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The Promise Of Telecommunications In Asia

By

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The Promise of Telecommunications in Asia

a paper prepared for the

AMIC
Conference on Communications
in a Changing Asia

Manila, Philippines
July 16-18, 1992

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Draft for conference use only.

The views expressed in this paper do not necessarily reflect those of the members of the PTC.
Introduction

The Promise of Telecommunications in Asia may be read as "how well will telecommunications be developed and implemented" and "what benefits may we derive from these developments?"

I would like to spend these few minutes by sharing with you some of my thoughts and observations concerning the way the future seems to be unfolding in this part of the world. First we'll review some of the major global factors -- economics, technology, strategic alliances. National factors such as governmental policy, economics (again), demographics and user demand will be considered in the context of major global shifts.

Current and future telecommunication developments and applications will be reviewed. Broader questions of national development, technology diffusion will be raised.

Lastly, some thoughts on the new possibilities (promises) of emerging technologies for Asian societies.

Global Driving Forces

In a recent multi-client study conducted by James Martin Strategy, Inc., they found that the primary factor affecting telecommunications developments was economics. In Asia, they predicted that over the next eight years Southeast Asia would exhibit very high growth rates in telecommunication infrastructure development. While South Asia and Northeast Asia
would grow, their rates will be much lower. ITU studies have shown the correlation between general economic growth and telecommunication growth. Many now assert that telecom infrastructure growth leads to economic development. Later we will discuss some of the applications of telecommunication in commerce which clearly illustrates the economic benefits.

In addition to economics, technology is clearly a key factor in shaping the future. From a macro level we can look at major historical shifts influenced by inventions such as the printing press and the steam engine or transistor. At a closer view we can see the impact of developments in such areas as digital transmission, now facing a revolution in compression techniques; fiber optics, leading into optronics -- all light switching; satellite mobile communication and geographical positioning.

As John Eger, Director of the International Center for Communications, San Diego State University put it: "For here's a technology that knows no barriers, no national boundaries and does not recognize any of the artificial divisions between the different people and places of the world. Here is a technology that does not recognize color, creed, race, or nationality. It is a technology that is supernational, acultural, alingual, a technology of sight and sound, of binary digits, that can indeed saturate the world. It is a technology that creates simply by providing the means -- a flow of information and ideas -- a force throughout the world that simply will not be stopped however we may resist its flow."
Through these changes we can see a new web of global activities unprecedented in modern times.

Global corporations — transnational — if you will, are able to grow and operate with little concern for time and space. This globalization is tempered or challenged by a growing regionalization as well as nationalism.

**National Driving Forces**

Among the national driving forces is the nation's concerns over loss of sovereignty and cultural erosion. This is especially true in the areas of news and entertainment. In discussions at a recent PTC seminar in Seoul, Korea, Korean scholars voiced their concern over Korea's creation and control of the content on satellite broadcasts. The MacBride commission report, of course, had spoken to such concerns.

Government policies regarding competition in telecommunication service provision are undergoing changes in many countries of the region. The rationale for most seems to be that liberalization and competition will help spread telecommunications infrastructure development; will offer the customer more options; and will provide investment capital.

It may be simplistic to say that demographics play a major role in national development. In the telecommunications arena we can see where even massive attempts to provide a single phone to each village is an uphill battle against an ever increasing population. Urban crowding provides another challenge for
service providers. Availability of human resources to operate, maintain and manage the telecommunications systems is a major concern throughout the world, but is especially acute in the developing countries.

Demographic patterns, being relatively predictable, can be used to establish national policy. Japan, for instance, foresees an increasingly aging population and is now encouraging the development of information devices and systems to aid the elderly and disabled. Observing the migration of people from rural to urban areas has some countries attempting, through communications, to make the rural areas more attractive and productive places to live. In this vein, South Korea is developing additional infrastructure to spread its commercial activities throughout the country to alleviate the burden faced by Seoul.

User Demand

One of the consequences, and to some extent the causes, of liberalization and the introduction of competition has been user or customer demand. In the early 1980's, an official of the New Zealand Post Office told me that the Post Office knew exactly what the customer needed and wanted, and that the Post Office was providing those services. In a short six or eight years, this has been turned 180 degrees. New Zealand now has the most liberal and open policy in the world.
User demand is very difficult to forecast, especially for new types of services. Many experts at one time saw electronic mail as the big communicator of the future. Facsimile snuck in and became an overnight sensation. The full promise of E mail is still awaiting a common address system.

In American Samoa when they installed a satellite antenna to provide first time long distance calling (except for HF radio), officials estimated two circuits would suffice. Within a few months they were up to six busy circuits. Good quality service at a reasonable price generates usage.

Aside from the large users such as Reuters and Citibank who lease such a volume of circuits and can make their concerns be heard, the voice of the smaller customers has seldom been heard. This is changing. User groups in Hong Kong have been active for some years; Australia and New Zealand have telecom user groups. The International Telecommunications Users Group, based in London, is fostering the creation of other such groups in the region.

Increased competition will likely cause providers to listen more carefully to the customer.

Asian Telecommunication Developments

What are some of the developments we can expect in Asia?
First, as noted earlier, is a shift in government policy to allow for more competition in certain aspects of
telecommunication services. The pace and extent of such changes is quite varied in the region. A major first step seems to be the corporatization of the major carrier or carriers. This may or may not lead to full privatization. Korea, Taiwan, Malaysia, Singapore are becoming or have already corporatized. Japan has competition in both the national and international long-distance service. Korea's DACOM is now offering international services in competition to Korea Telecom. In these and other countries competitive service providers have emerged usually offering lower priced service.

From a technological point of view a list of developments is quite impressive: in the area of undersea fiber optics:

- East Asian and ASEAN region undersea fiber optic cables planned and installed
- Planned SEA ME WE cable linking South East Asia with Europe
- Announced fiber optic cable linking Japan - South East Asia, with the Middle East and Europe
- Completion of TPC3; Haw 4; North Pacific Cable; GPT; Tasman 2
- Plans for Pac Rim E, Pac Rim W, TPC4

With the development of repeaterless fiber optic capabilities, fiber is now a cost-effective alternative for linking cities along a sea-coast or linking island together or to the mainland. The capacity of fiber optics continue to be dramatically increased.
Satellite developments in Asia have been quite dramatic. The list of planned domestic systems continues to grow adding to the existing systems of Indonesia, India, Japan, and China. Announcing firm plans are Pakistan, Malaysia, Thailand, South Korea and Taiwan.

On a regional basis Asiasat, with a home in Hong Kong, provides services throughout much of Asia. Planned regional service is being proposed by PanAmSat. Columbia is now able to provide C Band services in Asia as well.

Intelsat provides both domestic as well as international services through its Pacific Ocean Satellites and those in the Indian Ocean. Just this year they have announced the placement of a satellite over the Asia region to help cope with increasing demands. Its expected launch in 1993 of Intelsat VII will give additional flexible capacity to the western portions of Asia.

Given the potential proliferation of satellites in the region, serious concerns have been raised regarding the availability of orbit space.

Still in the satellite domain is the availability of mobile communications via INMARSAT. This system offers land, aeronautical and marine mobile services. Their standard M system which will be introduced and promoted at PTC'93 this January in Hawaii, provides voice and low speed data communications to very small terminals with an antenna size about .5 meter. The importance of mobile capacity will be discussed in the section on applications.
The global Iridium system, being developed by Motorola is expected to begin service in 1997. Persons using this system are to be assigned a unique number and a small pocket-sized handset. By linking through the public switched network to satellite terminals, to a series of low-orbiting satellites, you will be located. Motorola says it will make arrangements to block calls to or from countries which do not agree to participate in this system.

People have not been waiting for Iridium. The increase in cellular telephone use in all Asian countries has been remarkable. Both the car phone and the portable models have found ready markets. In some areas cellular is seen as a quick way to provide service where none existed before. Wireline installation costs in sparsely populated areas are quite high and have a low rate of return, making cellular a reasonable alternative.

Integrated Service Digital Network (ISDN) is becoming an ever-increasing reality in Asia. Pioneered by Japan, Singapore, Hong Kong and Taiwan, progress is being made in providing ISDN to the customer. Most countries have field trials underway plus limited offerings. As ISDN becomes the worldwide mode for broadband communications, Asian countries cannot afford to lag behind. Most countries should have the technical know-how but not all will have extensive ISDN network capability in the near term. Even in the U.S. and Japan, the demand from the customer continues to lag expectation.
Applications

Pictures of the future may be drawn from current activities. Here we will take a look at some of the ways that telecommunication technology is being put to use in some of the countries of Asia.

Travel The Pacific Economic Cooperation Council (PECC) has a project called "Triple T" for Transport, Tourism, and Telecommunications. The premise here is that these sectors of the economy are closely linked and interdependent. The proper planning and coordination of the three T's is seen as an ingredient in economic development of the region.

The travel industry is certainly the major user of telecommunications, making it in turn quite dependent upon information services and telecommunications. From massive computer reservation systems (CRS) to in-house billing and accounting, telecoms forms a vital link in the travel industry. Guest telephone, fax and data communications services form a profit center for many hotels as well. Electronic data bases have now become the travel agent's friend. Later when individuals call-up and book their own travel, agents may not be so kind to the telecommunications industry.

Telecommunications plays a crucial role in enabling efficient transportation of goods and people. At sea the Inmarsat system allows constant communication from and to all
types of ships. Cargo manifests, provisioning requirements, crew payroll and other information is routinely conveyed to the home base or next port for action. Or shipments may be diverted while the vessel is still at sea in order to take advantage of price changes.

Air travel in Asia will benefit even more from telecommunication. International air traffic in Asia now accounts for about one-quarter of the world's traffic. At the end of this decade it is expected to equal one-half. We all know how difficult travel in this region can be now. How can it grow that much more? Massive new airports planned in Japan, Korea, and Hong Kong. These plus the continued expansion of Singapore's facility are set to relieve that part of the bottleneck. The other bottleneck has been the crowding in the air corridor. Each plane has had to keep a considerable distance from the next. Now with global positioning via satellite, planes may safely fly closer to each other.

Onboard immigration and customs clearance is seen as another way to facilitate air travel throughput.

Health Remote diagnostics in the health field will benefit from broadband services. Digitalized x-ray "pictures" of an infected lung may be shared with experts in a distant city (a NYNEX/Digital Equipment Co. demonstration project of such a system will seen at PTC'93.)

Environmental monitoring, epidemic tracking, emergency services coordination, etc., are all susceptible to
Multi-media will be an effective tool in training health practitioners at all levels.

**EDI** In the commercial realm one application stands out among the thousands. This is Electronic Document Interchange or EDI. Now being put to use world-wide, EDI provides a computer-based quick, accurate way to order goods and services, have them shipped and received, and to have payment made.

Pioneered in part by the Singapore Port Authority, EDI replaced the many forms and separate trips to the insurance company, the customs broker, the shipping agent, etc. Normal time to complete documentation for a shipment was 8 hours. And frequently there were errors on the forms requiring backtracking.

By linking all agencies via computer and by providing on the system common forms, the shipper could enter the data once, have it reviewed and ok'd by all agencies at the same time. New elapsed time: about fifteen minutes.

Singapore is now moving to require all vendors doing business with the government to make payments or issue invoices via EDI.

**Education** Educational systems throughout Asia have turned to telecommunications to provide instruction to millions of students in off-campus sites. The Asian Association of Open Learning founded in 1987, and headquartered in Thailand promotes distance learning concepts among its many member institutions.

With additional national satellite capabilities (and signal
compression) projected the future for this activity can only expand. And as bandwidth availability increases, the pressure will grow to provide more multi-media materials.

In addition to formal education, distance delivery of technical training is also provided. One interesting concept being pursued through the PTC and PATA is that of creating "teleresorts," where certain hotels during off-peak season could serve as remote learning centers. Here hotel workers could upgrade their skills, or groups from the outside could stay in the hotel and undergo a set curriculum.

Entertainment Satellites will solve the initial entertainment distribution problem. Cable systems will add to this capacity. The development of national and regional production capabilities will be the major challenge. Now it is difficult to compete with Western programs and as the channel capacity expands, countries will be under much pressure to fill those channels.

Countries which are large enough to justify major production facilities or groups of countries culturally able to share programming are in better positions than smaller populations with "stand-alone" cultures.

The role of government in controlling access to the media is a sensitive topic. At one end of the debate is John Eger who decries any interference with an individual's access.
Where do we go from here?

As Pekka Tarjanne, Secretary-General of the ITU said in Acapulco following his brief overview of the declaration of Acapulco, "Where do we go from here? Obviously some of us will go to lunch!"

Since it's not lunchtime, I can't escape that easily.

In an effort to draw some conclusions from all this, let's return to some of the broader factors in the telecoms arena.

1. We are in a period of accelerating change -- Asia as a region is the fastest growing in the world

2. Governmental structures are being altered

3. Wide economic and telecom variations exist within many countries and between Asian countries

4. New broad-band capacity -- via fiber optic and via satellite will be available in vastly differing quantities within this decade.

5. Utilization of multi-media will be introduced and used, again with differing penetration and impact

Focus in the interim will continue to foster the commercial, industrial, consumerism model.

With the help of broad-band interactive media, there is a chance that some countries will begin to shift to societal values
which promote creativity, human interaction, group and self-
fulfillment.

I suggest this as the gurus of multi-media are artists rather than computer programmers. With the artist, hopefully, will come an escape from the linear thinking imposed by current technology, schooling and commerce.

It's a shot in the dark but it does hold a promise for us all.