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Hong Kong

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To understand Hong Kong's telecommunications policy and practice requires an understanding of Hong Kong's uniqueness in terms of the broad parameters and institutional frameworks within which these matters are worked out compared with those elsewhere.

First, Hong Kong is not a country. Rather, it is a British Crown Colony headed by a governor appointed by the Queen. In historical practice this means that the governor and other senior officials have been "vetted" for their posts by the British government in London. While the Hong Kong government has enjoyed the authority to legislate law for Hong Kong, to interpret this law through an independent judiciary, and to administer it, British constitutional and administrative practices naturally have predominated. (In the run-up to 1997 this has changed somewhat; see, e.g., Miners 1991).

It is not clear if the government pays much attention to the views expressed in public consultations regarding its policies, although it assiduously seeks such consultation. The direct election of legislative council members took place for the first time in 1991. Britain, however, has not developed a local representative government apparatus. This would surely have provoked China, which would have seen it as a preliminary process leading to eventual Hong Kong "independence." Although the government in Beijing may have been willing to tolerate a Hong Kong firmly administered by Great Britain, it would never have tolerated an independent Hong Kong—or "three Chinas"—considering its concern with Taiwan and the "two Chinas" problem.

The vast majority of people in Hong Kong have traditionally remained carefully apolitical. The result has been an implicit social contract whereby the government has had public acquiescence if not genuine support, and the public has had fairly unfettered pursuit of personal prosperity. In this political environment, Hong Kong's government was unusually free to set policy. Telecommunications was not an issue the public cared much about, and because it has been set by a colonial government, policy making has usually been carried out

in private. This has made it difficult to discern the balancing of interests and to weigh the prospects and likelihood of changes.

The government has espoused a minimalist role—what has been described as one of “positive noninterventionism” by long-time government official Sir Philip Haddon-Cave (1989) when he was Hong Kong’s Financial Secretary in 1971–1981. The effect of this is extreme reluctance to initiate government action unless the need is quite apparent and it is the only way to deal with an issue.

Another aspect is small geographical size. The practical consequence is that Hong Kong does not require domestic long-distance services. Thus, one of the major considerations in deregulatory debate and practice elsewhere does not exist. The Hong Kong Telephone Company system offers a unitary and fairly seamless territory-wide service. Until 1990 there were three telephone dialing and numbering areas, but they were only for convenience and organization of switching.

Household and business plain old telephone service (POTS) is charged on a fixed monthly basis per telephone (albeit charges are higher for business telephones than for residential ones). Installed equipment could not handle usage-based rates. Quite simply, however, there has never been sufficient dissatisfaction with the current system to warrant the added costs.

Hong Kong’s role as an international trader and entrepot center, both for China and other countries of the region, has generated a very large transportation and financial services sector, as well as a highly developed tourism industry. This means there are substantial international telecom requirements. The business services and communications sectors overshadow manufacturing and require a large-capacity, high-efficiency system.

Until the mid-1980s, telecommunications policy, such as it existed, was largely based on U.K. practices as interpreted by Hong Kong Telephone, where management has been predominantly British, and the Cable & Wireless group, which was British owned. Because the business community and other private groups have considered service they receive superior to that generally available in Southeast Asia, there has been little initiative for them to seek a role in policy making.

Another unusual feature of Hong Kong’s geography is the land form. The numerous islands are mountainous with rocky soil conditions. The urban area along certain seafront corridors is densely developed, but there are extensive sparsely populated hillsides—“green-lung” areas. As a consequence, telecommunications distributions systems are rather unusual. To achieve nearly complete coverage, radio and television systems make extensive use of multiple transmitters and repeaters.

Cable wire distribution systems must be installed almost entirely underground. Terrain and congestion make trenching difficult and disruptive. Though these would ordinarily be matters of small import, they took on special significance in debates over the introduction of cable television and the requirement of building an entirely new distribution network.

13.1 History

Telecommunications development largely paralleled that in Britain with a few years lag. The first submarine telegraph cables were laid to Hong Kong in 1871 by a company that later became part of C&W. The telephone was introduced in 1877.

By 1882 the first public telephone service, with fifteen subscribers, became operational. By 1905 this venture had become the China and Japan Telephone Company and had been granted a twenty-five-year license. In 1925 the company was taken over by the newly formed Hong Kong Telephone (Telco), to which the government granted the sole right to supply and operate telephone service for a period of fifty years. In 1975 the company's exclusive franchise to operate a domestic telephone network was extended for twenty years to 1995.

In the meantime, international telegraph services continued to be provided by the precursor companies of C&W. C&W began offering fixed wireless services by 1939, and the company entered arrangements with Telco to provide international telephone services. Before these were developed to any significant extent, they were interrupted by World War II.

In 1948, C&W was granted exclusive license to provide all of Hong Kong's external services and link them with the domestic network of Telco. By 1981 the parent Cable & Wireless plc had established C&W Hong Kong (C&WHK) as its local subsidiary, holding 80 percent, with the Hong Kong government having the other 20 percent. C&WHK exercises the exclusive license for international telecommunications facilities and services, which expires in 2006.

Telco and C&WHK, both private companies as far as the Hong Kong government is concerned, have been the exclusive telecom services organizations in Hong Kong. However, the British government was the sole shareholder of C&W from 1946 until it was reorganized as a public limited company and offered to the public beginning in 1981. Though C&W is privatized, the British government retains effective control through a "golden share" that confers a veto right over whatever the company may do. As a de facto instrumentality of the British government, the Hong Kong government has historically not concerned itself with the local activities of this organization since 1946. Similarly, before 1946, British colonial governments would not normally intrude into the local activities of "home country" companies. The local government's role was to aid and abet the interests of such companies.

Telco had historically been independent of C&W, although the two shared a close working relationship. Additionally, the Hong Kong government held shares in the company. During 1983–1984 C&W purchased a majority holding in Telco, ending its independence. This effectively placed Hong Kong's domestic telephone services and international telecom services under the same corporate management.

In early 1988 the corporate structure of these companies was rationalized when a new holding company, Hong Kong Telecommunications Ltd. (Hong Kong Telecom, HKT), was set up. It holds a 100 percent interest in Telco and a 100 percent interest in C&W Hong Kong. Additionally, it holds interests

(usually 100 percent) in a group of nonregulated telecom services companies that had been deregulated subsidiaries of the regulated Telco.

HKT is owned in turn by the former owners of Telco and C&WHK. These owners, and their initial shares of the new holding company are C&W plc (United Kingdom) 79.5 percent, Hong Kong government 11 percent, and public shareholders 9.5 percent. In December 1988 the first two sold part of their holdings in a global stock offering (and shares began trading on the New York Stock Exchange).

In March 1989 an entity of the Chinese government, China International Trust & Investment Corp. (CITIC), bought a 20 percent stake from C&W (part of which had been purchased by C&W from the Hong Kong government). CITIC got the shares at a 15 percent discount to the market and put up less than 20 percent in cash. At that point, ownership of Hong Kong Telecom was about 58.6 percent C&W plc, 20 percent CITIC, 18 percent public, 3.4 percent Hong Kong government. The government later sold its remaining stake.

From the companies' point of view, once C&W owned Telco, a holding company with clear separation of regulated and unregulated activities made sense. Also, as a matter of localization, the new structure enabled C&W's Hong Kong operations to be placed more clearly under a Hong Kong-based company, Hong Kong Telecom, whose shares are traded on the local exchange. Such localization is quite commonly seen as desirable and expedient in view of the changes anticipated in 1997.

There are indications certain individuals within the government were not altogether happy with the amalgamation into a holding company because it tended to lessen competition, albeit in different sectors of the market. Clearly, Post Office authorities would have preferred to regulate independent companies.

13.2 Legal Foundations for Regulation of Telecommunications

The Telephone Ordinance includes provisions for the determination of rates chargeable by Telco. The Scheme of Control restricts the rate of return from basic telephone service that can be distributed to shareholders to no more than 16 percent of shareholder funds. Of the excess above 16 percent, 80 percent must be transferred to the development fund and 20 percent to capital reserves. Telco asked in 1991 that this system be replaced by a price cap system—deregulating rate of return in exchange for keeping rate increases below the inflation rate.

The Licence and Regulatory Agreement allows C&WHK to provide exclusive international telecom services in return for a 7 percent royalty on receipts payable to the Hong Kong government, which also has right of approval over the company's charges. The royalty percentage is subject to variation at five-year intervals during 1988–2006.

The legal foundations for telecommunications in Hong Kong are laid down in the Telephone Ordinance (Chapter 269 of the revised edition 1985) and the Telecommunications Ordinance (Chapter 106 of the revised editions 1983.) The

Telephone Ordinance concerns governance of relations between the Hong Kong government and Hong Kong Telephone. However, it does not embody a regulatory philosophy. Both ordinances are quite antiquated in terms of today's needs, despite minor revisions in 1983 and 1985. They are basically pre-World War II legislation.

Little of Hong Kong's past telecommunications development is of much relevance to the 1990s situation. For example, at the end of World War II, the population of Hong Kong was less than one-tenth of what it was forty-five years later, with most of the increase being refugees from China, mainly during the 1950s. Most of the telephone network has been built since the mid-1970s, during which period Hong Kong has enjoyed very high economic growth, and high growth of per capita income.

13.3 The 1980s and 1990s

The situation in telecommunications policy and practice is fluid and evolving rapidly. In contrast, the environment was very stable until about 1983: Telco had a monopoly on all domestic services except radio and television, while C&W monopolized international services. Broadcasting was and continues to be privately owned and operated under government license and is largely supervised and regulated outside the framework of the Post Office authority, except for technological issues relating to frequencies, transmission power, antenna location, and so on.

At one point there were over a half dozen radio-paging companies in operation—they are licensed on a competitive basis—but then there was a period of considerable consolidation. The field exploded again in the late 1980s, with twenty-nine operators in 1991.

Domestic radio and broadcast television issues are relatively unimportant. They are discussed here briefly because they provide insight into prevailing attitudes in favor of competition where such competition does not obviously infringe on Telco's C&WHK's franchised monopolies of "traditional" telecom services. The development of new services on a competitive basis, such as paging, also indicates a tendency to interpret previously granted "telephony" and "telegraphy" franchises in a restricted way, rather than as encompassing all types of new services that may fall under these rubrics.

13.3.1 Regulation

Prior to 1983 regulation consisted largely of oversight on telephone rates, dealing with questions of adequacy of services, and assuring adequate response to the rapidly rising demand and expansion of business and housing. The government's public housing estates and new town developments required a great deal of close interaction between the government and the telco. The government concern was largely that Telco could generate capital to finance required expansion.

Partial deregulation began in 1983. Influenced by such moves elsewhere, a decision was made that certain telephone services would be offered to the public in competition with other vendors. Prices and other aspects would largely be regulated by market forces. This was a major policy departure, the complications and ramifications of which were largely unforeseen.

It is unclear whether deregulation was instigated by the government and the telecom authorities or by Telco itself because both have claimed that they exercised the initiative. What is clear, from the lack of significant external debate and the speed with which the whole process occurred, is that both the authorities and the company were very favorably disposed to the concept from the outset, and that they quickly reached agreement on the nature and scope of deregulation. No one was opposed to it, although few people outside the telephone company and government were even aware of the matter. Most who were perceived it as a matter between the government and Telco.

It was agreed that CPE would cease being a telco monopoly. Subject to receiving permission-to-connect to the public network on the basis of adhering to technological standards, phones, key-lines, PABXs, and other CPE would be supplied, installed, and maintained competitively. In addition, various value added services, such as cellular, would be provided competitively.

Telco set up two unregulated subsidiaries, Communications Services Ltd. (CSL) and Integrated Business Systems Ltd. (IBS), and numerous other domestic vendors quickly appeared. The bulk of Telco's product lines and unregulated services are handled through CSL. These include data message switching, View Data, cellular mobile radio telephone, and telephone directory advertising.

The importance of similar deregulatory action in the United Kingdom should be emphasized. Deregulation was quickly accepted by the government and business community (to the extent it was aware) simply because it had become British government policy and because it was in accord with Hong Kong's laissez-faire proclivities. Thus the authorities' reasons for pursuing deregulation are fairly clear.

At the same time, Telco saw provision of CPE as a very lucrative activity whose full profit potential could not be realized for stockholder benefit because of the return on equity lid placed on company operations. To some degree, the subsidiaries have a market advantage because everyone knows they are "part of the telephone company." All companies in the group use the same logo.

Despite the higher profits HKT has garnered from deregulation, points of friction have been alleviated because greater choice is now afforded, and services have been improved. Friction had been relatively minor, and it was mostly among business telephone services users. They wanted greater freedom to meet their telecom requirements along lines developed in the United States and emerging in the United Kingdom.

There have been at least two unexpected consequences of this deregulation. The first is a growing awareness on the part of commercial organizations that there are alternatives, which calls for active management of telecommunications by a new generation of managers. This works to the disadvantage of

monopoly regimes. Second, the very success of this initial deregulatory effort has led to the question that, if a little deregulation is good, would not more be better?

A growing awareness of service improvements and cost reductions available in a competitive environment is leading managers, some elements of the general public, and independent services and equipment vendors to call for more deregulation. At the same time, greater competition and its benefits are being deprecated by the suppliers of franchised services (Telco and C&WHK).

Further changes have occurred in the institutional structure. When CSL and IBS were set up, certain other company activities were also taken into subsidiary outside the regulatory scheme. Significantly, all the internal data processing and information systems operations moved into a new company, Computasia. Computasia sells data processing services to the telephone company group as well as computer software and processing services to organizations in Hong Kong and abroad.

Another company, Telco Properties, has been set up for developing and managing the real estate. It is not clear to what extent it will sell services to Telco. All the unregulated operations became Telco sibling companies in 1988 when all became subsidiaries of the Hong Kong Telecom holding company.

Computasia and Telco Properties are mentioned because, from the regulatory point of view, their operations raise issues regarding pricing of services sold to the telco, which become part of the cost basis of regulated services. The possibility of cross subsidization between regulated and unregulated portions of operations is obviously a vexing one. If it occurs, the quality of the competitive environment suffers, as does the public interest. The official Telecoms position is that such cross subsidization does not occur. The official regulatory authorities position is that they will not permit it. Despite these protestations, adequate mechanisms do not exist to know. Further, there have been disputes regarding cross subsidization between Telecoms and the authorities regarding rate proposals and transfer prices between Telecoms regulated and unregulated subsidiaries.

The government exercises regulatory oversight under the Telecommunications Ordinance, which is rather antiquated in terms of the different technological environment at the time it was written. For example, it envisages multiple competing uses and users of limited resources, such as the radio frequency spectrum, and gives the telecom authority power to grant licenses and thereby control the allocation of such resources. It does not envisage the possibility of granting exclusive licenses (franchises), and the consequent need to regulate a monopoly, even though monopoly is what occurred. Not renewing, or revoking, the license is the authorities only statutory power, plus whatever conditions are included when granting the license.

Policy, such as it is, is an accretion of ad hoc decisions made in response to specific situations and taken with insufficient consideration of broader consequences, need for broader consistency over time, and adherence to well-articulated and acknowledged goals and specifically stated objectives.

This means de jure regulation is difficult or impractical to implement. A

greater degree of de facto regulation must be imposed, which in practical terms involves a greater use of "moral suasion" than may be desirable. While there appears to have been few specific cases of adverse consequences resulting from this in the past, there is concern that in anticipation of 1997, Hong Kong might be better served if it now implements a rule of law rather than a rule of men.

13.3.2 Interests the System Seeks to Protect

Current regulatory practice apparently seeks to protect the broader interests of the community while insuring that private providers accrue the financial resources needed for rapid expansion and development. These interests can be vaguely defined simply as universal telephone service at nondiscriminatory rates that do not yield an excessive return to the provider. More specifically, the primary community interests are the need for advanced services, a responsive system, and the infrastructure to insure Hong Kong's role as an international trading and financial center. This implies that low rates for households are not an interest that can be pursued to the serious detriment of services for business and commercial organizations.

Having said this, it should be emphasized that there is currently little substantial evidence of conflict or disharmony in the interests being served and protected. There is a perception that perhaps, if anything, business and commercial rates subsidize households. However, it is difficult to argue that there is substantial cross subsidization of domestic services. International services are a much more complex matter and are considered later. (Mueller 1991 discusses these issues.)

13.3.3 Development of the Network

The fact that an appropriate balancing of interests and rates has been obtained is evidenced by the rapid development of the network and services. In the mid-to late 1980s Hong Kong was developing new towns in formerly rural areas, which led to massive population shifts. The new developments primarily require household telecom services.

Demand for business and commercial lines has also grown substantially, predominantly in areas served by the existing network. As new, larger, commercial premises are developed by pulling down old buildings, the existing network also needs redevelopment. However, this demands fewer new resources than expansion into new areas.

The telephone numbering system was revamped at the end of 1989, eliminating area codes. The network is growing in technological sophistication. Most interexchange trunks are fiberoptic. The first digital Centrex service outside the United States, called *Citinet*, was introduced in 1989. All exchanges have digital switching capabilities, which means all subscribers have access to advanced service offerings based on this capability. At the end 1989, thirty-one of sixty-nine exchanges were 100 percent digital switch, and 50 percent of all exchange lines were digital. By the end of 1991 90 percent of lines were digital. The

system is obviously generating financial resources to enable this rapid expansion and development of the network at affordable rates without overt cross subsidization (see Table 13.1).

13.3.4 The Telecommunications Authority

The postmaster general is the telecommunications authority (TA). He administers the telecommunications and telephone ordinances. The Post Office, an activity of the Hong Kong government (one of the few in the world to consistently run a budget surplus), appears to be adequately resourced to perform its mission. In fact, the government tends to fund its activities in a rather stringent fashion in order to maintain relatively low taxes and improve the attractiveness of Hong Kong to domestic as well as multinational business investors. From the early 1980s on the government has financed its various services and departments through fees and the like to the maximum extent practicable. While the TA is independent and financially healthy, it is not empowered to take an activist role in regulation. Indeed, such an activist role would contradict the government's view of the minimalist role it should play anyway.

Initiatives in development lie with the private sector, and the TA often appears to hold up implementation of new technology and services. The 1983 deregulation was reactive rather than proactive; government authorities hardly realized what they were getting into. This stems in part from the authority's inability to assess new technology and service proposals. In general, the staff of Telecoms and other vendors are better connected to sources of information on industry trends and technology than the very small technical staff at the Post Office. Local authorities are often out of touch with the latest developments worldwide, in part because there is no substantial telecommunications research activity or manufacturing activity in Hong Kong. This makes them excessively dependent on information from vendors and insufficiently equipped to assess it independently.

Table 13.1. Telecommunications in Hong Kong

1980	1990	Number of
1.3	3.2	Telephone subscribers (millions)
1.5	2.4	Exchange capacity (millions lines)
31	54	Teledensity (phones per 100 people)
		Cellular and mobile phones
—	95	Total (thousand)
—	1.67	per 100 people
		International
43	582	calls, outward (thousand minutes)
53	537	calls, inward (thousand minutes)

Source: Hong Kong 1981 for 1980. Cellular data are for May 1990, reported in Far East Economic Review, Aug 2, 1990, p. 40. Other 1990 data are from Hong Kong Telephone Annual Report, 1991.

13.3.5 Services and Rates

The major role in development coming from private initiative has produced a steady introduction of new services. This is especially true with paging, cellular telephones, CT2, and a full range of value added services—particularly data communications, information and packet switched data network services. While international telex services was growing at a high rate for many years, facsimile has grown even faster since the mid-1980s, and it is now commonplace for domestic as well as international communications.

Data transmission services, such as Telco's DataCom, are also being developed. DataCom includes Datapak, a local packet switched and circuit switched service including access to international public data networks; dialed data transmission over the switched telephone network; facsimile support services; 2-wire and 4-wire private circuits; and 56 Kbps and 1.5 Mbps digital services. T-1 and E-1 (2.048 Mbps) are also available.

Basic service includes unlimited territory-wide calling, but excludes the telephone, which may be rented from Telco or provided by the subscriber. In January 1991 the annual cost of a business line was U.S. \$120, and U.S. \$86 for a residential line. As with general inflation, these are up sharply from 1987, when the rates were U.S. \$102 and U.S. \$66, respectively. Prices for leased lines vary with the length and speed of the connection. Telco discourages their use and aggressively prices Datapak to encourage customers to prefer it. Rates in this area have fallen, so in 1991 an E-1 domestic circuit cost about the same as one at only 56 Kbps in 1987, and the slower speed was some 75 percent cheaper than it had been.

13.3.6 Procurement Policies

Telco and C&WHK enjoy complete freedom to purchase equipment from whomever they choose. In earlier years they purchased the great bulk of it from British firms. In the 1980s there was a substantial shift to Japanese suppliers—Fujitsu and to a lesser extent NEC—along with the acquisition of minor supplies and equipment from local manufacturers. There has been a great deal of collaboration within the Hong Kong Telecom group on equipment procurement, but no collaboration with organizations outside the group.

In the past the authorities did not collaborate on development. However, involvement is occurring regarding permission to connect previously unapproved equipment to the public network. No customer-supplied equipment can be connected to the network until type approval and "permission to connect" is granted by the telco. Once approval is obtained, vendors can freely market the items, and the telco will connect it. Obtaining approval, however, has sometimes involved a lengthy process, and outside vendors have complained that Telecom's subsidiaries got approval more readily than they. Without addressing the merits of the charge, it is agreed by all parties that the authorization process should reside with an independent body. The Post Office is being

pressured by Telco to relieve it of the responsibility, but no new mechanism or organization had been set up as of early 1992.

13.3.7 Regional Collaboration and International Services

As a British colony, Hong Kong's diplomatic relations are handled by London. Working relationships with other telecom authorities result almost exclusively from C&WHK's commercial relationships with other international carriers and the national authorities with whom the international carriers interact. A special case is collaboration with China, which will be considered in the next section.

C&W working relationships are quite extensive, deriving from the company's long history in the region and its status as the former "official" carrier of the British Empire and later, to a lesser extent, the British Commonwealth. Hong Kong has long been a hub for the C&W network in Asia, which includes extensive undersea cable connections to other parts of East Asia and links to Pacific and Indian Ocean satellites.

Hong Kong generates such a high rate of incoming and outgoing international calling activity that its international telecom services require special consideration. Rates are largely set by the carriers and international conventions and are less regulated than domestic services. In conjunction with the important role that these services play in Hong Kong, this has generated some friction and is likely to generate pressures for competition in international services provision in the future.

The major issues arise from toll-splitting arrangements. Dissension is caused by the difference between what Hong Kong pays foreign carriers to connect its outbound calls to their ultimate destination, and what Hong Kong receives for connecting inbound calls. This is a set of bilateral, generally intergovernmental issues. It is also a relatively minor problem compared to the fee split between Telco & C&WHK. Because they are sibling companies, it is obviously in the group's interest for Telco to receive a relatively small fee, since the company is subject to regulation on profits and rate of return. On the other hand, it is to the public's advantage for Telco to receive relatively large fees. There have been disagreements between Telecoms and the authorities on this matter, and the issue has generated pressure to open the international market to other carriers besides.

In late 1990 Hong Kong and Singapore agreed to abolish accounting rates for calls between them. The originating carrier will keep all revenue from outbound calls. Traffic between the two is roughly equal.

13.4 Change

Hong Kong has developed a very substantial consumer electronics industry. It has been export oriented, often manufacturing to contract based on designs from by overseas buyers. The local electronics and computer industries have a very high level of foreign and multinational participation, and there has been a

good deal of technology transfer. Even more important, there has been an awareness of the possibilities that these technologies afford. Additionally, local manufacturers and exporters of products such as feature telephones, portable telephones, and citizen band equipment have exerted pressure on local authorities to authorize the use of these and similar products in Hong Kong.

Historically, the government has played a very active role in promoting development of export markets, but it has not been particularly receptive to the introduction of many of the same products into the domestic market. This attitude has changed with the advent of deregulation of telecom services. Nevertheless, while the government has been very supportive of the electronics industry through its other agencies, it has not seen a role for itself in promoting development of telecom services that could provide opportunities for the local electronics industry.

It should be pointed out that the domestic market is small, and many of the manufacturers care very little about it. Indeed, they are often prohibited by their buyers from distributing locally. Many of the products are produced for the U.S. market and are not currently admitted to the U.K. market. Examples have been feature telephones, cordless telephones, citizen band radios, and radio-controlled models and toys.

13.4.1 The Role of Government

There appears to have been little debate or disagreement within the government over telecommunications policy until the late 1980s. Even if there had been, it would be difficult to discern. It has been considered inimical to the authority of the colonial government and inconsistent with the British parliamentary tradition of collective cabinet responsibility to repeat policy differences. Any indication of lack of harmony would discredit the government in the perceptions of more traditionally minded members of the community. This is changing, but only slowly.

Public satisfaction with telephone services is high. Not surprisingly, therefore, the public—individuals and businesses—has been indifferent to policy matters. It is well pleased with the broadening array of services and the declining cost of international calling. Penetration is substantial—88 percent of households have telephones. Consequently, other governmental bodies have also seen no need to take a great deal of interest. The ease and rapidity with which deregulation of CPE occurred illustrates the low profile of telecommunications issues.

13.4.2 Positions of Other Groups

Lack of public concern with deregulation is a consequence of a general lack of significant bodies for creating public awareness, such as political parties, strong labor unions, or pressure groups. This may seem to be contradicted by the intense interest in the cable television controversy. However, in that instance

the public was aroused primarily because entertainment was at issue, not because of any genuine interest in policy.

A Telecommunications Users Group does exist within the structure of the Hong Kong Management Association. However, it functions more as a club of individuals with a common interest in telecommunications management and specifically renounces any role as a pressure group. Its members were only casually aware of the deregulatory moves in their early stages.

Domestic business telephone services are economical and convenient. Because charges are based on a fixed monthly fee, shopkeepers freely allow customers and even passersby to use their telephones. Directory assistance is also free. This service is so attractive, convenient, and responsive that many people use it in preference to looking up numbers.

Hong Kong also enjoys very good international services. International direct dialing (IDD) from household and business telephones (providing the subscriber has established an IDD account) and declining rates have greatly broadened access. As a consequence, there is neither pressure nor a strong stance on telecommunications policy development attributable to households or small domestic businesses.

The larger business community draws useful distinctions between domestic and international services. Business organizations are generally satisfied with both. However, larger multinational corporations, particularly those very dependent on international services, often express frustration with Hong Kong's lag in providing the range of services available in North America and Europe, for example, and with high costs and bureaucratic procedural matters compared to those in other countries. By and large, this stance and attitude has been effective in pressuring policy development along lines of greater flexibility and responsiveness. The government's outlook has changed from "This is the way it is because this is the established policy" to "This is the way we are going to change our policy because it will lead to improved services that will be attractive to international companies."

13.4.3 Growing Exceptions to Service Franchises

The 1983 deregulation did not explicitly open the market to VANs, but it did lead to a change in the market environment that enabled VANs to develop. To be specific, data VANs have never been prohibited in the domestic market, because Telco's exclusive franchise has been interpreted as extending only to domestic switched voice services since the early 1970s. International value added data networks, however, may run afoul of the C&W exclusive franchise for "telegraphy." With the entrance of new players offering CPE, other players, offering domestic value added data network services, appeared.

As a result, there has been a vigorous growth of value added services since the early 1980s, and the new players have demanded an even more open market. Among them are local companies such as Hutchinson Telecoms, Chinatel, and Tricom. International companies include several Baby Bells, notably Nynex and Bell South. Northern Telecom has entered the market, as has British

Telecom. All this new entry has publicized deficiencies in the range and quality of services and raised questions regarding the extent to which monopoly franchised services are a desirable policy regime as opposed to a more broadly competitive environment.

These debates are unfolding in an era of increased public interest and involvement in conflicts between franchised and competitive service providers. One example is a conflict between Telco and a cellular provider on fees for interconnect and call delivery services.

In general, the existence of independent vendors has caused the two monopoly providers to effectively tolerate many questionable practices, and even outright violations of their franchises. This occurs particularly over cases of attachment of unauthorized devices to the public network and installation of satellite television reception equipment. It also occurs in private network developments where very fine distinctions are drawn on whether or not third party services are being offered in violation of the franchises.

Private leased lines are readily available and are tariffed at speeds up to the T-1 level. Several such lines are in operation. There is also at least one higher-speed link provided by Telco on its fiberoptic network for video services between the two racecourse sites operated by the Jockey Club. In general, however, Telco discourages the use of private lines and the development of private networks. Because most leased lines and private network development are for data rather than voice, the company's preferred solution is that customers connect to its packet switched data network.

Nevertheless, there is widespread use of private lines. Because Hong Kong serves as a regional headquarters for many multinational companies, extensive leased-line facilities are used to connect local offices to C&WHK. Additionally, many multinationals use Hong Kong as a communications switching center for their own international private networks, which further increases the number of local private lines required.

Telco does not have a franchise for data services, so there is extensive reselling of data services using the company's leased lines. In particular, there are no restrictions on development of private data networks or on public data networks. However, there would likely be problems if a VAN wanted to offer public voice services such as a voice mail box.

VAN vendors are not required to go to the telephone company to obtain circuits. In principle, they can obtain a government license to operate their own network. Through 1991, however, there was only one noteworthy example of a group wanting to build networks for public use instead of obtaining lines from Telco—cable television.

Value added markets include financial information services, airline reservation services, public event reservation and ticketing services, electronic point-of-sale funds transfer services, credit card authorization services, and so on. Finally, there are extensive data networks serving the banking system's branch network with teller terminals and automatic teller machines (ATMs). By and large, these private networks use leased lines or the public packet-switched data service provided by Telco.

Because these networks often serve a group of disparate users whose only common characteristic is their need for the type of service offered, the existence of semi-private VANs constitutes a form of officially sanctioned third-party resale. This is exemplified by one of the ATM networks, which provides services for several independent banks, by an electronic point-of-sales network that serves a large number of retail establishments with customer-direct bank debit services, and by an educational network organized by a consortium company that sells network services to five tertiary educational institutions.

There are other cases of private networks using facilities separate from Telco. The electric power companies have their own facilities, and the statutory authority operating the mass transit railway system has its own communications lines, as does the railway statutory authority. There has been speculation that in a more deregulated environment both might offer public telecom services to clients along their respective right of ways. This is purely speculative—no action is pending to explore this possibility.

Numerous providers offer services that compete with those of Hong Kong Telecom subsidiaries. In the late 1980s several of these were voluntarily bought out and consolidated under Hutchinson Telecoms, a subsidiary of one of Hong Kong's largest business groups—Hutchinson Whampoa. The group is controlled by Li Ka-shing, arguably the wealthiest individual in Hong Kong. Hutchinson Telecom itself is not large compared to Hong Kong Telecom. However, the group—with its substantial interests in property, housing, trading, shipping (container terminal operations), one of Hong Kong's two electric power and distribution companies, and so on—is a very viable contender. As discussed in the next section, at one point it looked as though it might take on Hong Kong Telecom almost across the board.

During the 1980s most of Hutchinson's inroads were in paging and, in partnership with Motorola, cellular. CSL a subsidiary of Telco, started carphone service in 1984. A joint venture of Pacific Link (the third cellular provider), Singapore Telecom Intl. and U.S.-based Mobile Telecommunication Technologies (MTEL) received a license in November 1991 to run a voice message and paging system. MTEL is providing the technology for the system.

Hong Kong is a unique cellular market. It has the densest cell system and number of users—1,350 per square kilometer in 1990—in the world, as well as the highest proportion of users and probably the largest green-light time per user. Hutchinson has over half the market. (For more on cellular see, e.g., *Telephony*, Dec. 24, 1990, p. 17 and *Far Eastern Economic Review*, May 9, 1991, p. 55).

Telco estimates that half the international calls made from Hong Kong are faxes. Here, too, Hutchinson is providing competition—in a joint venture with AT&T Network Services—and more providers are anticipated. Under agreements among Hong Kong, the United States, Japan, and the United Kingdom made in early 1991 both fax and data services are to become more competitive. Using lines leased from Telco, the venture is seeking to in effect bypass the local loop, tying directly into AT&T-owned international lines. British Telecom is involved in a similar venture.

13.5 Cable Television Development

In 1985 the government announced its intention to call for proposals for cable television service in Hong Kong. Hong Kong has had two privately owned, commercial television broadcast companies; each offers a channel in English and one in Chinese. There is no dual language programming (that is, simultaneous broadcast of English and Chinese voice channels). In the 1960s, the early days of television in Hong Kong, there was a small cable network, but it converted to broadcast and developed into what is now the second broadcaster.

The limited choice of viewing material gradually led to public pressure for increased variety. In addition, development of a large tourism industry created pressure for increased variety and a range of programming that could be offered to hotel guests. The large, affluent, and influential foreign community has also sought more programming from their home countries, particularly given the vague perception that "it's all up there on the satellites anyway" and could somehow be made available.

While the government was well-intentioned in making its announcement, in retrospect it appears very little thought was given to what was being embarked on. In view of public demand for a wider choice of programming and the knowledge that cable provides this in the United States, and that moves were being made to introduce cable in the United Kingdom, it seems the local authorities simply decided Hong Kong should have cable too.

Several consortia were formed to offer all or part of the new services. It quickly emerged that a number of organizations only wanted to offer programming over any cable distribution facility, but two wanted to offer both the distribution network and programming.

At this point, what the government originally thought to be simply an entertainment and television matter, not greatly different from a decision to license a new broadcast tv station, developed into a full-blown policy matter. Should Hong Kong have a single regulated telecom services network or should it have two (or more) networks? What degree of regulation should be placed on each?

13.5.1 *The Protagonists*

Cable Television Hong Kong (CTHK) was a partially owned subsidiary of Hong Kong Telecom and, as such, a sibling of Telco. Other partners in the CTHK consortium include the Swire group (involved in property, trading, and Cathay Pacific Airways), Golden Harvest (a local Hong Kong film maker) and Viacom (a U.S. cable television company). The essence of CTHK's plan was to provide programming services using a distribution system to be put in place by Telco.

Telco's distribution system was to be based on its high-capacity fiberoptic network, billed by the company as one of the most highly developed urban fiberoptic networks in the world. At some point distribution from the exchanges to individual subscriber premises would shift to conventional coaxial cable television technology, presumably using the underground ducting systems in place for telephone cables.

The company maintained that its network could easily be upgraded to the bandwidth requirements necessary for cable for three reasons. First, main trunk capacity between exchanges is largely through installation of fiber optic cable. Second, additional cabling could be installed easily because underground duct space is available as a result of ongoing replacement of large-diameter, multi-core, copper wire with small-diameter fiberoptic cables. Third, already in place underground ducting systems, which reach most subscriber premises for telephone services, can also carry television coaxial cable, thereby minimizing the costs and disruption associated with trenching work to install cables.

Telco thus projected itself as the territory-wide provider of a switching and distribution network offering voice, data, and wide-band video services. All of this was to be developed consistently with Integrated Services Digital Network (ISDN) standards as they evolve. As the government franchised carrier for all types of voice, data, and video services, Telco would provide distribution services for any company that wanted to use the network to deliver television programming services.

The Hutchvision consortium was led by Hutchinson Whampoa and included British Telecoms, which is developing and operating cable service in the U.K. The company proposed building a new distribution network, it did not think it feasible to offer programming over a network installed and operated by the telephone company. Network operations and programming services activity were to be vested in the same organization. Hutchinson indicated that it would distribute programming only for organizations that wanted to be involved just in programming. Hutchinson was beginning to look like a vehicle for developing a second domestic common carrier.

13.5.2 Policy Issues

Several interesting perspectives began to emerge from observers of the cable television issue. Telecommunications issues began attracting widespread public interest and front page coverage in the newspapers for the first time. Many observers had doubts about the economic viability of cable in Hong Kong. Many points were raised:

- It is expensive to produce programming. Dissatisfaction with programming by the two broadcast stations is partially the result of neither seeing its way clear to finance substantial local production or pay up for better programming from abroad.
- Local demand is primarily for Chinese language material, specifically in Cantonese. China's national dialect is Mandarin; for materials not produced in Cantonese, dubbing or subtitling is necessary.
- The Hong Kong viewing market is small and exhibits large income disparities. The less wealthy segments, which provide the bulk of the potential audience, cannot afford to pay much in fees. Because of their low purchasing power, advertisers will not pay much to reach them. On the other hand, the relatively small class of wealthier households are less

inclined to television viewing, and may prefer to rent tapes to play on their VCRs.

What it came down to, many observers concluded, was that cable cannot be economically viable unless the delivery system is used for more than just cable. It is relatively straightforward for Telco to offer cable. This is because much of its wide-band network is already in place, or must be put in place as the company moves towards ISDN. Cable television would necessitate only marginal costs to expand the existing network and operate the video delivery service. At the same time, as a regulated public utility, the telephone company is virtually guaranteed a fixed rate of return on shareholder funds. If incremental investments for cable television cannot be made to yield adequate revenues and returns, then this will have to be made up by cross subsidization from other services.

The network would have to be used for other services for Hutchvision to be economically viable. In other words, Hutchinson would need to develop as a second domestic common carrier to achieve revenues commensurate with installation costs. This could be quite lucrative, depending on how prices are set and whether price competition develops between the Hutchinson and Telecom networks.

Related to this is the fact the Hutchinson group is interested in international telecommunications, satellite communications, and domestic telecommunications in China. The group clearly has a strategic goal of becoming a major player in the Asian telecom arena. The C&W group, Telco's parent, is also seeking a major role in China as well as a continuation of its major role elsewhere in Asia. Both organizations perceive that becoming a major player in China requires a strong position in Hong Kong. This requires involvement in domestic and international voice, data, and video services.

The overriding issue in the debate on who should build the Hong Kong cable television network was the question of what it would cost to build.

Telco has argued that it has most of the necessary infrastructure in place, including 80–90 percent of the underground duct space required to pull new cable into all existing buildings in Hong Kong. Hong Kong already has a great deal of urban congestion and roadway interruption caused by a high level of construction work. Anything that avoids more disruption gains a fair measure of public support.

Hutchinson, on the other hand, has argued that traditional methods of trenching are unnecessary. Specifically, the use a great deal of hand-dug deep trenching—as done by Telco and the electric companies because of the rocky soil conditions and problems with power machinery disrupting services already underground—was not necessary because its cable would not have to be laid so deeply.

13.5.3 Government Reaction

What government authorities initially viewed as an entertainment and television programming matter has developed into a full-blown policy matter. The Hutch-

inson proposal to build what would inevitably become a second telecommunications network threatened the licensed and regulated telephone company network. On the other hand, given Hong Kong's preference for competitive regimes, advantages were perceived in breaking the Telco monopoly.

When matters of important public policy arise in which there are substantial clashes of interests and potential for controversy and charges of government favoritism, the usual government practice is to call in consultants from outside Hong Kong. In this case, the government contracted Booz-Allen Hamilton.

The initial report was delivered in the spring of 1988. The contents have been given to the major parties (HK Telecoms and Hutchinson), but they were not publicly released. The consultant was required to develop policy alternatives and to elucidate their ramifications. In the broadest terms, these would include the economic aspects, the benefits, the disadvantages, the technological aspects, the impact on competition, the advantages and disadvantages of competition in telecommunications, practices elsewhere in the world, and so on.

13.5.4 The Government's Decision

In early July 1988 the government announced that a separate network would have to be built by the successful tenderer, and that HK Telecoms could only have a small equity participation (15 percent) in the new network. Separate licenses would be required for the network operator and programming organizations. Concern was expressed that if Telco built the network, telephone subscribers might end up subsidizing it. The government expressed the view that by requiring a second network and by limiting HK Telecom participation in it, overseas bidders would be more likely to submit proposals. (Subsequently, at least two large U.S. organizations and one Japanese one indicated interest in building or operating the network.)

The July 1988 announcement was a shock to HK Telecoms. Although it was widely speculated that the government could not shut out Hutchinson's bid to expand into the local telecommunications market, neither could it shut out HK Telecoms. According to these views, the worst HK Telecoms could expect was for the government to give both contenders a green light to go ahead if they wanted. Neither would get an exclusive license. In response to these speculations, Hutchinson had indicated it could not build a network unless it had an exclusive franchise; HK Telecoms had more or less indicated that video services were part of its ISDN strategy irrespective of whether there was another cable television network and operator in Hong Kong. In other words, the CTHK venture would go ahead, if granted a license, even if Hutchvision were also licensed.

Given the likelihood that both groups would be given a go-ahead to fight it out in the market, indications of an accommodation between the two began to emerge. At the higher levels of the parent organizations, cooperation was becoming evident. The principals had previously become involved in joint proposals for domestic telecommunications systems in China (including the AsiaSat satellite system, which Hutchinson hoped would be allowed to serve Hong

Kong), and the principals of the Hutchinson group purchased 5 percent of C&W. Cynical pundits foresaw a common Hong Kong phenomena: When competition between two parties devolves into threats to their individual profitability, they join forces. Apparently this was a factor in the government's decision to limit the equity participation of HK Telecoms in the network. Notably, however, the July 1988 statement did not say that network operators would be limited in their equity participation in HK Telecoms (or its parent C&W).

Then, in a move that again took many by surprise, in August 1989 Hong Kong Cable Communications (HKCC), which had belatedly entered the bidding process, beat out Hutchinson, which had pulled out amid government demands for an additional U.S. \$130 million commitment, in addition to the U.S. \$508 million the company had already agreed to lay out to build the system. Costs were estimated by the government at H.K. \$5.5 billion (U.S. \$705 million) to complete the system and cover possible cost overruns, despite the fact actual outlays were probably going to be nearer the H.K. \$4 billion Hutchinson was committing.

Members of the HKCC consortium were Wharf Holdings, a major local commercial and residential development firm (28 percent ownership), Sun Hung Kai Properties, a large Hong Kong-based construction and development company (27 percent); US West, a Baby Bell (25 percent), Coditel SA, one of Europe's largest cable companies and a unit of Belgian trading company Tracotel (10 percent), and Shaw Brothers, the premier Asian film and television production and distribution company (10 percent). U.S.-based Paramount Pictures was an adviser and consultant.

Under the terms of the franchise, the network was to reach 75 percent of Hong Kong's 1.5 million homes within five years (by 1995) and 97 percent within ten years. The completed network envisioned 1,200 km of cable underground, and another 1,000 km within high-rise offices and flats. Enough fiber was to be installed to allow fifty-nine channels. The initial cost to the Hong Kong viewer was expected to be about U.S. \$15 a month, plus an installation fee of U.S.\$30. For that, viewers would have a basic package of twenty channels, including news, drama, variety, and movies—all heavily tilted towards the Cantonese speaking population. Two English channels were expected. Analysts did not expect the system to be profitable until its at least seventh year of operation.

The award put HKCC in a position to issue a well-prepared challenge to build a second telecommunications network when the telephone monopolies of C&W expire in 1995 (local telephone) and 2006 (external traffic). In addition to video services, the network could provide computer-to-computer communications and interactive information retrieval services to rival those of Telco. HKCC was licensed to provide all nonfranchised telecom services, which means essentially anything but voice service.

It is evident that the initial government announcement to license cable stumbled into an area with major policy implications. In this, the government had neither an adequate policy framework to guide development nor an adequate policy-making infrastructure and organization to cope with the situation as it

developed. Further evidence of this comes from a debate in the government on other matters, not telecommunications issues, but ones that suggest a lack of policy coordination in a different aspect of cable television. These are licensing, programming standards, and related matters for the two existing broadcast television stations, which are under a government body separate from the Post Office. Debate is developing on how television programming will be licensed and monitored within government, and specifically whether the same regulatory body will handle both broadcast and "narrowcast" (cable) television. One would have hoped that an issue such as this would have been anticipated and policy coordination worked out earlier.

13.5.5 The Government's Cable Decision Is Made Irrelevant

If it was the government's intention to get a second local wireline network via the cable franchise, its own subsequent actions prevented that from happening. This is so even though the government says it does want to encourage a second network.

C&W and Hutchinson, along with the Chinese government's CITIC (which owns 20 percent of HKT) had formed a consortium to launch satellite—called AsiaSat. It went into orbit in April 1990, the first privately owned satellite in Asia. Hutchvision announced plans two months later to base a pan-Asia DBS project in Hong Kong using AsiaSat. HKCC immediately recognized this as a threat to its cable system. The government suggested that the two groups work something out, and stepped back to see what happened.

In fact, however, government decisions largely determined the outcome. In August the Executive Council said no license was necessary to connect several television sets to a satellite dish—unless it was a communal dish—and further rules would be forthcoming. This would effectively kill extensive DBS in Hong Kong and Hutchvision ran full-page ads saying if that were indeed the result of final policy, the company would move its headquarters elsewhere.

By November the government had in effect relented and Hutchvision said it could provide DBS service by the end of 1991. HKCC consortium members, already dickering among themselves, abandoned the cable project, and the government graciously said it would not impose any penalty on them for withdrawing. The result was that six years elapsed, and in the end, no cable television or second telephone network.

It is an interesting question whether or not Hutchvision would have looked to DBS if it had gotten the cable award. AsiaSat was underway while the cable controversy was dragging on, and adding DBS to it made sense—although this seems to have happened only after Hutchvision did not get the cable franchise. At some point C&W realized DBS would probably kill cable, and thus reduce if not eliminate the prospect of a local loop competitor. Thus, the cynics who during the cable controversy predicted Hutchinson and C&W would make a deal were somewhat right—although certainly not in a way anyone seems to have expected.

In mid-1992, the government issued a new Pay-TV Law intended to, once

again, spark the development of cable television. This plan provided a three-year exclusive franchise after which new companies could provide competitive cable television service. However, Star TV's success would be a major concern for the new operator.

13.5.6 *Star TV*

Hutchvision's system, which is aimed at 2.7 billion people in thirty-eight Asian countries, is called Star TV. Test broadcasts began in May 1991. In August DBS twenty-four-hour sports programming (through a deal with U.S.-based Prime Network) began. From September on there has been a twenty-four-hour music channel (provided by MTV, customized for an Asian audience). In early 1992 there were five channels. A major remaining rub is Hong Kong's refusal to allow broadcasts in Cantonese; Mandarin is used. (Because of its Hong Kong headquarters, Star programming is subject to local regulatory control.)

Star—from Satellite TV Asia Region—can reach 2.7 billion people. It controls ten of AsiaSat's twenty-four transponders—and the others are also spoken for, so there will be no competition until there is another satellite, which will be in the mid-1990s. (For more on Star see, e.g., *Far Eastern Economic Review*, May 2, 1991, p. 42, and May 30, p. 60. For Hutchinson and its telecom ambitions see, eg, *Asian Business*, 1991 Nov, p 29.)

13.6 China's Attitude

Many changes are in store in Hong Kong leading up to and immediately after 1997. While China has not previously been much different from any other Asian country with which Hong Kong maintains telecommunications links, this is no longer the case. Working relationships have developed between authorities in the Hong Kong Post Office and their counterparts in Beijing and Guangdong Province (which adjoins Hong Kong). Likewise, HKT and C&W Hong Kong have developed good working relationships with Chinese authorities. Currently, for example, they are involved in cellular telephone operations in China; the Hutchinson Group is similar. There has been greatly increased communication between Hong Kong and China, particularly with the special economic zones in Guangdong. (In 1991 almost one-fourth of HKT's revenues were from China traffic.)

Hong Kong has a much more sophisticated telecommunications infrastructure than anywhere in China, as well as more experience with advanced technology and the international system. It is Hong Kong's hope, and particularly the hope of the management at HKT and Hutchinson, that these strengths can make Hong Kong a base for transfer of telecommunications technology and services into China. As long as it is clearly understood that local authorities and private organizations are not usurping the role of national authorities in Beijing, there is a fair chance that Beijing will be willing. This inevitably means telecommunications policymaking in Hong Kong will be carried out with increasing

sensitivity to views in Guangdong and Beijing. In any event, the march toward 1997 means Hong Kong's telecommunications relations with China will not be characterized by the same degree of independence or autonomy that they have been.

China will probably be quite happy to engage in a wide variety of joint venture projects with Hong Kong-based companies, as it is already starting to do, to allow them to develop and operate China's own domestic telecommunications system, and to provide international services. Still, China will regulate its communication system in accordance with its own practices.

13.7 Conclusion

Indications are that China prefers dealing with a large number of competing firms. C&W, along with its Hong Kong Telecom subsidiary, and Hutchinson are simply the first two substantial players. There is room for more, but they will first have to establish positions in the Hong Kong market. To this end, Hong Kong has been liberalizing the rules for entry into its local telecom services market.

An issue here is how much, in the interests of providing a base for more viable players in China, Hong Kong will further break HKT's monopoly on domestic and international distribution services. This will inevitably mean that the Hong Kong regulatory system will come to rely more on competition and market forces. Indeed, the government began a telecommunications policy review in late 1991. There are indications that the international franchise may be thoroughly eroded long before its expiration in 2006. Talk includes allowing new international voice carriers liberalized use of private circuits, in effect allowing bypass of Telco and thus reducing the value of its local franchise.

What happens after 1997 is little more than speculation. The head of China's Hong Kong and Macao Office of the State Council told the press in December 1990 that Beijing has to be consulted before any post-1997 franchises are granted. Still, Hong Kong companies clearly are acting as though they will be allowed to continue to exist and even have a major role in Chinese telecommunications. This may be whistling in the dark—but it could also be self-fulfilling.

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