

# 16

## South Korea: Telecommunications Policies into the 1990s

KEUK JE SUNG

Until the late 1970s the Korean telecom sector had problems typical of developing countries. A backlog of unfilled orders persisted and financial resources were allocated inefficiently. Entering the 1980s, however, the Korean government made major investments in telecommunications, financed mainly through price increases and foreign borrowing. By 1987 the waiting list for telephone installation had disappeared, and a nationwide subscriber dialing system had been implemented. As the investment in facilities stabilized, the Ministry of Communications (MOC) proposed a qualitative policy that included flat-rate calling for telephone service (i.e., distance-insensitive rates) and implementation of universal information services. In a sense, these are the ultimate form of universal service.

Other forces were at work in Korea as well. By the late 1980s users of telecommunications networks were mounting pressure for liberalization. Overall, the economy had become more sizable and complex, and the government invited more private sector initiative by privatizing certain public corporations. At the same time trading partners, including the United States, have pressed for more liberalization—indirectly through joint ventures in Korea and directly through U.S. government demands for opening of the domestic market.

These developments raise two key questions. What issues are involved in flat-rate pricing and universal information service policies? What effect would privatization have on these policies? These are discussed in the context of the debate and actual restructuring of Korean telecommunications, but they are issues in other countries as well.

The focus here is primarily on network services, including information services. Major structural changes were legislated in 1989, and in July 1991 the two basic telecommunications laws were further revised. Korea has predominantly adopted American equipment and technical standards, so although equipment, technical standards, and equipment approval procedures are important, liberalization of the service area is more controversial. The equipment

industry, as well as the historical development of telecom services and the content of the 1989–1991 reforms are covered by Choo and Kang in Chapter 15.

### 16.1 Changes in the Legal Environment Prior to 1989

Major legal and institutional changes affected the telecommunications environment between 1982 and 1985 as a new set of laws was enacted. These included the Telecommunication Basic Law, the Public Telecommunications Business Law, and the Law on the Establishment of the Korean Telecommunications Authority (KTA). These laws provide that all telecommunications business was to be carried out by common carriers designated by MOC. MOC designated several (see Table 15.3) whose business areas did not overlap significantly. In cases of overlap, MOC was responsible for coordination.

In 1982 KTA, a 100 percent government-owned public corporation, was established and given responsibilities for telecommunications management and operation previously held by the MOC. This separation of policy and management functions was designed to facilitate fast decision making and less-restrictive supervision, enabling telecommunications facilities to be provided on a massive scale. However, the transition was not easy: Korea is a country where being a governmental employee is a long-honored tradition, even though the separation raised the salaries of those transferred to KTA and created job opportunities.

Also in 1982 the Data Communications Corp. of Korea (Dacom) was established as a private company and given the status of a common carrier, mainly providing new telecom services such as videotex, packet switching, and electronic mail. As of 1988, two more common carriers assumed the business for marine and mobile communications.

In 1985 restrictions on the use of the telecommunications network, including leased lines, were relaxed. Private companies began to provide data base and data processing services. As of December 1988, eighty-five companies were in operation, but most had sales below 100 million won (\$150 thousand). Lack of domestic data bases, customer lack of understanding of the services, and remaining restrictions on use of the networks were the most likely reasons for the low sales volume. Further relaxation of restrictions on use of the public network and of leased lines came in 1987 and 1988. Closed user groups (not defined in the laws, but characterized in practice as groups having close business relationships) could construct private networks using leased lines, with no service restrictions. By mid-1991 virtually anyone could share lease lines, satisfying what had been one of the major complaints of users and potential VAN entrants.

A shift toward phasing out monopoly came in a late 1989 revision to the Telecommunications Business Act. By reducing limitations on private carriers it was expected to help expansion of the VAN market, which is discussed in Chapter 15. Because entrants are not expected to own actual physical networks, value added service (VAS) provider is the common term in Korea.

Also, in 1990, KTA was privatized and renamed Korea Telecom. Its stock was to be sold to the public gradually during the early 1990s, as market conditions dictated. Concomitantly, Dacom was to be permitted to enter the international long-distance business and eventually the domestic long distance market. The Korean market was on the path to greater openness.

## 16.2 Ministry of Communication Policy Targets

During the rapid expansion of the 1980s, MOC proposed a nationwide subscriber dialing system and elimination of delayed installation as targets (often called the "one telephone per household" policy). Both goals were accomplished in 1987. Korean subscribers could dial directly, without operator assistance, to any other subscriber and, indeed, to almost any country in the world. Order backlogs and waiting lists disappeared and the total number of telephone lines surpassed 10 million.

Having achieved these goals, MOC turned its attention to a new agenda, much of which had been developed during a two-year study of long-term policy targets aimed toward the year 2000, which the ministry had begun in 1983. General proposals included development of new technologies and active participation in international organizations.

Two particularly interesting targets were under the heading "popular use of information" (MOC 1985, vol. 2, pp. 1163–65): flat-rate calling (making telephone rates independent of distance) and provision of universal information service. These targets indicate a significant policy shift from growth to quality improvement. MOC has demonstrated its commitment to these goals through interim measures including the reduction of the number of local rate zones.

Three other major factors have emerged that, with these policy targets, will shape Korean telecommunications: strong demand from users, domestic and foreign interests in the Korean market, and the privatization plans for public corporations including KTA, mainly initiated by the Economic Planning Board (EPB).

### 16.2.1 User Demand

To date, user views about telephone service has not been explicit or represented in an organized way, beyond various complaints about delayed installation and overcharging. However, organized user demand for data communications was expressed in December 1987. The Computer and Communication Promotion Association (CCPA), established by eighty-five companies providing data bases and data processing services, asked MOC to relax restrictions on the use of leased lines. The principal request centered around free attachment of multiplexers and computers to leased lines and requested a broader definition of closed user groups. (This section is largely excerpted from Lee 1989, pp. 37–39).

MOC instead maintained a policy that encouraged use of the public network,

although closed user groups were allowed to construct private networks over leased lines. MOC also kept some restrictions on the attachment of multiplexers and computers to the leased lines in order to control growth of private networks. The Ministry contended that unrestricted development of private networks would allow Korea's *chaebol* (big-business groups), which have enough technology and money, to become information giants. The worry was that information dominance could add to the groups' armory. MOC also expressed concern about security and economies of scale. Dacom took essentially the same stance, anxious about the erosion of its business opportunities.

In response to user requests, MOC announced relaxation measures in December 1988 that allowed users to attach multiplexers and expanded the definition of closed user groups to include a wider range of companies. This suggests user demand will help shape the future of the telecom sector, and as the economy grows and becomes even more complex, private sector initiatives will play a more important role.

### **16.2.2 EPB Privatization Plan for Public Corporations**

The EPB has been at the center of economic development planning in Korea since the early 1960s. In 1987 it announced a privatization plan for public corporations. This is intended primarily to invite private sector participation, but it will also boost the stock market, absorb funds from the money supply, and ease the government's budgetary burden.

Beginning in 1986 Korea had an overall favorable trade balance and the economy boomed. Selling stock in public corporations was seen as one way to help prevent excess liquidity and keep inflation, which had been maintained at below 3 percent since 1984, low. The plan was for 15 percent of KTA to be sold to the public in 1989 and additional shares sold annually until 1992, at which point the government would hold 51 percent of KTA. Instead, no shares had been sold by the end of 1991 primarily because the entire Korean stock market has been weak.

The initiative for selling KTA stock seems to have come from EPB, perhaps indicating MOC and KTA were not prepared for, or had not considered privatization. There have also been discussions about reforming KTA, including separation of its international business and the division of KTA into regional companies. KTA's labor union has strongly opposed such ideas, contending that KTA should have remained as it was and suggesting that the introduction of competition would be preferable to divestiture.

### **16.2.3 International Pressure**

Foreign interests have played a big role in demands for liberalization. The major members of CCPA include STM and Samsung Data Systems (SDS), which are joint ventures of Lucky Goldstar with Electronic Data Systems (EDS) and Samsung with IBM, respectively. Other foreign businesses, such as Reuters, the Associated Press, and Citicorp have urged more market access. Al-

though MOC claims the Korean telecom sector is being liberalized at a fast rate, not all foreign interests have been satisfied.

In January 1987 the United States started Market Access Fact Finding (MAFF) talks with Korea regarding telecommunications. These continued until the middle of 1988, with the United States indirectly requesting the opening of Korean markets. When the U.S. Congress passed the Omnibus Trade Act of 1988, telecommunications consultation between the two countries entered a new stage. Part 4 of the act is very specific in directing the U.S. telecommunications industry's actions regarding trade negotiations with other countries. In accordance with this act, in February 1989 the U.S. Trade Representative (USTR) designated the European Community and Korea as priority foreign countries for negotiation. It is impossible to predict the precise course of subsequent negotiations but so far many liberalization measures have been implemented or agreed to, and more are likely.

#### **16.2.4 Other Issues**

Universal service is central to the new policy targets proposed by MOC, and the interests of the major players generally lean toward liberalization. Are these respective viewpoints compatible? More specifically, there are four key questions. How will introduction of competition in telephone service in Korea affect rates? How sustainable is flat-rate calling in a competitive environment? What issues are involved in the provision of universal information service? How do flat-rate telephone rates affect the pricing of information services provided over the telephone network?

### **16.3 Rates and the Move to Flat Rate Calling**

Table 16.1 shows changes in the pricing structure for local and long-distance rates since 1962. The sharp increase in local rates in the late 1970s reflects a general inflation rate that averaged over 18 percent a year.

In 1984 MOC announced a long-term pricing schedule that projected flat-rate calling by the year 2001. Before implementation began, however, long-distance rates were increased in 1985 as part of a change in rate zones. This was the peak, with a call to the farthest band costing ninety times as much as a local call, reflecting a pricing structure mainly designed to finance massive provision of facilities.

Since 1985, generally following the original schedule, long-distance rates have been dramatically reduced, so by 1991 a call covering the longest distance cost 900 won. However, local rates were increased in 1986 to 25 won. From July 1, 1989, local calls have been charged according to duration, whereas previously they had not. Thus, the interim steps toward flat-rate calling have seen long-distance prices decrease and local call prices increase.

Table 16.1. Local and Long Distance Rates\*

Date Effective	Local		Long Distance <sup>b</sup>		
	Base <sup>a</sup>	Per Call	<100 km	<300 km	<500 km
Jun 1962	83.3	2	30	60	70
Mar 1964	83	2	—	—	—
Jan 1966	300	3	60	120	140
Jan 1968	300	4	100	190	230
Sep 1974	390	6	150	285	345
Jul 1975	520	8.7	200	380	460
Aug 1975	520	8	—	—	—
Jan 1977	1740 <sup>c</sup>	—	—	380	520
Jan 1980	1740 <sup>d</sup>	12	300	560	770
Jun 1981	2200	15	350	650	900
Dec 1981	3000	20	440	750	1000
Aug 1985	—	—	900	1440	1800
Feb 1986	—	25	—	1286	1286
Mar 1990	—	25 <sup>e</sup>	650	900 <sup>f</sup>	

Source: Adapted from MOC 1985, vol 2, pp. 1403–5, and updated by the author.

\* All rates are in won.

<sup>a</sup> Basic monthly rate for dial tone. The telephone company does not lease telephone sets.

<sup>b</sup> Station rates are for first three minutes. Prior to 1985 there were eight long-distance bands. This had been reduced to three by September 1991.

<sup>c</sup> First 100 units free each month.

<sup>d</sup> No free units.

<sup>e</sup> Duration charges for local calls were introduced in July 1991.

<sup>f</sup> Calls over 100 km.

— No change.

### 16.3.1 Interim Steps toward Flat-Rate Calling

If competing long-distance providers connect with the public network to serve ordinary customers, they would have to pay access charges. Unless those charges were less than the flat-rate for a call placed entirely over the public network, the long-distance provider could not cover the costs of its network, let alone make a profit.

If discounts are given to alternative carriers, it is likely that those entering the market will serve only large-volume users and concentrate on high-density routes. Ordinary customers might then be paying more for a local call than a large-volume user pays for what was previously long distance. It is possible that this situation could be socially or politically unacceptable—there are certainly political elements who would seek to paint it as another example of favoritism for the *chaebol* at the expense of “ordinary citizens.”

As seen in the United States, pricing and costing do not necessarily go hand in hand. They can be separated, allowing flat-rate calling to accommodate competition. Long-distance competitors must be able to charge prices equal to or slightly lower than the former monopoly. Competitors and the local loop mo-

nopolist must develop some revenue allocation mechanism by agreeing on the total revenue requirement and on the portion competitors would have to provide for use of the monopoly's network. This kind of arrangement has been used in the United States under the station-to-station philosophy. Under this approach, flat-rate calling does not necessarily preempt competition.

If competition is introduced before flat-rate calling, the transition to flat-rate calling is more difficult because new cost allocation and revenue apportionment methods would have to be painstakingly worked out.

A goal of flat-rate calling is to pursue a type of equality through uniform pricing and economic efficiency by means of a centralized network. One can argue that competition conflicts directly with this goal. However, one must also consider whether true equality is achieved if large-volume users are treated the same as users who make infrequent long-distance calls. Flat-rate calling without competition helps guarantee control by the monopoly, which often lacks incentives for efficiency and innovation. It is necessary to weigh the cost of duplicated investments under competition against the cost of inefficient management at the monopoly.

The inefficiency of monopoly has long been a concern for most countries. In Korea, Korea Telecom is regulated by a mixture of rate-of-return and performance indexes. Breaking up the monopoly into regional companies, as has been suggested, may not be a bad idea. The main argument is that such a breakup provides the regulatory agency some basis for measuring the performance of telephone companies by creating a comparative environment.

### 16.3.2 Privatization and Stakeholders

Essentially everyone has a stake of some sort in the concept of flat-rate calling—including MOC, Korea Telecom, EPB, large users, and the general public. Korea Telecom has no reason to oppose flat-rate calling because it would maintain its position, but it strongly opposes the idea of breakup. EPB is concerned about possible increases in local rates triggering inflation; however, decreases in long-distance rates could compensate for this, leaving an uncertain net effect.

As seen in the United States, large users were a major force behind the drive toward competition. In Korea large users have not yet publicly complained about the high prices of long-distance calls. However, large business groups may do so as they expand internationally and become more dependent on telecommunication networks. The top thirty *chaebol* produce 15 percent of Korea's GNP and 108 companies (0.6 percent of exporting companies) generate 63 percent of total exports, giving them a prominent role in the Korean economy. If they see inefficiencies, they could lead a call for competition.

It is unclear how the Korean public would react to flat-rate calling. They would surely oppose local rate increases, but their response to decreased long-distance costs is not clear. Citing the U.S. experience, lower prices for long-distance calls and higher end-user charges—both due to competition—actually

reduced the overall bills of the average customer. There therefore seem to be no obvious reasons for public opposition.

#### 16.4 Universal Information Service

With “popular use of information” a policy target for the year 2000, MOC proposed “one terminal per household” as a specific strategy. This has been explained as “realization of equal access to, and utilization of, information service over telecommunications network through low-cost terminals” (MOC 1985, vol. 2, pp. 1163–65).

It was some time before any specific schedules or plans for reaching the targets were announced. Based on statements in the press by the minister of communications during 1988 and 1989, the impression was that the terminals would be as intelligent as PCs and free to users. Finally, in mid-1991 a pilot program involving several thousand free dumb terminals was begun in Seoul. The plan is to distribute of 3 million terminals by the end of 1996. Whether these will also be free and dumb is unsettled. There has been no explicit foreign pressure regarding standards for the terminals. It is also unclear who will provide network and information services.

The phrase *universal information service* came into use only in the late 1980s, and is still without a generally accepted definition. Information service is sometimes defined as a service that provides, processes, stores, and transmits information. This broad definition includes electronic mail, protocol and code conversion, telephone service, postal service, and book publishing, to name only a few options. In this section the scope is narrowed to those services included in MOC’s universal information service policy: Services carried over telecommunication networks, including most services described as VAN service or VAS. (Basically, this is what is called telecommunication networks, including most services described as VAN service or network-based service, TNS, in the context of trade, but TNS is not used here because we are not discussing trade issues.)

By excluding services that do not make use of telecommunications networks, some important information services that may develop in the future are left out, such as services over cable television networks. Dramatic cost reductions in fiberoptic cable installation in recent years indicate that the boundaries of the telephone, information service, and video entertainment industries are blurred in principle (see, e.g., Pepper 1988, pp. 5–11). Cable television networks today in Korea, however, generally carry only regular television channels to areas with poor reception and are restricted from carrying broadcast entertainment programming. In fact, cable television systems are illegal in urban areas where regular television signals are well received.

In this analysis, “universal” information services are those offered to the general public, including data base and data processing, electronic mail and bulletin boards, reservation systems, home shopping, home banking, and telemetering services. These services require information providers to develop the



information, network providers to carry the information, and terminals for input and output of the information.

Since 1985, some companies in Korea with private leased-line networks have been allowed to provide data base and data processing services to the public. Providers were severely restricted from mediating or providing third-party communication. Amendments effective in May 1987 allowed these companies to provide information services over private networks without restriction as long as users were within closed user groups that shared business interests; interconnection to public networks was still prohibited. The definition of user groups was expanded in December 1988, but it still did not allow public network interconnection.

Starting in the early 1980s the Korean government has encouraged the use of telecommunications networks for data communications, emphasizing use of public networks, including Dacom's public switched packet data network. Currently, private industries are requesting even further relaxation of restrictions on the use of leased lines.

With about 1 million new telephones installed each year in Korea, a level expected to continue until the year 2000, electronic directories are a good candidate for an information service.

Educational information services may also be a major market in Korea. Extracurricular study through terminals could become very popular among families with students—many of whom demonstrate a zealous interest in their children's educations. The public television channel broadcasts educational program, but tutoring by television was found too difficult for some and too easy for others, a situation not easily dealt with in a one-way medium. Terminals in student homes could provide a workable solution: Interactive and personally tailored programs could be a much more effective mode for extracurricular education.

Another possible application is transaction service. At present, Korea is still a cash economy, although use of credit cards is spreading. (In 1987, 40 percent of transactions were cash, compared to approximately 25 percent in Japan and Taiwan. The pattern for most transactions is for people to deposit their income in banks, withdraw cash as needed, and use credit cards when out of cash. In this environment, answering balance inquiries would be a desirable service, and some banks already provide this to customers via telephone. However, there remain many legal and security problems that would have to be cleared up before expanded services such as money transfers could be offered.

Koreans are less likely to support the provision of bulletin boards and games services, however, as chatting and playing games with computers are unlikely to gain social approval in the Korean culture. The chance for their introduction is even slimmer if the terminals or services are financed by the government.

Compared to the general public, businesses are more inclined to make use of information services, at least if the applications make or save money. Business users are often the first to seek such services even in the absence of outside encouragement.

In summary, electronic directories, business applications, and educational

services appear to be good candidates for services over telecommunication networks—if prices and terminals satisfy certain requirements.

#### **16.4.1 Terminals**

How intelligent should information service terminals be and what is the method of distributing them? In many on-line and text processing situations a dumb terminal can perform adequately. If there is much downloading of data, however, even conventional PCs may be unable to compete with traditional print offerings in convenience of use. It appears MOC is considering free distribution of intelligent terminals, such as personal computers. This could provide an impetus to the Korean hardware and related software industries.

Unless the service is inexpensive and easy to use, experience in most countries suggests that the general population would rather turn to such traditional information sources as books, directories, brochures, and telephones. Free distribution of easy-to-use terminals provides customers with equipment with no financial burden, and information providers and advertisers with a large potential market.

A free terminal distribution policy, however, has possible drawbacks. While massive distribution of terminals may establish de facto technical standards and may stimulate industry growth, it could also discourage innovations and creativity. Moreover, if domestically developed standards are not compatible with overseas standards, then the export market could suffer, and communications with other countries would be problematic. To achieve one terminal per household in Korea, approximately 10 million terminals would be needed at an estimated cost of \$3–5 billion, not including development costs (NTIA 1988, p. 97). If technological development renders terminals obsolete, then continuing investment in replacement could become an unbearable burden.

#### **16.4.2 Stakes of the Players**

MOC is the major proponent of a universal information service policy. It claims such a policy would elevate the general public's computer literacy. Most of the general population simply has not had an opportunity to handle keyboards. General distribution of terminals, if accompanied by easy-to-use software and applications, could greatly help people to familiarize themselves with computers. Concerned that the domestic information industry (except for the hardware side) is still in its infancy and that the domestic telecommunications infrastructure is inadequate, MOC's priority is for Korean industry to become competitive as quickly as possible.

Because MOC's strategy has not been announced in detail, discussion of other players' stakes is only speculative. The general trend in Ministry of Trade and Industry and EPB policies has been to favor less government intervention and more private sector initiative, indicating these two powerful ministries may oppose MOC policy. If the trade surplus and the threat of inflation continue,

however, the MOC policy of terminal distribution could offer a good opportunity to expand domestic demand.

Several ministries besides MOC have shown interest in distribution of PCs, although it has been confined to computer education for students. For example, the Ministry of Science and Technology provided three years of support (1987–1990) for a program to develop software for extracurricular tutoring (*Computer Vision* July 1988, pp. 90–96). In December 1987 the Ministry of Education announced a program to promote computer education, including computer labs in the regular curriculum and distributing 280,000 educational PCs to schools through 1996 (*Computer Vision* Jan. 1988, pp. 130–31).

Korea Telecom and Dacom, as the two major common carriers, both have major stakes in MOC policy. As long as the financial burden can be passed on to subscribers, Korea Telecom may not be seriously concerned. If the proposed universal information service policy is to be implemented under the present regulatory system, there is a possibility both Korea Telecom and Dacom may claim jurisdiction, as they both can be network providers. However, the dispute will likely be resolved in favor of Korea Telecom because it owns most of the physical plant.

The private sector has generally advocated liberalization of VANS, a request that will be even stronger if a universal information policy is implemented. Firms see many potential business opportunities for networks, terminals, and information provision and naturally wants to participate.

Foreign interests also have a stake in MOC policy. They would strongly oppose any restrictions on their participation or technical standards that preclude them. During trade negotiations between Korea and the United States in May 1989 both sides agreed restrictions on foreign investment should be almost completely lifted, including in telecommunications. From Korea's perspective, technical compatibility of Korean products with foreign goods is important because of the desire to export. It is safe to assume that foreign concerns about domestic technical standards will be a trade issue.

## 16.5 Conclusion

Korea is changing rapidly in many ways. The changes have sometimes happened so fast that people have not been ready for them. Politically and economically Korea is a very different place in 1991 than it was in 1987. Then, people believed democracy was a distant ideal, that relationships with countries governed by communists were impossible, that their country would never enjoy a trade surplus, and, indeed, might never get out of foreign debt. By 1991 the Soviet Union and China had agreed to open trade relations with Korea, North Korean products were imported directly, the trade surplus surpassed \$10 billion, the summer Olympiad was successfully carried out, and Korea had become a creditor country in 1989. Domestically, dramatic democratic measures have been taken and more are likely to come.

The same momentum can be predicted for telecommunications. The penetra-

tion rate for telephones is still about half that of advanced countries, and more facilities are needed. While many people before the mid-1980s had to wait over a year for a telephone, however, there is no longer a backlog. This may explain why there has not been any explicit domestic movement to support competition or liberalization. Once set in motion, however, these trends may accelerate as fast as the liberalization seen in other sectors.

Flat-rate calling and the distribution of intelligent terminals to every home are radical changes. Few countries have ventured to implement such policies. Most people are unable to believe implementation will ever take place and may consider any discussion just government propaganda. But looking back, in the early 1980s when MOC announced its policies of "one telephone per household" and a "nationwide automatic dialing system" before 1990, people had the same kind of doubt. Those goals were actually achieved by 1987. By implementing the policies discussed in this chapter, Korea has established an unprecedented model for telecommunications development.

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