc.

It is the future potential of the INTELSAT Business Service to achieve a multipoint-to-multipoint network, linking ultimately thousands or even tens of thousands of points, that represents in many ways the greatest potential of INTELSAT to compete effectively with the fiber optics cable systems of the future. Certainly, those who feel INTELSAT needs to be stimulated to greater heights of innovation and market responsiveness should not doubt that these forces exist.

Not only are there fiber optics systems and new digital processing techniques that will serve to push the cost of INTELSAT's services down, but there are the new integrated services digital networks standards (ISDN) that should aid in maintaining the quality and integrity of future telecommunications services. The policy of stimulating, multiple and diverse telecommunications systems, using dozens of terrestrial and space telecommunications technologies, and hundreds (or even thousands) of networks, will make standards and high-quality service increasingly difficult to maintain. This rather basic and fundamental conflict has been conveniently swept under the carpet, but it won't go away. The AT&T divestiture decision alone will make intersystem network compatibility a major operational, technical and standards issue for decades to come in the U.S.; nor will the rest of the world be insulated from the controversy.

The need to provide effective interconnection to fiber optics systems and domestic and regional satellite systems in the ISDN mode of operation will be, indeed, one of the great technical challenges of the 1980's and 1990's. It is, in many ways, remarkable, to me at least, that the INTELSAT System has been able to introduce a very high rate of technological innovation and continues to diversify service offerings responsive to the needs of very highly sophisticated users (such as banks, oil companies and other multinational enterprises), while at the same time continuing to be highly responsive to the needs of third-world and developing countries.

In this respect, INTELSAT has introduced, within the last few years, VISTA low-density thin-route communications service, the INTELSAT Assistance and Development Program (IADP), and, during 1985 and 1986, it will be conducting Project SHARE (a test and demonstration program related to health and rural education). We have also initiated a serious study of what we call the INTELSAT Development Fund which, if established, will help in the financing, as well as in the design, of telecommunications systems in rural parts of the world, with such financing covering not only the ground segment, but also terrestrial interconnect and terminal equipment as well.

It will likely be one of INTELSAT's greatest challenges in the next decade, to be able to design space segment that remains, on one hand, extremely cost effective and responsive



to customer demands but, at the same time, achieves global interconnectivity and responds to the needs of countries at all levels of economic development. In this respect, techniques such as cross-strapping of frequencies, on-board processing of satellite signals, electronic hopping beams, and even intersatellite links, may be essential to INTELSAT's meeting its multiple missions in the 1990's.

INTELSAT AS A VIABLE CONCEPT FOR THE FUTURE:  
PRIVATE TELECOMMUNICATIONS CARRIERS, NATIONAL PTT ENTITIES AND  
THE GLOBAL SATELLITE SYSTEM: HOW DO THEY RELATE TO ONE  
ANOTHER?

I would like to close by presenting a very brief comparative analysis of government-controlled PTT entities, on the one hand, versus private enterprise (market-driven, competitive and deregulated), on the other. It is often assumed that monopolies and government-controlled enterprises can best achieve such goals and objectives as universal access to all users, and the provision of subsidies for rural and isolated customers in the provision of basic and traditional telecommunications services like switched telephony. It is also widely assumed, however, that such entities may well tend to maintain rates at higher levels than are necessary; that the organizational structure of such institutions are very bureaucratic and slow to respond; and that they do not provide innovative and new services in a timely manner.

On the other hand, it is often assumed that private, unregulated, market-driven organizations are quick to respond to service innovation, will depreciate obsolete equipment rapidly and introduce new facilities or services at the earliest possible date, and will be highly responsive to very sophisticated communications users who demand innovative services, flexibility and service offerings and the lowest possible tariffs.

Certainly, as is the case with many stereotypes, there may well be both truths and errors in such attributions. It is important for serious policy makers in the field of international telecommunications to look beyond stereotypes to understand when such attributions are correct and when they are incorrect. Certainly, I would argue that the INTELSAT framework was carefully and extremely wisely drafted, and that it, in many ways, contains a beneficial mix of attributes.

INTELSAT has sufficient competition to innovate, introduce new technologies, and develop new services quickly. It is a non-profit cooperative. It does not have a profit motive nor a "subsidy" requirement in a classic economic sense, to retain prices at high levels. INTELSAT cannot retain excess revenues under the INTELSAT Agreement, so again it only has motivation to grow, expand and reduce the cost of its services. INTELSAT does not give special breaks in charges or services to any single set of users, because this is prohibited under Article U

of the INTELSAT Agreement. Therefore, all users -- big, medium and small -- know they are being treated fairly and equitably. The cumulative effect of worldwide participation provides sufficient traffic volume to keep prices low for everyone.

Finally, the flexibility and responsiveness of INTELSAT's management is shown in the satellite system's service innovations, reliability and low cost of service. It is also shown in small staff size, use of contractors for most major procurements, and in the non-political recruitment on a global basis of the best staff. All in all, INTELSAT is a remarkable and unique organization that does not compare at all with the analytic framework established by many national policy makers when they try to view INTELSAT from the perspective of a deregulated commercial enterprise or governmental monopoly. INTELSAT is neither, and it should be assessed and analyzed on its own very special merits.

In many ways, INTELSAT has indeed produced the best of all possible worlds. Furthermore, Governments, at the national levels, have a tremendous amount of flexibility to optimize the form, nature and characteristics of their national participation in the INTELSAT System, so as to achieve the best balance and mix of characteristics between a competitive commercial enterprise and governmental telecommunications enterprise, which they feel is most appropriate to their national needs. The country that wishes to maximize

competition, competitive access, and encourage introduction of innovative services, can easily do so. Furthermore, another country that is more concerned with establishment of universal access; establishment, on a national basis, of basic telecommunications services; or implementing, in the telecommunications field, social services (such as health and education), can also maximize its use of the INTELSAT System to achieve these goals and objectives as well.

#### CONCLUSIONS

In short, INTELSAT is a unique 20th century mechanism. It seems to combine rather special and valuable characteristics, well-suited for high technology commercial ventures requiring international collaboration, compatibility and common capital investments. Such strengths that INTELSAT possesses, particularly in the form of effective north-south political, economic and technical cooperation, should be built upon and improved in the 1980's and 1990's. The INTELSAT experience indeed seems to show a rare ability for "objective," technically based international cooperation, which should not be easily discarded for the promise of ill-defined benefits from a totally unregulated international telecommunications environment. The course that seems most promising is to improve INTELSAT's strengths, minimize its weaknesses and encourage it to innovate in response to a rapidly changing

worldwide telecommunications market. This can be done with time, patience, and the willingness of all countries to empathize with the goals and objectives of their international telecommunications partners.