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Direct Broadcast Satellite: A Proposal for a Global/ Regional System

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The purpose of this article is to discuss the possibility of establishing a global/regional direct broadcast satellite (DBS) system.[1] Albeit, in the past, there have been a number of initiatives aimed at forging a unified global DBS system, such initiatives have not been successful.[2] The most significant barriers (political, rather than technical in nature) existing in the international negotiating arenas were spillover, equal access, privacy, national sovereignty, the free flow of information, prior consent, and cultural invasion.[3] Although not all of these issues have been fully resolved, the time has come again for seriously considering the implementation of an international DBS system. It may seem strange at this time to propose the establishment of a global DBS system, while the sole existing International Satellite Organization—

1. We define a global DBS system as an organization that operates a common-carrier type of DBS system under delegated authority by all participating countries. The organization is similar to the International Satellite Organization (INTELSAT). However, to eliminate problems of competition, such as those presently faced by INTELSAT, this global DBS system will be divided into individual regional systems and operations that will be more suitable to the immediate needs of a particular region and the countries within it. It also should be noted that a DBS system here is using high-powered satellites with transponder output power of 100 watts or more.
2. N.M. MATTE, AEROSPACE LAW: TELECOMMUNICATIONS SATELLITES 13(1982); and K.M. QUEENEY, DIRECT BROADCAST SATELLITES AND THE UNITED NATIONS 64–95 (1978).
3. Powell, *Toward a Negotiable Definition of Propaganda for International Agreements Related to Direct Broadcast Satellites,* LAW AND COMTEMPORARY PROBLEMS 3–37 (Winter 1982).

INTELSAT—is facing the problems of competition, if not dismantling, due to the proliferation of national and regional satellite systems. However, our assertion is primarily derived from four recent developments.

I. RECENT DEVELOPMENTS

First, the issue of equal access has risen once again, now being debated as equitable access.[4] The debate today centers upon its definition and application with respect to the "first come, first served" orbital assigning process, and technical requisites for access to the geostationary orbit (GSO). As some less-developed and developing countries are expanding their use of telecommunications, in light of the realization of information access being crucial in playing a role in world affairs,[5] they do not wish to be deprived of access, nor relegated to the use of more advanced, expensive technology (such as high-priced dishes) in order to be guaranteed legal access.[6] This fracture in negotiations between highly developed and less developed countries brings an urgency to international cooperation.

Second, the plan of deploying national DBS systems is not as rosy and promising as anticipated. For example, the withdrawal of many potential DBS operators in the U.S. demonstrates the economic constraints and financial uncertainties of establishing and supporting a DBS system within a country.[7] In addition, trade-offs of a system designed in space and ground segments, considerations of marketing and management, competition from the existing media, and changes in technologies are all affecting the implementation and success of a national DBS system.[8] Perhaps the technological and economic

4. Segal, *ITU Plenipotentiary and Beyond: A Case for Serious Foreign Policy,* TELECOMMUNICATIONS POLICY 332 (December 1983).
5. Wigand, *Direct Satellite Broadcasting: Selected Social Implications,* in COMMUNICATION YEARBOOK 6, 250–286 (1984).
6. *Supra* note 4.
7. Although there are several countries contemplating national and regional DBS systems in Europe and there is a successful DBS system in Japan, a private DBS system such as in the United States suggests insurmountable financial restraints, not only because of upfront costs, but also because of competition from existing media. Staggering development, if not failure, of DBS systems in the U.S. market has indicated these difficulties. *See also Launch Failures Changing Satellite Business* BROADCASTING, 57 (July 14, 1986); Fliep, *Worldwide Commercial Communications Satellite Market,* VIA SATELLITE 30 (January 1986); Pirard, *The U.K.'s DBS Dilemma,* SATELLITE COMMUNICATIONS 32–33 (August 1985); *In Brief,* BROADCASTING 168 (January 12, 1987).
8. Marin, *DBS Systems: Perspective for a Profit Seeking Company,* TELECOMMUNICATIONS POLICY 291–300 (December 1985). James C. Hsiung, Status and Implications of Federal Regulation of Direct Broadcast Satellite, Chapter 4 (Bowling Green, OH: unpublished dissertation, 1984).

requirements and risks for a DBS system are beyond a particular country's capability. The benefits and pragmatism of DBS may be realized only through an international system.

Third, the transformation of European DBS systems from state to private ownership has brought up a few key issues regarding competition and coordination.[9] System operators are also concerned with the potentially inadequate amount of programming available, who will provide it, and at what cost. Further complicating this shift toward privatization of European regional DBS systems are the diverse regulatory approaches of the negotiating countries.[10] Here again rises the necessity for international cooperation, as well as effective coordination between regional and national systems.

Fourth, the World Administrative Radio Conference 1985 (WARC-85) proved to be one driven by politics and ideology.[11] The International Telecommunications Union (ITU), the governing body that sets policy for operating international satellite systems, is ill equipped to fight off the politicization to which it has fallen prey.[12] The conflict, once again, is between those highly developed and less-developed (and developing) countries, and several (the U.S. in particular) are seriously reconsidering their role within the ITU, and the possibility of reaching agreements amenable to so many interests. This dilemma, along with examples set by the Arab Satellite Communications Organization (ARABSAT), the European Telecommunications Satellite Organization (EUTELSAT), and other established or developing regional systems, illustrates the assertion that regional planning is apparently being viewed as a more viable avenue of ensuring the attainment of national objectives as related to DBS.[13]

Alongside the resurgence of old issues, and the rise of new ones, is the advancement in satellite technology that seems to promise to address problems such as spill-over, national sovereignty, and prior consent. Strides in signal-scrambling technology and restrictions on receive-only dishes may provide means of resolving concerns long plaguing global DBS telecommunications.[14]

9. *Pricing, Coordination Issues Top INTELSAT Agenda,* BROADCASTING 49 (October 7, 1985); and *Will DBS Meet the Same Fate as in U.S.?* BROADCASTING 58, 60 (January 27, 1986).
10. *The Privatization of Europe,* BROADCASTING 61 (March 31, 1986).
11. *The Way It Was and Wasn't at WARC '85,* BROADCASTING 70–72 (November 4, 1985); and Mahoney, *Space WARC '85: Negotiating Competitive Forces,* J. COM. 60–61 (Summer 1985).
12. *U.S. May Seek Improvements in ITU Procedures,* BROADCASTING 40–42 (November 11, 1985).
13. Snow, *Arguments for and against Competition in International Satellite Facilities and Services: A U.S. Perspective,* J. COM. 51–59, 62–79 (Summer 1985).
14. Powell, *supra* note 3.

Bearing these developments in mind, our intent here is to provide a proposal showing that an international DBS system is not only technically and politically possible, but is economically feasible as well. This will be done first through a historical explication of the major technical, political, and economic constraints, followed by an examination of the advantages of establishing a global/regional DBS system. After an analysis of viable solutions to the major issues faced today, a summary of a proposed plan for an international DBS system will be given.

However, before presenting our discussion, two notions need to be made clear. First, since there is no global system in existence, many arguments examined in this article are based on the problems currently faced by INTELSAT, which is an international organization similar to the global DBS system being proposed here. Second, although INTELSAT is mainly a fixed satellite service (FSS) as opposed to a broadcast satellite service (BSS) and may not reflect the real problems of a global DBS system, this technical incompatibility does not affect our contentions and the needs of establishing a global DBS system.[15] Moreover, based on the Final Acts of Region Two Radio Administrative Conference of 1983, "transponders on space stations in the FSS may be used additionally for transmission in the BSS" as long as the transmission does not exceed designated power and cause harmful interference.[16]

II. BACKGROUND ISSUES SURROUNDING INTERNATIONAL DBS

A sharing of information across national boundaries was one of the primary goals of satellite communication when the U.S. National Aeronautics and Space Administration (NASA) and the American Telegraph and Telephone Company (AT&T) launched Telstar back in 1962. The transmission of broadcast signals through the global commons prompted the need to create an international organization to govern and develop a world satellite system. The

15. Based on the definition of the 1971 World Administrative Radio Conference for Space Telecommunications, FSS was defined as "A radiocommunication [*sic*] service between earth stations at specified fixed points when one or more satellites are used; in some cases this service includes satellite-to-satellite links. ..." BSS was defined as "A radiocommunication [*sic*] service in which signals transmitted or retransmitted by space stations are intended for direct reception by the general public." International Telecommunication Union, *Final Acts of the World Administrative Radio Conference for Space Telecommunications* (Geneva: July 17, 1971).
16. International Telecommunication Union, *Final Acts of Regional Administrative Radio Conference for the Planning of the Broadcasting Satellite Service in Region Two,* part III, p. 2 (Geneva: June/July, 1983).

U.S. signatory Communications Satellite Corporation (COMSAT), which became manager of INTELSAT in 1964, was assigned this task. In 1965, INTELSAT's Early Bird satellite was an attestation to its commitment to development; the Early Bird captured and relayed not only broadcast signals, but also computer, telephone, and weather data, as well as two-way radio. Later satellites, particularly the INTELSAT IV-A series during the 1970s, were designed to further improve technological efficiency through beam separation and more powerful antenna systems.[17] This progressive trend has continued through to the present INTELSAT VI satellites, providing up to 40,000 voice and two-color video circuits simultaneously.[18]

Of course, along with the development of DBS systems over the past two and one-half decades have been policy agreements and negotiations concerning their applications. If the evolution of this communication technology has any significance at all in the international fora, it is, indeed, to reaffirm the interdependence of nations.[19] Certainly, with respect to satellite technology, there has been concerted and conscious efforts made toward ensuring international cooperation and coordination.

Although advocation of a definitive international DBS system was attempted, major barriers—political, technical, and economic in nature—discouraged the realization of such an advancement. These barriers centered around the issues of free flow of information, national sovereignty, prior consent, spill-over, and access.[20]

All of these concerns were debated by various countries in several bodies of the United Nations throughout the 1960s, but few were resolved on an international level.[21] During the 1970s, the position among various countries became polarized regarding the implementation and regulation of DBS systems, even though the technology for DBS was available. It was clear then that participation in a global DBS system was not likely in the foreseeable future unless these issues could be resolved.

Nevertheless, countries that could afford them were not discouraged from establishing national DBS systems. Effective spectrum allocation—and system coordination consequently—became tantamount. Thus, at WARC-71, the ITU adopted a resolution requiring countries to utilize all technical means available in keeping signal spill-over to a minimum. This legislation served to prevent unwanted broadcasts from impeding sovereign states' territories.[22] Three subse-

17. L. MARTINEZ, COMMUNICATION SATELLITES: POWER POLITICS IN SPACE 4 (1985).
18. J. BITTNER, BROADCASTING AND TELECOMMUNICATION 143 (1985).
19. Powell, *supra* note 3, at 5.
20. *Id.*
21. QUEENEY, *supra* note 2, at 3–12.
22. *Id.* at 90–94; *see* also MARTINEZ, *supra* note 17, for a discussion of WARC-71, the Final Acts of WARC-71, and the 1973 Plenipotentiary Conference, at 116–119.

quent conferences (WARC-77, General WARC-79, and the Regional Administrative Radio Conference-83) drafted a World Agreement and Associated Plan for implementation of DBS in ITU Regional countries and adopted an "a priori plan" of allocation of frequencies and orbital positions.[23] Moreover, at WARC-85, all ITU member states were provided rights of access to the GSO for satellite communication and DBS systems. These developments have helped all countries preserve, to an extent, their national integrity, and given less developed and developing countries in particular, a more significant influence over international policy related to DBS communication.[24] These strides toward international accord are indeed noteworthy. However, as we shall see, conflicts related to free flow of information, national sovereignty, prior consent, spill-over, and access have yet to be resolved in a real sense, as issues of the past have become clouded by new concerns.

Before addressing the present barriers to establishing an international DBS system, it is important to revisit the old and new promises such a system holds.

III. ADVANTAGES OF A GLOBAL DBS SYSTEM

Fundamentally, there are four major advantages to having access to and use of DBS technology and service on a global basis.

First, it eliminates the need to establish an intensive, high-cost, terrestrial communication network for audio, data, and voice transmission. Many countries face natural and man-made barriers to constructing communication networks. Deserts, mountain ranges, rivers, buildings, and other structures impede conventional telecommunication systems.

Further, cables and wires, as they stretch across miles, increase costs of equipment, construction, and maintenance, and become economically inefficient. Although initially "expensive," a global DBS network offers many advantages over terrestrial systems, with costs and construction being independent of distance, and required equipment being minimal. Moreover, it is a sole means by which to reach a whole population within a given geographic area.[25] Typically, one DBS satellite transponder can transmit or broadcast high-quality radio or television programs to an entire country, thus linking hundreds of villages and cities. A global DBS system will possess not only the tradi-

23. QUEENEY, *supra* note 2, and Hsiung, *supra* note 8, at ch. 2; and SIGNITZER, infra note 29.
24. MARTINEZ, *supra* 17, at 115–131.
25. Only DBS satellites have the capability of generating sufficient EIRP (effective isotropic radiated power) to cover a large geographic area and provide acceptable signals with small ground equipment.

tional satellite functions of carrying video, voice, and data information, but also eliminates the need for separate communication networks. Instrumentation and capacity make DBS the most practicable means for a telecommunications infrastructure—domestically, regionally, and globally.

Second, it increases information exchange and flow. A global DBS system can bring many economic and political benefits to a nation. From an economic standpoint, access to a global DBS system may transform the local marketplace into, quite literally, a worldwide one. With DBS, international franchises and companies potentially possess a wider market, meaning increased profits. Further, with direct and expedient access to price and product information, greater competition and more sound decision making is had. By the same token, activity surrounding the collection, organization, and dissemination of information services spurs growth in other economic sectors.[26]

Third, a global DBS system could also mean growth in the political sector. A DBS system may be an expeditious method for establishing telecommunications in countries where unstable governments wish to consolidate diverse ethnic and social groups.[27] Governments could also realize the utility of DBS systems for security by providing international communication ties between themselves, their allies, and military forces.[28] So, by facilitating information links vital to economic and political stability and growth, a global DBS system would be beneficial to developed, developing, and less-developed countries.

Finally, it creates more means of television distribution for entertainment, educational, and instructional purposes. The most appealing and significant advantage of a worldwide DBS system is its capability to transmit knowledge and facilitate growth and development in all parts of the world. Cases in point: the U.S. Department of Health, Education, and Welfare (HEW) sponsored a project that used the Applications Technology Satellite (ATS-6) to broadcast educational material and augment existing classroom courses directly into junior high schools located in remote areas of the Rocky Mountains.[29] Also, the National Education Association employed the ATS-6 to interconnect teachers in Appalachia and Alaska areas, and to provide seminars through videoconferences.[30]

26. BITTNER, *supra* 18, at 13.
27. MARTINEZ, *supra* 17, at 32.
28. *Id.* at 16–23.
29. B. SIGNITZER, REGULATION OF DIRECT BROADCASTING FROM SATELLITE 15 (1976).
30. NATIONAL EDUCATION ASSOCIATION, APPALASKA INTERCOM: REPORT OF THE NEA'S SATELLITE EXPERIMENT—1977 (1977).

Many other communication projects have demonstrated great improvements in medical care and education by bringing about better access to doctors and training personnel.[31] With programs such as the Rural Satellite Program subsidized by the U.S. Agency for International Development (AID), educators and physicians in Tarapoto and Lima, Peru have received programs such as in-service training, information sessions and premedical treatment diagnoses.[32] ATS-6 service satellites have also transmitted both video and audio conferences to these regions, bringing agricultural planning and community development programming as well. With the success of these projects, AID has expanded its efforts in Peru, the West Indies, and Indonesia.[33] Although not yet meeting unbridled success, these endeavors point to significant initiatives aimed at seeing that underdeveloped areas receive the benefits of DBS services, and are incorporated into the existing global telecommunications networks.

Perhaps the most comprehensive manifestation of the promise of DBS was the Satellite Instructional Television Experiment (SITE). With ATS-6, the Indian government and NASA provided satellite television and radio receivers for 2,000 remote villages. Educational programs in health, hygiene, and agriculture were broadcast.[34] For the first time, all regions of the Indian subcontinent were joined into a national information network. Villagers saw live pictures and heard the voice of Indira Gandhi—an exemplification of the tacit ties between themselves and the centers of cultural and political authority.[35] Efficient and effective linking of isolated regions, establishing political and cultural solidarity, all the while enhancing the quality of life of millions certainly appears realizable, given DBS technology and services. Citing these advantages and possibilities, we see the appeal and necessity to consider the institution of an international, global DBS system.

IV. A GLOBAL DBS SYSTEM

Through a global DBS system, less-developed countries could gain access to telecommunication services not otherwise afforded to them, and industrialized countries may continue to share the technology and coopera-

31. Kelley, *Satellites: Silent Partner for LDCs,* TELECOMMUNICATIONS POLICY 315-318 (December 1982).
32. Smith, *Reaching Those Hard to Get Places,* SATELLITE COMMUNICATIONS 31–32 (November 1985); and Bennett, *An Inverted Peace Corps?* SATELLITE COMMUNICATIONS 32–37 (July 1986).
33. *Id.*
34. S.W. HEAD, WORLD BROADCAST SYSTEMS: A COMPARATIVE ANALYSIS 44–45 (1985).
35. MARTINEZ, *supra* note 17, at 33; and SIGNITZER, *supra* note 29, at 15–16.

tion needed to work within such a system.[36] As of now, 161 ITU member countries have interests in utilizing DBS, and demand is on the increase.[37] With this, one certainly can see the rationale behind the implementation of a global DBS system.

To do so, however, requires a consideration of important concerns presently hampering international cooperation and faced by the organization that now provides satellite service on comparable scale, INTELSAT. Although these arguments are mainly surrounding INTELSAT, which is an FSS as opposed to a BSS, and might not reflect the real problems of a global DBS system, it is conceivable that a global DBS system we have proposed, similar to INTELSAT, could face identical problems. Additionally, although the advantages of DBS outlined earlier may indeed be apparent and promising, "old" issues of free flow of information, national sovereignty, prior consent, spillover, and access as well as "new" concerns of privatization and politicization must be dealt with. These issues, then, will be discussed next, subsumed under the central concerns of competition, coordination, and equitable access. Assertions will be offered towards ways by which a multiadministrative, global DBS system may cope with these concerns.

V. COMPETITION

Events in recent history point to an increase in competition within the international telecommunications markets. For years, many regional satellite systems such as ARABSAT and EUTELSAT have been competing with INTELSAT in providing telecommunications services and facilities for profit.[38] And recently, pursuant to national deregulatory policy, the Federal Communications Commission (FCC) has granted conditional authority to five U.S. companies to compete against INTELSAT.[39]

36. BITTNER, *supra* note 18, at 138–145; and HEAD, *supra* note 34, at 36–40.
37. *Curtain Going up on Space WARC,* BROADCASTING 74 (August 5, 1985); and *The Way It Was and Wasn't at WARC '85, supra* note 11, at 71.
38. Snow, *supra* note 13.
39. Federal Communications Commission, "In the Matter of Establishment of Satellite Systems Providing International Communications," *Notice of Inquiry and Proposed Rulemaking,* January 4, 1985; Kerver, *Taking a Second Look,* SATELLITE COMMUNICATIONS 20–22 (May 1986); and *PanAmsat Signs Peru as First Partner,* BROADCASTING 44–45 (April 14, 1986). Five companies that have received authority from the FCC to provide international communications are: Orion Satellite Corporation, International Satellite, Inc., RCA American Communications, Inc., Cygnus Satellite Corporation, and PanAmerican Satellite Corporation. However, RCA recently decided against proceeding with its conditional authority. *See also Issues for the 80s: A Report Prepared for the Commission on Foreign Relations,* U.S. Senate, 98th Cong., 1st Sess., Y4. F761.; *Alternatives to Intelsat Favored by FCC,* BROADCASTING 136–140 (April 8, 1985); and *Will There Be Room on the ARC?* SCIENCE MAGAZINE 1043 (March 9, 1984).

Arguments for deregulation, primarily advocated by highly developed countries, surround diversity, innovation, and lower costs.[40] The latter issue invariably becomes the most germane, given the fact that competition may apparently make technology and equipment more financially accessible to all. Amongst those favoring deregulation, reservations arise upon the ability of INTELSAT to meet the needs of a low-cost system in less-developed countries.[41] It has been argued, for example, that INTELSAT's ownership and technical arrangements favor "big" users over "small" ones. Receiving dishes subjected to the approval of the organization are financially inaccessible to telecommunication entities in many countries. In addition, low-volume users are charged the same amount per circuit as high-volume users.[42] These two facts add up to cost ineffectiveness for less-developed countries.

It is propounded then that competition, real or threatened, exerts pressure on the incumbent organizations to innovate and align prices according to specific market costs rather than monopoly profits.[43] New systems in the international market, it is held, can act not only as a catalyst for technological progress and competitive costs, but increase diversity, and thus broaden choice in the selection of the most appropriate type of system a given country is to utilize.

However, many countries, mostly less-developed or developing ones, have maintained an adamant stance against deregulation and multisystem international services. Their justification for this position focuses on natural monopoly, status quo desirability, cooperation, and potentially harmful externalities.[44] They assert that natural monopolies enjoy economies of scope and instill certain organizational habits and preferences.[45]

A global DBS organization would need to take several initiatives to prevent similar problems.[46] First, "cream-skimming" must be forestalled. Cream-

40. Snow, *Regulation to Deregulation: The Telecommunications Sector and Industrialization,* TELECOMMUNICATIONS POLICY 282–283 (December 1985).
41. Naraine, *WARC-ORB '85: Guaranteeing Access to the Geostationary Orbit,* TELECOMMUNICATIONS POLICY 107 (June 1985).
42. MARTINEZ, *supra* note 17, at 5–7.
43. Snow, *supra* note 13, at 69.
44. Externalities are those costs or benefits not accounted for in cost functions, welfare measures, and other decision-making methods applied to questions of policy. *See* Snow, *supra* note 13, at 51–68, and *supra* note 40, at 283–285.
45. Snow, *supra* note 13, at 69.
46. The assumption is that a global DBS system will encounter the same kind of competition presently faced by INTELSAT if no preventive steps are taken to eliminate this problem. The discussion includes the possible solutions in the context of establishing a global DBS system and is based on Snow's articles. *See supra* notes 13 and 40.

skimming refers to the underpricing rate structures used by competitors of the same service on heavy traffic, such as North Atlantic or Pacific routes that cause the existing international system to lose profits needed to subsidize thin routes. One way in which a global DBS system could do this is by applying a pricing system that will reflect realistic demand-supply situation of regional or national users. Real or perceived competition to a global network could be staved off, and both less- and highly developed countries will benefit by a realistic pricing scale. The Ramsey pricing method[47] could also be an alternative to render a natural monopoly such as global DBS system sustainable against competitive entry. If political concerns related to implementing a new pricing system can be mitigated, the challenge of competitors in the global satellite market could be effectively met.

Second, a global DBS system must remain technologically competitive. To discourage the entry of other DBS firms (private or state-owned) into the international or regional markets, cost studies by the global system should be conducted to determine whether potential rivals have the same or better technology, and whether the tariff structure is indeed competitive. Doing this periodically will allow a global DBS organization to keep abreast of costs and continually evolving telecommunications technology.

Yet another avenue that may be taken by a global DBS organization in order to discourage competition would be to increase its service to less-developed states and cultivate new markets.[48] Taking into account the real demand-supply situation and economic constraints of those countries, a global DBS system could accommodate those areas in several ways: by developing more effective transponders and lower-cost earth stations,[49] and through transponder leasing, loans for telecommunication systems, and even subscriber financing.[50] For example, INTELSAT has made significant efforts in addressing the needs of thinly routed, less-developed countries. Its VISTA service provides connection of low-cost terminals to other parts of the country and the global network as well. In addition, its Development Assistance Program (DAP) offers consultation in telecommunication design, bargaining, and administration.[51]

47. Ramsey theory of pricing is a mathematic formula and an explicit form of value-of-service. In economies of scale, a monopolist's prices have to be marked above marginal cost in inverse proportion to price elasticities of demand for respective services in order to cover operating costs exactly. *See* Snow, *supra* note 13 for further discussion.
48. Kavanaugh, *Star WARCs and New Systems,* TELECOMMUNICATIONS POLICY 93–105 (June 1986).
49. *See* VIA SATELLITE, *supra* note 7.
50. Gellerman, *Subscriber Financing of Telecommunications Investment,* TELECOMMUNICATIONS POLICY 51–56 (March 1986).
51. Pelton, *Communications: Developing Nations Faster,* SATELLITE COMMUNICATIONS 21 (July 1984).

Given the high interest of less-developed countries in initiating DBS systems, through application of a "user-conscious" pricing system, periodic cost studies, and provision of incentives and assistance for less-developed countries, a global DBS organization could ensure the attainment of the benefits of satellite communication by many who would not enjoy them otherwise. Further, these measures would allow a global DBS system to maintain an ample level of immunity to competition.

VI. COORDINATION

Current trends toward privatization may be seen as a significant indication of increased competition in providing DBS services, increased demand for utilization of the GSO spectrum resource, and consequently, an intensification of coordination procedures. The privatization of BT, Inc. of Britain echoes the philosophy of U.S. telecommunications policy.[52] The "release" of Nippon Telegraph and Telephone from governmental auspices in Japan, as well as several developments in France, Spain, Luxembourg, Sweden, Norway, Finland, and Iceland allude to the fact that respective governments stand to lose not a small amount of direct bureaucratic, legislative, and executive control over their DBS telecommunications systems.[53] Resultant in this liberation of sorts is a race towards space, and into the arena of facilitating national DBS communication.

The topic of coordination goes beyond the distribution of a scarce commodity. Signal spill-over and, consequently, national sovereignty and prior consent, are topics that have been and are being wrestled with in the international arena. Even with the WARC-1971 agreements on spill-over and interference, and principles enshrined in the U.N. constitution concerning the free flow of information and prior consent, unintended spill-over and national sovereignty is not guaranteed.[54] The trend toward privatization makes this even truer, and makes the search for and implementation of technology and procedures to alleviate these relevant concerns even more urgent. Ahead, we propose alternatives that may adequately diminish problems of coordination arising within a global/regional DBS system.

In an effort to prevent illegal satellite reception of certain broadcasts, many U.S. programming suppliers such as Home Box Office, SHOWTIME,[55] TBS, and others, along with cable operators, are considering or have already

52. *America's Deregulation Gospel Winning Converts Worldwide,* BROADCASTING 68–69 (February 3, 1986).
53. Snow, *supra* note 40, at 288; and *supra* note 10.
54. W.J. HOWELL, JR., WORLD BROADCASTING IN THE AGE OF THE SATELLITE 264–269 (1986) and MATTE, *supra* note 2, at 96–98.
55. *Ready, Set...Scramble,* SATELLITE COMMUNICATIONS 20–21 (June 1985).

employed the use of the M/A Com scrambler.[56] Not only does it exclude undesired signal transmissions, but, through a DBS control center, decoders may be activated and deactivated.[57] On a greater scale, ARABSAT currently scrambles its uplink telemetry system in order to prevent unfriendly interference and take-over of its space-craft.[58] Further, ARABSAT decision makers have considered scrambling the network's commercial television broadcasts in order to avoid problems inherent in the reception of unacceptable program content by countries within the same footprint.[59]

Another means by which to deal with the problem of spill-over involves the use of receive-only dishes. As an example, Pan-European telecasts of a foreign source are limited through a ban on this type of signal receptor.[60] In addition to this type of regulation, the same result is had by the prohibition of cable operators from relaying unwanted broadcasts, the requiring of commercial strippage, and the imposition of carriage fees.[61]

Integral to the concerns of sovereignty and cultural invasion is the problem of program content, which first surfaced in early 1970 when a global DBS system was considered by the ITU.[62] However, a proposed global/regional DBS system, as a common-carrier, could effectively resolve this problem. Since a common-carrier arrangement will not interfere with the content being carried by the system, this will provide individual countries with programming autonomy.

In conjunction with scrambling technology, and regulations on receiving equipment, a common-carrier global DBS system could be highly beneficial in transmission and sustenance of political, economic, and cultural integrity of individual states. Although the utilization of scrambling technology and the necessary satellite ground equipment may increase the initial costs of a global DBS network, the benefits of this will far outweigh the costs. Moreover, costs incurred may prove to be miniscule when absorbed on a global scale by participating nations. Although initiatives and technology such as these do not relate to cooperation or coordination directly, they seem to guarantee the preservation of the national sovereignty of those countries concerned with doing so. However, as a result of this, the cooperative and coordinating activities necessary for establishing a global/regional DBS system could be enhanced.

56. *Cable Scrambling Group Crumbles as TBS Pulls Out,* ELECTRONIC MEDIA 1, 22 (October 14, 1985).
57. Covens, *DBS Control Center: Simple Yet Complex,* VIA SATELLITE 24–25 (April 1986).
58. *ARABSAT Satellite's Control Signals Will Be Encrypted,* AVIATION WEEK AND SPACE TECHNOLOGY 176–177 (May 21, 1984).
59. MARTINEZ, *supra* note 17, at 21.
60. *Supra* note 10.
61. *Id.*
62. QUEENEY, *supra* note 2, at 45–63.

VII. EQUITABLE ACCESS

The issue of equitable access hangs over former agreements and resolutions guaranteeing all ITU member countries equal access to the geostationary arc and the frequency bands allocated for DBS use. Indeed, these written agreements were the driving force behind the recent establishment of arc-allotment planning of Fixed Satellite Services.[63] *A priori* versus *a posteriori* planning has long been the focus of debate between highly developed and less-developed countries. Although no country has expressed dissatisfaction regarding the *a priori* plan of allocating DBS channels in individual regions, it could still be an issue for establishing a global DBS system.

Highly developed states maintain that *a priori* allotment of orbital slots is an inefficient use of a limited resource,[64] because many of those who advocate this position will never be able to make immediate use of the space given, considering the initial costs[65] and technology of national DBS systems. *A priori* planning, it is claimed, can deny those facilities (orbital slots) to those who may need and make efficient use of them (namely, private entities) in the near future, and freezes technological development.[66] It is concluded that planning flexibility—allotting arc space on a "first-come, first-served" basis—is essential to the advent of new technology, optimum cost-effectiveness, and efficient use of the GSO.

Lesser-developed countries desire *a priori* planning to further ensure access to the GSO. As telecommunication is viewed as increasingly essential for participation in world affairs, satellite communication is seen as a viable means to this end. *A priori* planning relieves the possibility of preemption, and allows less-developed nations greater ability to determine the economic and technical parameters of the telecommunications system they require.[67]

To establish a global DBS system, and solve the ambivalence between *a priori* and *a posteriori* planning, it is important to keep in mind two main

63. *Space WARC Reaches a Consensus*, BROADCASTING 40–41 (September 16, 1985).
64. MARTINEZ, *supra* note 17, at 7–8.
65. Based on the financial plans of the U.S. potential DBS operators, the implementation of a national DBS system would cost between $200 and $700 million contingent upon the complexity and the requirements of the system. These figures include space and ground segments and launch costs. But the estimation does not include the costs of programming, marketing, and leasing or distributing the receiving earth stations. Adding these operating expenses, it was projected that the cost of a national DBS system could be much higher. Federal Communications Commission, *Memorandum Opinion and Order*, F.C.C. 82-498. December 3, 1982, 43–46.
66. Mahoney, *supra* note 11.
67. Segal, *supra* note 4, and MARTINEZ, *supra* note 17.

objectives.[68] Those less-developed countries need to have guaranteed access to suitable places on the arc, even though it will likely be distant future when they will be able to use them. Concurrently, those countries that do anticipate DBS utilization in the near future should not be penalized, i.e., relegated to "latecomer" status. Simultaneously, technological development and growth should be fostered. There are measures through which a global DBS organization may coordinate these goals for less-developed and highly developed nations.

To best meet these objectives, a global DBS organization could establish regional, multiadministrative entities. Such a global DBS network with regional associations would relax the utilizing of the GSO for national DBS purposes, and thus lessen the burden of the resource and coordinating bodies—guaranteeing equitable access for less-developed, developing, and highly developed states.

Moreover, the institution of regional systems between cooperating nations further promises access, and is politically conceivable (as ARABSAT and EUTELSAT exemplify), since regional systems would be composed of a fewer number of countries, in close proximity, who may share similar goals and interests.[69] Regional systems may be economically attractive, too, particularly to states in which the financial burden of initiating a national DBS network is too great to bear alone. Through financing cooperation, space segment costs could be met, and ground equipment could be bought according to the needs of the individual country. Multilateral planning sessions could be undertaken to coordinate requirements of these nations' DBS system on those bands designated for allotment.[70]

Such initiatives on the part of a global DBS organization will not only guarantee access for all users, but promote effective use of the GSO spectrum, and preserve, to a degree, flexibility in the system, promoting growth and innovation. Thus, a global DBS system, possessing regional, multiadministrative bodies is an alternative that may be politically, technically, and economically propitious to all.

VIII. SUMMARY

Observing now the real possibility of effectively addressing old and new issues related to DBS communication—competition, coordination, and equi-

68. Naraine, *supra* note 41, at 106.
69. Wigand, *supra* note 5, at 254; Powell, *supra* note 3, at 34.
70. BROADCASTING articles, *supra* notes 9 and 11.

table access (incorporating free flow of information, national sovereignty, prior consent, spill-over, privatization, politicization, and *a priori* v. *a posteriori* planning)—it is now time to refocus efforts toward establishing a global/regional DBS system.

To review, reasons for reassessment are due to the rise of debates over equitable access on the FSS, risks surrounding the initiation of national DBS systems, privatization of the DBS market (and consequences of competition and coordination), and the politicization of international negotiations. These matters make crucial the necessity for international cooperation. It is argued here that a global DBS system could be instrumental in addressing these problems, as well as those concerns related to competition, coordination, and equitable access. In order to be successful, a global DBS organization must enact several measures.

The spectre of competition may be dealt with by the global DBS organization in three main ways: by instituting a pricing system that reflects a realistic demand-supply situation of regional or national users; by conducting intermittent cost and technology studies to prevent cream-skimming and encourage technological development; and by offering financing assistance and incentives to those nations that need them.

A common-carrier type of global DBS system may also forestall problems arising with coordination. This may be done by utilizing scrambling technology and enforcing regulations on receive-only dishes. These two methods may prove useful in preventing spill-over and violation of the cultural, political, or economic sovereignty of individual states.

Equitable access could be guaranteed to highly and less-developed countries through a global DBS system. Although the conflict of *a priori* and *a posteriori* planning has been resolved by the allocation of DBS channels and orbital spaces among regional countries, the "globalization" and "regionalization" of DBS communication networks will conserve and share the GSO resource more effectively. While coordinating requirements of different systems through multiadministrative organizations, a global DBS system may also maintain an adequate degree of planning flexibility for modification.

Devoting efforts towards deterring competition, problems of coordination, and ensuring access to all should be the primary objectives of a global DBS system. As shown, such a system is achievable from a technical and economic standpoint. Much of the debate that delays implementation of a global DBS system stems mainly from political conflicts—many of which may be mitigated and resolved not only through concerted, common-goal orientation in negotiations, but also by employing the aforementioned solutions. The time has come to take steps in the direction of renewed international cooperation, allowing all nations to realize increased development, progress, and quality of life through a global DBS system.