
TELECOMMUNICATIONS AND REGIONAL INTERDEPENDENCE IN SOUTHEAST ASIA

—MEHEROO JUSSAWALLA—

No force has altered the arena of international relations as dramatically as the revolution in telecommunications. It has spurred changes in the way societies function, the growth of economies, and the integration of markets. Electronic highways have created an intelligent world in which banks and financial institutions transact business in nanoseconds. During the last decade, international telephone traffic alone has grown at a rate of approximately twenty percent each year. Television and broadcasting have become increasingly interactive media that are not only inducing changes in political and social systems, but also are being used as tools of international diplomacy: the mass media has had a role in the end of the Cold War and in the growing desire for more open markets across the world. The International Telecommunications Union (ITU) is attempting to establish a “global village” through telephone and satellite networks that will ensure access to telecommunications channels for even remote areas. Telecommunications has become the thread holding modern society together, while it contributes to growth across a wide variety of sectors.

The evolution of the global information network has coincided with and contributed to the rapid growth of the Asian region during the last few decades. Telecommunications development now constitutes an inextricable part of the region’s growth prospects. The extent to which the region can maintain and improve its links with the expanding global telecommunications network will determine its prospects for continuing this success.

In an environment of sophisticated global networks, the developing countries of the Asia Pacific region are among the newest participants in the Information Age and are subsequently ascribing higher priorities to investment in telecommunications equipment and services. The wave of deregulation and privatization that has swept the industrially advanced countries since 1982 has also spread to Southeast Asia, creating greater opportunities for businesses and households to obtain new technologies at lower costs. Benefits of late-comer access also add to the flows of information, enriching human resources and infrastructures.

Increased global reliance on information — the major currency on the international marketplace — has brought about a corresponding rise in the demand

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for new technologies. With the convergence of computers and telecommunications — the functional merger of computers, telephones, and satellites — the transmission of information in “real time” has increased, heightening a variety of sectors’ quest for new information and for new ways of linking up with global networks. Today’s telecommunications networks are all connected with computer systems for data base access and rapid transmission of data. This promotes the globalization of markets and the reduction of sovereignty over national frontiers.

Both developed and developing countries need access to information, which is both a commodity and a resource. An issue of critical importance is the ownership and control of the switches which direct the flow and movement of such valuable information. Command of these links is a powerful asset: the ability to regulate and allocate access to information can reinforce a nation’s sovereignty and can generate increased leverage both in international and domestic arenas.

Investment in infrastructures for creating and maintaining the new Information Technology (IT) has contributed to the recent growth of the Asian macroeconomy. To facilitate structural adjustments, existing investment patterns were altered to initiate the transition from capital-intensive to information-intensive investment. The increasing impact of information services necessitated adjustments in production structures, reducing investments in manufacturing industries and increasing them in information-related services. The growth of the primary information sectors in the Asia Pacific region, at the forefront of the region’s development, create both backward and forward linkages with other sectoral growth.¹ Transnational corporations have also aided in this transformation, providing much needed transfer of technology and demanding their own telecommunications networks, thereby creating additional investment opportunities.

While large scale technology transfer involves both risks and opportunities, the countries in the Asia Pacific region have managed to maximize their benefits and retain their cultural identity. Japan initiated an Asian development model based on a concept called *Johoka Shakai* (the “Information Society”) which has been emulated by the members of the Association of South East Asian Nations (ASEAN). The Japanese model of export-based growth, in contrast to the model advanced by the United States, emphasizes greater investment in the Information Technology equipment and services sector, rather than in the “smokestack” industries. The Newly Industrialized Economies (NIEs) have emulated this model, increasing their investments in the semiconductor and electronics industries, whose products could then compete in global markets. As a result, the NIEs of Hong Kong, Singapore, Taiwan, and South Korea have been the main beneficiaries of the Information Revolution.

1. Research done at the East-West Center measured the contribution of marketed information goods and services to the GNP of ten Asia Pacific countries. For further reference, see Mehroo Jussawalla, Donald Lamberton, and Neil Karunatue, eds., *The Cost of Thinking: Primary Information Sectors of Ten Asia-Pacific Countries* (Norwood, NJ: Ablex Publishers, 1989).

The growth of new telecommunications technologies, coupled with services' evolving ownership patterns and institutions, have also had a great influence on the region, challenging state-owned monopolies and leading to greater private ownership. Convergent technology as an agent of change was widely proclaimed by Dr. Koji Kobayashi, the former chairman of Nippon Electronic Corporation (NEC), in his concept of Computing and Communications (C and C), which has become NEC's corporate motto. Convergence today is best obtained through multimedia based on digital systems — dependent on the combination of compact discs with superchips and fibre optic cables — which in turn has increased potential for enhanced applications with new Virtual Reality technology. These advances are rapidly moving from Japan to Southeast Asia and are inspiring these planners in one of the fastest growing regions of the world. Most of ASEAN exhibited growth rates ranging from six percent to ten percent in 1991. Due to the large diversification of user demand, there was also a concomitant increase of five to seven percent in telecommunications investment during the same time period. Continued growth at this rapid speed will enable the region to secure its place in the forefront of the international trading system.

The international trading system is currently in a state of transition. Attempts to regulate trade through multilateral negotiations has given rise to the recent emergence of trading blocs. Economic forces have proved an irresistible catalyst, leading the way for closer regional ties between governments and providing the impetus for even further economic activity. However, as these groupings are not all-inclusive — consisting mainly of advanced industrialized nations — Third World countries are seeking to improve their economic status through the formation of their own blocs.

The recent wave of regionalism sweeping the globe illustrates the recognition that a cooperative effort is the most effective method of ensuring greater access to goods, services, and information. In the field of telecommunications, increased interaction with other nations heightens the importance of having compatible equipment for guaranteeing all sectors the fullest and fastest access to critical information. Access to information also carries with it benefits for society as a whole. The rapid deregulation of related monopoly structures can be seen as an effort undertaken by governments to ensure that users of these information services — the people — are the main beneficiaries of the revolution. Even in the Asia-Pacific region, some governments are still resisting deregulation of telecommunications out of fear that their national interests are somehow threatened by increased openness. However, people's economic desires and business' heightened activities provide strong pressure for wholehearted participation in the international telecommunications regime and exert pressure on the direction of national policy which, in the end, cannot be ignored.

Malaysia's Prime Minister, Datuk Seri Mahatir Mohamad, has raised the important issue of the formation of regional free trade groups for these Third World countries. While ASEAN members have traditionally espoused free markets, policy makers in the region are confronted with the economic benefits generated within the European Single Market and the North American Free

Trade Agreement (NAFTA). With the General Agreement on Tariffs and Trade (GATT) still struggling with issues of free trade for services and telecommunications as a part of the General Agreement on Trade in Services (GATS), it appears paradoxical that the most outward-looking economies of Asia should be considering a regional trade bloc. While acknowledging the value of free trade for unrestricted development and wealth creation, today they also must recognize the economic power of an Asian giant like Japan and its challenge to the West. Mahatir's call to "Look East"² and to follow Japanese policies of export-led growth are attractive to other countries in ASEAN and serve to provide some additional justification for such a regional grouping, strengthened by the area's close historic ties.

In 1990, Mahatir proposed the formation of an East Asian Economic Group (EAEG). While this was not favored by other members of ASEAN, most agreed with its rationale: if the North Americans and the Europeans had the right to form economic groups and still be members of GATT, the East Asians could certainly do the same. However, it must be noted that most Asian countries have larger trade balances with the United States than with Japan. While a formalized regional association would be beneficial for them in some respects, a totally insular grouping would be economically damaging.

As a result, Mahatir's proposal was not approved at the ASEAN meeting in February of 1992 and further consideration has been temporarily suspended. The Japanese, too, have officially distanced themselves from the concept of an East Asian Economic Group.³ Opposition exists in spite of the fact that the proposal itself enjoys considerable support from businesses across Asia, and especially in Japan, Singapore, Thailand, and Indonesia, who would enjoy greater potential for profits under such an agreement. Furthermore, the EAEG proposal appears superfluous in light of other regional groups which are already in operation: close coordination between the Asia Pacific Economic Cooperation (APEC), made up of representatives of the member country governments, and the Pacific Economic Cooperation Council (PECC), directed by business and academic delegates, covers much of the EAEG's intended scope. Yet Mahatir's proposal is in itself a recognition of the continuing necessity of strengthening the existing economic ties for the enrichment of the region as a whole.

In the telecommunications sector, multinational corporations as well as governments have already established many regional and international collaborative arrangements. The role of governments has been highlighted by the creation of multilateral telecommunications facilities suppliers. Intelsat, an international satellite cooperation was formed in 1964 and currently has over 120 government signatories worldwide; Inmarsat is a similar organization which uses low-earth orbiting satellites for ship to ship and ship to shore communications. Other government sponsored regional cooperatives include Eutelsat, Arabsat, and Palapa and PTT based consortia, which supervise under-

2. Mahatir made this statement in an interview on CNN World News Report, 10 January 1992.

3. Also referred to as a "Caucus" by the Malaysian Prime Minister.

sea cables crossing the Pacific and Atlantic Oceans. These institutions have a dual nature: as regional organizations, they compete among themselves and in the services they supply, yet in a domestic setting, they compete with other sectors within the local economy for budget shares and investment priorities.

In addition to being pioneers in the application of new and sophisticated technologies, these international and regional cooperatives have also proved to be extremely profitable organizations. Satellite transponders, the most vital components of international broadcasting, are leased by these organizations at an average of US\$1 million a year. With such great financial incentives, these cooperatives have sparked additional competition such as Panamsat, a regional satellite system for parts of South America, and Asiasat, which has practically monopolized broadcasts throughout Asia.

Multinational investment in Southeast Asia has also created regional interests: the consortium of KDD, Cable and Wireless, and Pacific Telesis for the submarine cable that links Tokyo with Oregon is one such example. It has also given rise to a regional grouping of telecommunications competitors vying for shares of the growing market. Electronics-based investment by Transnational Corporations (TNCs) in Southeast Asia began in the 1960s with low capital assets and high levels of employment. Such investments served as a catalyst for the later development of the service sector. Both Hong Kong and Singapore developed their financial and banking services and established electronics facilities for their stock exchange operations going into global round-the-clock trading. Thus these "intelligent cities" have led the way for a regional flow of services in the banking and financial sectors, aiding the development of financial services in other places like Taiwan and South Korea and promoting foreign direct investment throughout Asia. Much of the growth in the region can be attributed to the availability of telecommunications services, which facilitated the rapid electronic transfer of funds. This in turn has led to faster systems of data transfers, increasing interdependence among the leading exporters of the region.

Joint ventures between American and Japanese corporations in the telecommunications sector have played a significant role in restructuring corporate assets. These companies find such mergers to be a low-risk method of entering global markets.⁴ This spate of joint ventures illustrates that regional trade still flows despite a lack of formal agreements. Kenichi Ohmae's hypothesis that corporations bear greater loyalty to their customers in different parts of the world than they do to their home governments appears to be justified by the manner in which corporate joint ventures enable TNCs to bypass government negotiations in order to fulfill local economic needs.⁵

4. Examples include AT&T's 1990 deal with NEC to trade its computer-aided designs for NEC's advanced logic chips. Likewise, Texas Instruments combined with Kobe Steel to manufacture logic chips in Japan. Motorola has joint ventures with Toshiba and Hitachi, INTEL with NMBS and Micro Systems with Sony.

5. Kenichi Ohmae, *The Borderless World* (New York: Harper Business Publishers, 1990).

Privatization Policies and Restructuring the Industry

The policy for opening telecommunications markets to competition was initiated in the United States with the divestiture of AT&T in 1982. In 1985, Japan followed suit with a new law deregulating the Nippon Telephone and Telegraph Company (NTT). The major reason behind these policy changes was the enormous demand from users to possess new and rapidly advancing technology. Regulators the world over found that they were unable to keep abreast of these dynamic changes in telecommunications and their convergence with computers which rendered their regulations outmoded. In Southeast Asia, statutory government bodies — PTTs — controlled all the telecommunications services and surrendered their profits to a general government budget, which effectively curtailed their investments. The wave of deregulation in Western countries — with the ensuing rise in efficiency and decrease in costs — illustrated the necessity of modifying PTT regulatory practices, permitting some opening of the markets to competition, especially in value-added services.

It must be noted, however, that the Asia Pacific countries do not adhere strictly to either the U.S. or the Japanese model of PTT liberalization due to their diverse political doctrines and economic organizations. Within the region, policies for deregulation vary from a fully centralized system, as in Singapore, to a mix of public and private sector operations, like that in Malaysia. The need for technology transfer also brings in additional pressure for change, but the ultimate decision depends on domestic factors and consumer demand. Policy makers in these countries are becoming increasingly aware that deregulation by itself does not ensure network efficiency. It must be accompanied by organizational and structural changes with a policy for transition management. The implications of deregulation are twofold and interrelated. First, the restructuring of telecommunications has an impact on all sectors of the economy which are dependent on its services. Second, liberalization policies must be compatible with global market trends, so these nations can take advantage of new market opportunities in other parts of the world. The Southeast Asian region has realized that neoclassical interventionist policies followed by some Asian countries have impeded economic growth and they have chosen instead to pursue free market policies, which has led to increased liberalization of the telecommunications markets.

The estimated market for telecommunications equipment and services in East and Southeast Asia combined was approximately US\$113 billion in 1990; it was expected to increase by ten percent each year for five years, to US\$178 billion by 1995. It is well on its way to fulfilling this goal. This has resulted in growing competition from multinational vendors trying to gain a foothold in these markets. There is strong competition for both basic and enhanced services infrastructure throughout the region as nations strive to strengthen their development. However, the nature of such competition varies with the countries' individual development goals and local consumer demand.

Indonesia's plan for upgrading its telecommunications network centers around the dispersal of basic services throughout the nation. In 1991, both

AT&T and NEC competed for the contract of the planned expansion of 350,000 new telephone lines. In response to government and local pressures, Indonesia doubled its plan and divided the award between the two companies. Perumtel, which, along with Indosat, constitute the country's two statutory bodies governing telecommunications, will increase automatic telephone lines from a current base of 910,000 lines to 2.3 million by 1994, reaching 7 million lines by 1997. A state owned monopoly, called Industri Telekomunikasi, has joint ventures with Siemens to manufacture digital public exchange switches, and with Bell Manufacturing of Belgium for pay phones. Indonesia is also permitting private companies to provide Very Small Aperture Terminals (VSATs) under the country's Sixth Five Year Plan, Repelita VI, which will provide more telephones to rural areas to meet the goals of the 1984 Maitland Commission's Report.⁶

Malaysia has also begun to develop its infrastructure through the privatization of the former PTT, now called Telekom Malaysia, by selling its shares on the Kuala Lumpur stock exchange in 1991. This deregulation provided a window of opportunity for new service suppliers from the private sector such as Celcom and Atur 800, who are both competing for the cellular telephone market alongside the former PTT. Celcom currently has the largest share of the market for cellular telephones at fifty-three percent. Malaysia Telekom also provides basic domestic and international services and has planned to spend approximately US\$4.8 billion (M\$12 billion) on new equipment in the next five years. Additionally, it has called for bids to provide US\$800 million (M\$2 billion) worth of new digital telephone lines. While foreign suppliers are being contacted for these bids, such large investments have also spawned the formation of indigenous companies like Sapura and Federal Cables to compete for telecommunications contracts.

Thailand is following its own path of infrastructural development. There are two state owned monopolies: Telephone Organization of Thailand (TOT) and Communications Authority of Thailand (CAT). The former controls domestic communications and the latter international communications. Privatization is not foreseen in the near future, although liberalization of new services is being attempted with the government's permission. In July 1992, the Thai government announced that it will contract for an additional one million telephones for rural areas. A private consortium, Thai Telephone and Telecommunications (which is led by Loxley (Bangkok), a major private operator in Thailand for satellite services), was formed and is considered likely to win the contract. As in Indonesia, Thailand's basic services must be supplied under state subsidy due to the low per capita income prevailing in the region which does not meet the minimum income elasticity of demand necessary for the support of commercially provided basic services. It is thus necessary for cellular telephones to overcome the low penetration ratios of telephones in the rural areas. While in

6. Sir Donald Maitland, "The Missing Link," in *Report of the Independent Commission on Worldwide Telecommunications* (Geneva: ITU, 1984).

September, 1991, Hitachi launched a cellular 900 phone network in Thailand catering mainly to Bangkok, the firm Amps 800 has found demand in the countryside increasing too rapidly for the firm to accommodate all orders.⁷ This demand is indicative of the heightened desire for access to information and technology which has spurred increased liberalization in other areas.

Singapore has been described as the "intelligent city" of Southeast Asia because it has provided the latest and most sophisticated Information Technology to its citizens, albeit under monopolistic conditions. These IT services are provided by Singapore Telecoms, a state owned organization with complete monopoly power over every new service supplied. Both domestic and international services, along with paging, cellular, and videotext, are all governed by the same monopoly. Likewise, Singapore also has established a statutory board, the National Computer Board, providing a computerized network to support the most important activity of the republic: trade. The Tradenet system documents all trading activities of the busy harbor. Additionally, the government continues to direct media policy although it has permitted CNN and ESPN to provide cable television programs. Singapore Press Holdings, which held the monopoly over newspapers for decades, will now face a competitor from the government sector — the National Trade Union Congress — which, beginning in 1993, will publish a newspaper to rival the *Straits Times*. Despite Singapore's history of telecommunications monopolies, the privatization trend has finally come to this island nation: the government has declared that it will privatize its telecommunications services in 1993 and will place Singapore Telecoms shares for sale on the stock exchange.

Although they were slow in coming, regulatory changes in South Korea have finally arrived. Due to pressures from new technology, the state-owned telecommunications operator, Korea Telecom Authority (KTA), is being opened to competition. In 1991, the Data Communications Corporation of Korea (Dacom) started to provide international telephone services and data services in competition with KTA. The government had also planned to license a new operator for cellular communications, but conflicting interests related to the Presidential elections slated for December 1992 have led to the postponement of the mobile communications contract. A consortium of three foreign firms — GTE of the United States, Vodafone of the U.K., and Hutchison of Hong Kong — had joined with Sunkyong Corporation in a bid for the system, but now must wait for further notice.

Taiwan has two regulatory authorities: the Ministry of Communications and the Directorate General of Telecommunications (DGT). Since 1987, however, Taiwan has been progressively deregulating its telecommunications sector. Competition is being introduced in customer premises equipment and domestic value-added networks. The recently promulgated Six-Year National Development Plan promises more opportunities for foreign investment, with nearly US\$328 million set aside for development of telecommunications infrastructure.

7. The 800 and 900 numbers following the names of the suppliers indicate the megahertz frequency bands that will be used for the mobile suppliers.

In Hong Kong, perhaps the most important deregulated private sector enterprise has been the Asiasat system. Hong Kong's telecommunications services themselves are also modern, enabling the country to serve as the regional center for international business and a gateway to China. Almost eighty percent of its central office switches are digital, and its competitive and aggressive pricing of services has provided the country with an excellent telecommunications infrastructure. Hong Kong Telecom provides basic domestic and international service, and its major shareholders are Cable and Wireless and China International Trust and Investment Company (CITIC). It has a large mobile communications sector which grew by thirteen percent between 1991 and 1992. Cellular market competition is spearheaded by Pacific Link and Hutchison Telecom, the latter of which has been the leading provider of cellular services since 1985 and currently has a fifty percent market share. It is anticipated that this market will grow exponentially after 1995 when the remote areas and the new urban centers of China will demand the cost-effective cellular services to replace older terrestrial services. Milton Muller's suggestion that the legalized resale of international circuits in Hong Kong would promote greater competition and more rational pricing of international telecommunications services all over Southeast Asia underscores Hong Kong's importance to the Asian region as a whole.⁸

The extension of the TransPacific fibre optic submarine cables, which link continents and reduce tariffs for international services, have added to the consumers' choice of telecommunications services and have tied the region closer together. Other contracts are continuing this trend. In mid-1990 a submarine cable connecting Japan, Hong Kong, and South Korea was installed by Cable and Wireless. The North Pacific Cable (NPC) links Tokyo with Pacific City in Oregon and leads on to Anchorage. Trans Pacific Cable 3 joins Hawaii with Japan and has branches to Guam, the Philippines and Taiwan. Approximately fifteen cable systems are being laid in the Asia Pacific region at a total cost of US\$3.5 billion. These physical connections link the region more tightly than formal agreements could ever do.

Standardization for a Global Market

Compatibility of equipment standards is essential for the efficiency of telecommunications networks. However, it has not yet been fully realized, resulting in uneven standards formation and increased competition between proprietary and negotiated standards. In protecting the rights of users and making technology more affordable, policy makers must enforce uniform standards and interconnectivity of equipment. For example, Europe adopted the Open Network Provision in June 1990 to promote competition, but its successful transition rests on acceptance of an agreement on standards. In an attempt to promote standardization, the ITU has set up the Study Group XVIII to make recommenda-

8. Milton Muller, "Telecommunications in Hong Kong after 1997" (Paper delivered at the ITS Conference in Sophia Antipolis, France, June 1992).

tions for digital networks and Integrated Services Digital Networks (ISDN). The process has since been entrusted to the Consultative Committee for International Telephone and Telegraph (CCITT), which is a subcommittee of the ITU. In February 1990, the United States held a conference in Fredricksburg, dubbed the "Standardization Summit," to establish a partnership with the CCITT for the introduction of a global standard for interconnectivity; however, conclusive agreements have yet to be reached.

So far, examination of this strategic issue has been concentrated in collaborations by regional groups. Europe first established the European Telecommunications Standards Institute (ETSI) to research uniform standards for the European Community. The Uruguay Round of the General Agreement on Tariffs and Trade (GATT) has treated standards as essential for the charter on services to promote the free trade of equipment and services. Political interests cannot be fully removed from the debate, however, as governments have a great stake in the issue of tariffs and principles governing leased lines for networks.

For the Asia Pacific region, the crucial issue is how to make the transition from technology-driven demand for standards to a market-driven one based on user needs. North America established the T1 Subcommittee on standards made up of business users and vendors. Japan also has two groups for this purpose: the Telecommunications Technology Committee (TTC), made up of private corporations, and the Telecommunications Technology Council, a government body attached to the Ministry of Posts and Telecommunications. The economies of developing countries in Southeast Asia face a precarious threat. With limited resources of hard currency it becomes difficult for these countries to purchase equipment from the least costly vendors from different countries because their products may not be compatible and thereby will reduce the efficiency of the entire network. The very concept of open access to telecommunications systems is challenged by the competition in regional standards. While countries in Southeast Asia are not major suppliers of telecommunications infrastructure equipment, they export the related technologies of computers and semiconductors, making their choice of standards all the more crucial for promoting their countries' interests on the global market. Therefore, these nations are quite anxious for the establishment of income-saving standards.

Japan has exercised a major influence on the ASEAN region by establishing an Asian ISDN Council for the establishment of network standards. Over twelve Asian countries — including India and China — have joined the Council. In 1989 Thailand initiated a packet switched data communication network and a dedicated channel to handle facsimile messages which is comparable to Euronet and Internet, gateways for data exchange which speed the flow of information among many users. Currently the network operates only within neighboring countries but may be extended internationally depending on the compatibility of equipment. In the Asia Pacific region, two protocols are currently being used for Electronic Data Interchange (EDI). UN/EDIFACT is used by Singapore, Hong Kong, Australia, and New Zealand. Korea, on the other hand, uses an American National Standards Institute standard, ANSI X.12. For videotext, Singapore uses Teletel, Japan uses NAPLPS, while the United States, in general,

uses ASCII. Due to the wide variety of systems used, accessing data bases across continents and converting equipment becomes costly and difficult.

To overcome this problem, the Asia Pacific Economic Cooperation Council has created a special subcommittee on telecommunications which specifically addresses the issue of EDI and standards. Australia has taken the lead in standard setting for the region; the next APEC meeting, which will study this issue, will be held in Sydney in 1993. The Asia Pacific region's exports to Europe and North America are jeopardized by the absence of global standards, making a resolution of these difficulties an economical imperative.

The Satellite Wars in the Pacific

Satellites are the most crucial component for a wide variety of telecommunications services. Yet their high cost and high-level technology inhibit some countries from taking full advantage of their services. As a result, the world is turning to regional satellite systems to share in the benefits of this technology. This is especially true in the Asia Pacific region. Indonesia, the first Third World country to own and operate a domestic satellite system, recognized satellite communications' cost insensitivity to distance, and continues to lead the way in promoting this technology. The Palapa system was first launched in 1976 to provide television and telephony to the 13,000 islands of the Indonesian archipelago; the Palapa B2R system extends across the region, providing transponder capacity to Thailand, Malaysia, Singapore, the Philippines, and Papua New Guinea. In 1991, Indosat and Perumtel set up a private corporation called Palapa Pacific Nusantra, using a new allocation for its A2 system for coverage of the Pacific Islands and Hawaii. Both CNN and ESPN have opted to use this new system for their broadcasts to Asia in direct competition with Asiasat. Home Box Office and TV New Zealand are also negotiating for transponders on the same system. Already the charge for leasing a transponder on the Palapa system has risen from US\$800,000 to US\$1.1 million per year. On May 14, 1992, the Delta rocket placed Indonesia's B-4 satellite in orbit for the country's state owned company — now called PT Telekomunikasi Indonesia. It joins three Palapa B satellites already in orbit but has a longer life span of nine years. For northern Asia, Intelsat provides CNN programming, but the large size of an Intelsat satellite dish — a minimum of 7.5 meters — makes it far more unwieldy than a Palapa small dish, which can receive signals even if it is as small as 2.5 meters wide.

Not since the launch of Intelsat's first satellite called Lanibird in 1965 have so many satellite wars erupted in the Pacific. Aussat was launched in the early 1980s followed by JCSat of Japan, which all coexist with Intelsat to provide point to multipoint communication for the region. The reason for the rise in competition is that traffic levels within the region are overtaking those crossing the Atlantic Ocean, and are increasing despite the growing number of submarine fibre optic cables. Primary services offered are switched telephone services and long term television leases. Intelsat will soon deploy its series seven spacecraft

with two expected to be in orbit by 1993.

Despite the overabundance of transponder capacity currently available, other companies like Panamsat and Pacstar still plan on placing new satellites over the Pacific in the mid-1990s. Even if regional demand grows exponentially, there will still be surplus transponder capacity in the region. It appears that the protection of sovereign rights as manifest in the control of a dedicated national satellite outweighs the economic redundancy of purchasing satellites when adequate capacity already exists. Malaysia and South Korea have both placed orders with Hughes for construction of their domestic satellites despite the expected presence of approximately 600 transponders by the year 1995. However, political considerations are also evident in government control of access to information from the other end — the receivers. At present, private ownership of satellite receivers in Malaysia, Singapore, and Thailand is illegal, due to their governments' desire to regulate the broadcast of programs channelled through such equipment; other countries in the region require licenses.

Conclusion

Telecommunications have become a major priority for investment and a significant contributor to economic growth in Southeast Asia. These countries have become far more interdependent for trade, investment, and technology transfer than in the past. The growth of regional trade blocs appears to counter the spirit of the GATT negotiations and Asian exporters are now apprehensive about the potentially negative effects of the NAFTA free trade area. However, the fact remains that regionalism requires a great deal of structural adjustment and telecommunications technology will render such changes easier to achieve.

The collaboration that now exists among ASEAN and APEC members is, in effect, that of a free trade area. Regional satellite systems and undersea cable consortia have increased the links and have engendered a heightened sense of interdependence among these countries. Yet the greatest impetus for change has come from consumer demand, illustrated by the increased services offered by businesses in the region and the governmental liberalization policies which recognize and respond to these demands. Southeast Asian nations have acknowledged the importance of maintaining and increasing their access to the information which has been so critical in sparking previous growth in the region. As the recent trends in the region's telecommunications development indicates, these nations are determined not to lose their lead among developing countries in participating in the Information Revolution.

