

Regulatory Reform in Korea

Regulatory Reform in the Telecommunications
Industry



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FOREWORD

Regulatory reform has emerged as an important policy area in OECD and non-OECD countries. For regulatory reforms to be beneficial, the regulatory regimes need to be transparent, coherent, and comprehensive, spanning from establishing the appropriate institutional framework to liberalising network industries, advocating and enforcing competition policy and law and opening external and internal markets to trade and investment.

This report on *Regulatory Reform in the Telecommunications Industry* analyses the institutional set-up and use of policy instruments in Korea. It also includes the country-specific policy recommendations developed by the OECD during the review process.

The report was prepared for *The OECD Review of Regulatory Reform in Korea* published in 2000. The Review is one of a series of country reports carried out under the OECD's Regulatory Reform Programme, in response to the 1997 mandate by OECD Ministers.

Since then, the OECD has assessed regulatory policies in 16 member countries as part of its Regulatory Reform programme. The Programme aims at assisting governments to improve regulatory quality — that is, to reform regulations to foster competition, innovation, economic growth and important social objectives. It assesses country's progresses relative to the principles endorsed by member countries in the 1997 *OECD Report on Regulatory Reform*.

The country reviews follow a multi-disciplinary approach and focus on the government's capacity to manage regulatory reform, on competition policy and enforcement, on market openness, specific sectors such as electricity and telecommunications, and on the domestic macroeconomic context.

This report was principally by Dimitri Ypsilanti, with the participation of Wonki Min of the Directorate on Science, Technology, and Industry. It benefited from extensive comments provided by colleagues throughout the OECD Secretariat, as well as close consultations with a wide range of government officials, parliamentarians, business and trade union representatives, consumer groups, and academic experts in Korea. The report was peer-reviewed by the 30 member countries of the OECD. It is published under the authority of the OECD Secretary-General.

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Executive Summary

Background Report on Regulatory Reform in the Telecommunications Industry

The telecommunications industry has undergone significant regulatory reform over the last decade. By mid-1999, 23 of the OECD countries had liberalised their telecommunications market, including voice telephony, infrastructure investment and investment by foreign enterprises. The success of this liberalisation process will depend on the presence of a transparent and effective regulatory regime that enables the development of full competition, while efficiently protecting the public interest. This report considers whether the regulatory regime in Korea can ensure the success of the liberalisation process by assessing telecommunications regulations in Korea, recent regulatory reforms and their impacts on market performance.

Korea has, since the early 1980s, made impressive progress in developing its telecommunication infrastructure and service markets. Korea has already seen some benefits from market competition for international and national long distance services and mobile cellular services. The opening of the local loop market to full competition in 1997 means that, today, all parts of the telecommunication infrastructure and service market are open to competition. The Ministry of Information and Communication has reformed regulations progressively and implemented a number of essential reforms to liberalise the telecommunication service market and introduce competition. There is, however, scope for further reform. For effective facilities competition to develop, in particular in the local loop, much still needs to be done. The government should make a concerted policy effort to ensure that all the necessary regulatory safeguards are in place to stimulate new entry and ensure fair competition. Several essential regulatory safeguards are needed, including a cost-based interconnection framework, a price cap regime for the dominant carrier's local loop and leased line services, a cost-allocation framework for universal service, number portability, and a transparent spectrum allocation mechanism in order to ensure fair competition in the marketplace.

The Ministry of Information and Communication needs to shift to more light-handed regulation thus avoiding unnecessary intervention in the telecommunication service industry. The creation of the Korea Communications Commission has been an important institutional step towards improving fair competition. The Ministry now should move to separate its industry promotion activities, especially for manufacturing industry, from policies and decisions aimed at fostering the development of an open and competitive telecommunication service market. This could be best achieved by transforming the Korea Communications Commission into a telecommunication regulatory body, independent of the Ministry of Information and Communication, while the Ministry retained overall policy functions. Transparency in the policy making process is important and needs to be improved. Greater policy consistency is needed, and to achieve this the regulator should focus its energies on the main regulator objective to ensure the smooth and effective transition from a monopoly to a competitive telecommunication service market.

Experience from other OECD countries has shown that competition has been the main driver in accelerating the diffusion of new network technologies, such as ISDN and ADSL. More vigorous facility and local loop competition in Korea would speed up the introduction of new services by stimulating the digitalisation of the telecommunication infrastructure and help the rapid introduction of new broadband technologies. A competitive communications service industry, driven by market demand, underpinned by effective pro-competition regulation, and building on Korea's existing strengths in the information technology and software sectors, could position Korea to take a leading position in the global information society and in new emerging economic activities such as electronic commerce.

1. THE TELECOMMUNICATIONS SECTOR IN KOREA

1.1. *The national context for telecommunications policies*

In 1990, Korea took the first steps in opening its telecommunication market to competition by allowing a duopoly for the provision of international telecommunication services. Since then the telecommunications regulatory framework in Korea has undergone progressive reform so that there are now no longer any legal impediments to market entry for the provision of fixed telecommunication infrastructures and services in Korea. The development of the telecommunication service industry in Korea has been impressive, and revenue has grown at 20% between 1992-97,¹ with a rapid build-up of the national public telecommunications infrastructure and of cellular mobile markets. The information and communication industry as a whole (including equipment manufacturing), has been important in Korea's overall economic growth, and is expected to continue to increase in importance in the future. Communication services are also important for a country such as Korea that is reliant on export growth. With public telecommunication revenue of around \$US 9.1 billion in 1997 Korea has the 10th largest telecommunication service market in the OECD. Korea Telecom (KT), the incumbent telecommunications operator in Korea, is the 26th largest public telecommunication operator in the OECD.²

Since 1990 Korea has introduced new regulatory measures such as carrier pre-selection, new interconnection rules, has changed the licensing framework for entry into fixed public telecommunication markets and value-added services, and has changed price regulation. These changes have had a positive impact on the opening of the market to competition, the introduction of new services and in price competition. On the institutional side the Ministry of Information and Communication created the Korea Communications Commission within the Ministry with the mandate to ensure fair and transparent implementation of regulation. There still remain, nevertheless, unresolved regulatory issues in the Korean telecommunication market. Notably, in spite of the existence of the KCC, the Ministry of Information and Communication (MIC) still maintains regulatory functions in addition to its traditional "guidance" and industry promotion policies (in particular for the manufacturing industry). Thus, the MIC maintains two objectives that are potentially conflicting: to protect users' interest and to ensure sound industry development. This means that, unlike other OECD countries where the major objective of the regulator is to maximise users' interests, the MIC's efforts in the telecommunication service sector can be subject to other industry pressures. Therefore, within the overall positive movement toward creating competitive markets, the twin policy combination has resulted in some inconsistencies and market inefficiencies.

The strong policy emphasis on the development of the manufacturing sector, despite the clear shift taking place in industrial economies from manufacturing to service industries,³ and the importance in this context of having an efficient and technologically advanced communications infrastructure and services industry, has placed burdens on telecommunication service operators. Since there is no institutional separation between industry promotion functions and regulatory functions, the MIC has often taken regulatory actions in favour of industry promotion. This is most evident in the *de facto* 'taxing' of telecommunication service companies (discussed later in the paper) that are a burden on new telecommunication entrants trying to develop their infrastructures and services.

The reforms in telecommunication services in Korea have led to growth in competition in international long-distance services, and cellular mobile services, but to a lesser extent in domestic public switched telecommunication service (PSTN) markets. Entry in local telecommunication service markets has just begun, as in other OECD countries, and policies should be put in place to accelerate competition in this area. Further reforms and greater focus on enhancing telecommunication service competition could bring significant benefits to the service and manufacturing industries, and to residential users.

1.2. General features of the regulatory regime, telecommunications market and market participants

Development of telecommunications in Korea

The main features in the development and liberalisation of the telecommunication sector in Korea are shown in Box 1.⁴

Emphasis on the development of the telecommunication infrastructure in Korea began with a five-year telecommunications plan in 1961 (as part of the five-year economic development plan) followed by another three five-year plans. The main objective, up to the early 1990s, was to raise the telephone penetration rate, which was extremely low, and to increase quality of service. The success of these efforts can be seen from the significant increase in penetration rates. In 1980, penetration was 7.3 lines per 100 inhabitants. By 1997, Korea had surpassed the OECD average penetration rate in telecommunication services (see Section 3). Growth in fixed line infrastructure has also been accompanied by rapid growth in cellular mobile infrastructure and markets. By 1997 Korea ranked 12th in the OECD in mobile subscriber penetration with 14.9 subscribers per 100 inhabitants. By August 1999 the mobile penetration rate had shown further significant increase with penetration at 43.4 per 100 inhabitants (the fifth highest penetration in the OECD) or 20 million subscribers.⁵

However, as noted in Section 3, expansion of the fixed network has not been reflected in a high rate of network modernisation. The network digitalisation rate was 66.7% of fixed access lines in 1997 compared to the OECD average of 89.2%.⁶ In turn this has had implications for the provision of new services and has led, as argued in Section 2, to misconceived government policies.

Relative price performance in Korea has been positive. Residential and business prices are among the cheapest in the OECD (see 2.2., Section on Foreign ownership), but there is room for improvement especially in prices for domestic long distance services and leased lines.

In 1982, the Ministry of Communications was given responsibility for the sector. The process of separating policy from service operations (commercial) functions began on 1 January 1982 with the establishment of the Korea Telecommunications Authority (now Korea Telecom) as a 100% government-owned public corporation. In March 1982, DACOM was created to provide data communications (value-added services) and in May 1984 Korea Mobile Telecommunications (which later became SK Telecom) began operations.⁷

Reform in market structures began a decade later, in 1990, by designating DACOM⁸ as the second facility-based carrier for international telecommunications services. This began a process of market differentiation between international, long distance and local telephony services that is still used now, for example in licensing. As DACOM was designated as the new entrant, there was no open tendering process. The Government also adopted a classification system for service providers in February 1991 that formed the basis of its licensing system until 1995 (see 2.2., Section on Regulation of entry and licensing). Reform after 1990 was slow until 1996 when a number of new licensees were issued.

In the privatisation of the incumbent operator, Korea Telecom, the original plan announced in June 1987 was to divest 49% of the company over the next ten years. The process of privatisation of the Korea Telecommunications Authority (KTA) turned out to be unsteady, in part due to market conditions. Over the past ten years privatisation plans were frequently modified, due in part to the Ministry of Finance in Korea, which were intended to maximise revenue. These modifications slowed the reform process by delaying privatisation. Since 1998, the emphasis on privatisation has been much more positive and in May 1999 a 13% stake in KT was sold raising foreign ownership in the company from 5% to 19.1%. The Minister has also raised the possibility of finding a foreign strategic partner for KT. As of September 1999 the government owned 59% of Korea Telecom.

On the institutional side, reforms transformed of the Ministry of Communications in December 1994 into the Ministry of Information and Communication (MIC). This organisational reform gave the MIC responsibility to promote the information technology industry, and to build up a national information infrastructure.⁹ In terms of recent emphasis by policy makers on technological and service convergence, this institutional change was far sighted by giving the new Ministry full responsibility for information and communication technologies. This has led to conflicts, as argued below, between industry promotion functions that support, in particular the manufacturing industry, and the creation of competitive conditions for the communications service market, which has also been a goal of the Ministry. Resolution of this conflict will require further institutional changes.

Although working toward market liberalisation, the MIC has taken an industrial policy approach to telecommunication service development, in which the telecommunication service sector has often been used as a source of financing for the information technology and equipment manufacturing sectors. Much of the emphasis has been placed on promoting the development of Korean equipment manufacturers and other related high technology manufacturing industries. In part, this results from the fact that the MIC has responsibility for promoting the communication equipment industry, and the software industry. The emphasis on manufacturing promotion and on the supply side, as discussed later, is reflected in the telecommunications laws.

High priority is currently given in Korea to “informatisation” and linked with this the building of a Korean Information Infrastructure Project (this includes a KII-P aimed at building advanced local loops). In this context, a number of initiatives have been taken,¹⁰ such as revising laws, policies and regulations to make them more suitable for the Information age. Experience from other OECD countries shows that a competitive telecommunications environment provides significant benefits in stimulating the build-up of broadband capacity, diffusion of new technologies and creating an efficient market. Korea should emphasise the use of market mechanisms to upgrade its communication infrastructures to meet the requirements of the information society and electronic commerce. This requires a fundamental adjustment in policy to reflect the fact that the 1980s model of development, when direct government intervention was a key to achieving high teledensity, is not valid for the development of a national Information Infrastructure for the Information Society.

In short, the process begun several years ago by MIC to promote market liberalisation needs further emphasis to accelerate the development of competition and enhance consumer welfare. This can be achieved by ensuring that the right institutional structures are in place and implementing the required regulatory safeguards to create the conditions favourable for developing competition, ensuring a smooth transition from a monopoly to a competitive market and enhancing consumer choice.

Box 1. Important events in the liberalisation of the telecommunications sector in Korea

1982:	Korea Telecom created.
1990:	Competition for value added network services introduced.
1990:	Beginning of duopoly for international telephone services (DACOM).
1992:	Competition in paging services allowed (2 nd wireless pager licence given).
1994:	Beginning of duopoly for mobile services.
1995:	Decision to invite competition in national long distance market.
1996:	27 new service providers are licensed in the following areas: PCS (3), Trunk Radio Services (6), CT-2 (11), leased line facility rental (2), international telephony (1, Onse enters international market as 3 rd service provider), radio paging (1), and wireless data transmission (3).

1997:	9 new service providers licensed in following areas: local telephone services (1), TRS (4), Leased line services (2), radio paging (1), and long distance (1).
1997:	Revision of classification of telecommunication services introducing new category of 'special telecommunication service providers' (voice resale, Internet telephone).

Market participants

Korea has progressively opened its telecommunication services market to competition. Initially, rather than opening markets to competition, the MIC 'designated' a second new entrant. Since then there has been a positive evolution of the licensing framework moving to a 'prior notification system' and to the present open licensing framework. In 1996 MIC undertook a major initiative to open mobile markets to competition and increased competition in the PSTN market for international telecommunication services. Since 1998 telecommunication service markets have been fully open to new entry. For the PSTN market there have been far fewer market entrants since 1998 than in other OECD countries. This may reflect, partly, the fact that some of the necessary regulatory safeguards are not in place, the requirement for detailed licensing procedures, and the ability to request a license only during two specified periods in the year.¹¹ The changing structure of the important telecommunication markets in Korea is summarised in Table 1.

By mid-1999 there were seven PSTN facility-based service providers in Korea. DACOM, the main competitor to KT, began as a value added service provider in 1982. In 1990 it was designated as the second international telecommunication service provider, and in 1995 was allowed to enter the national long distance market. Hanaro, which began offering local service on 1 April 1999, is the only entrant, other than KT, in the local market. DACOM also received in June 1999 the third broadband wireless in the local loop licence (B-WLL), which could accelerate its entry into local services (see 2.2., Section on Regulation of entry and licensing).

Recently, majority ownership in DACOM¹² changed, from 4.87% to 9.73%, as a result of an increase in shareholding by the LG Group,¹³ the fourth largest conglomerate (*chaebol*) in Korea. LG, as the minority shareholder was allowed to take control of DACOM after MIC lifted the government restriction that precluded the company from owning more than 5% of DACOM.

Table 1. **Number of carriers participating in each market**

Category	Local	Long-distance	Int'l	Leased line	Cellular	PCS	Radio-paging	CATV (1)	
								SO	NO
1991	1	1	2	1	1	-	1	-	-
1991-95	1	2	2	2	2	-	11	53	3
1995-98	2	3	3	6	2	3	13	77	104

1. SO refers to Service Operator that runs the channel, and NO refers to Network Operator that provides the physical network.

Source: Ministry of Information and Communication.

The standard for mobile cellular services adopted by Korea, in the early 1990s, was the Code Division Multiple Access (CDMA) system. The standard provides a good base for the transition to the third generation global mobile standard, IMT-2000. Following a period of duopoly since 1991, in 1996 MIC granted 3 new PCS licenses. The licensees began offering service in October 1997. In addition, there is an analogue mobile service (being phased out by the end of 1999). Growth in mobile, as discussed in Section 3, has meant that the number of mobile subscribers, in excess of 21 million by August 1999, has surpassed the number of subscribers on the fixed network. Furthermore, mobile networks have attained close to 98% coverage of the population.

2. REGULATORY STRUCTURES AND THEIR REFORM

2.1. *Regulatory institutions and processes*

The Telecommunications Basic Act of 1997 stipulates (article 4) that the *Minister of Information and Communication* (“*Minister*”) shall determine government policies on telecommunication and is responsible for implementing the Act. The objectives of policy as laid down in the Act are the “enhancement of the public welfare” and “stimulating the development of telecommunications”. The Act also established the *Korea Communications Commission* (KCC) which comes under the responsibility of the MIC. Directly and through its supervision of the KCC, the Minister has the power to regulate the information and communications industry.

The Ministry of Information and Communication

The Ministry of Information and Communication (MIC) is responsible for telecommunication policy and regulation. It is also responsible for broadcasting policy, for operating postal services and postal saving and insurance services. Along with its regulatory functions in the telecommunication sector, MIC has broad powers over industry promotion in the information and communication industry, and in particular the IT manufacturing and software industries. Its jurisdiction includes the information technology industry. The Ministry’s mandate includes the promotion of research and development. The Ministry also has responsibility for equipment type approval. The Ministry has a number of advisory bodies, including KISDI (Korea Information Society Development Institute).

As MIC changed the process of licensing from a system of designation to a tendering system, and to complete market entry, the reliance on competition processes has increased. These positive changes have been marred by cases of inefficient government intervention. An example is the provision of broadband wireless local loop spectrum provided to existing entrants (see 2.3., Section on Access to spectrum). The lessening of the direct role of MIC in the telecommunication service sector is a positive sign of the process of regulatory reform and the emphasis on market forces to attain competitive markets must continue so as to promote benefits to end users.

Continued progress in reform and in lessening direct government intervention also requires the separation of regulatory from industry promotion functions in legal provisions. This would also require changing legal provisions in, for example, the Basic Act (see below). In the move to competition, MIC has a very important role to play in setting the main policy framework for the communications sector, the development of an information society and new areas such as electronic commerce.¹⁴ The transition to its new role in fostering market competition in the telecommunication service areas is still underway.

MIC should concentrate sufficient resources on priority issues, such as price cap regulation, number portability, IMTS-2000 mobile licences, a universal service costing methodology and local loop unbundling. There are concerns that MIC focuses on issues of less importance, or that issues remain under study without definitive timetables and that no coherent strategy for stimulating competition has been clearly enunciated. These industry entrants also are concerned that, at times, MIC takes inconsistent actions that tend to negate the positive results expected from such safeguards.

Improvements are, however, being made in the transparency of the policy formulation process. For example, the government holds public hearings on some important regulatory proposals and provides advance notice of proposed changes when amending the Telecommunications Business Act. Furthermore, the Telecommunication Basic Act (Section 44-20) requires that major telecommunication policies (licensing, technology promotion plans) be reviewed by the Information and Communication Policy Deliberation Committee which is made up of outside experts. For a number of policy areas under development, study groups, which include industry participants, are used.

Korea Communications Commission

The Korea Communications Commission (KCC) is a body established under the Ministry with responsibility to consult on matters concerning fair competition among the telecommunication service providers, to protect the interests of telecommunication users and to arbitrate in disputes among telecommunication service providers, and between service providers and consumers. The KCC has nine commissioners, including the chairman, and one standing commissioner. The Commissioners and Chairman are appointed by Presidential decree.

Revisions to the Basic Act, which came into effect in January 1997, state that the KCC is a regulatory body in charge of ensuring fair competition in the telecommunication sector. These revisions reinforced the powers of the KCC:

- Arbitration of disputes between carriers, and disputes between carriers and consumers;
- Fact finding investigations on unfair practices;
- Examination of major rules and regulations related to fair competition, such as criteria for interconnection between carriers;
- Proposed corrective measures against unfair practices.

The KCC can take binding decisions. For example, when it arbitrates between companies, its decisions cannot be overturned by the Minister. The Minister can request that a decision on unfair business practices is reconsidered, but if 2/3rds of the Commission agree then the initial decision is final. KCC is responsible for reviewing the telecommunication numbering plan and for accounting standards (*e.g.* accounting separation). Article 37 of the Telecommunication Business Act allows the Minister to impose fines after a review by the KCC.

The KCC is not equivalent to many European telecommunication regulators, the FCC in the US, or the CRTC in Canada. It is an integral part of the MIC and largely plays an advisory role with a minimum of regulatory power. The KCC's powers are indirect, based on its ability to undertake reviews and sanction individual abuses. As a result, it tends to be reactive rather than proactive, responding to complaints since it does not have the authority to ensure that appropriate conditions and safeguards are in place for competition to develop. For example, the MIC Official Gazette in describing changes to KCC's mandate, stated that "KCC will be empowered to address a broad range of issues affecting the promotion and preservation of fair competition in the telecommunication sector".¹⁵ However, the KCC has the power to take action against companies deemed to be engaging in unfair competition and to sanction, including fine these companies. Article 37 of the Telecommunications Business Act allows KCC to impose these fines (see Section 2.5).

KCC is also significantly understaffed (it has only 20 posts), relative to the MIC and to other OECD regulators, and so is constrained in the number and depth of the initiatives it can take. In addition, since the staff is part of MIC, and will be reintegrated back into the Ministry, it is difficult to expect that they will act independently of MIC policies. The KCC has no separate reporting mechanism and no legal obligation to submit an annual report to the Minister or to another body.

The creation of the KCC has been an important step in improving the institutional structure of regulation. Further steps should now be taken to create an effective independent regulatory body able to create and maintain the conditions for effective competition that maximises user welfare. An independent, body not subject to conflicting goals, would more effectively achieve market confidence and transparency,

non-discriminatory policies and policy consistency. This could best be achieved by separating the KCC from the MIC, accompanied by a reallocation of and clear demarcation of responsibilities between the MIC and the KCC. The KCC would need powers of licensing, price controls and interconnection, overseeing policies on universal service and the implementation of other regulatory safeguards. Autonomy of the KCC in terms of its budget and staff is also important. It is notable that there is a consensus among industry players of the necessity to transform the KCC into a fully independent body in order to ensure fair and transparent regulatory rulemaking in the telecommunication service sector.

Industry's role in policy

The telecommunication service industry in Korea plays an active and positive role in the policy formulation process. Industry is also involved in a number of study groups examining issues, although these seem to be slow in finalising their work. Unfortunately, on the user side, the Federation of Korean Industries (FKI) plays a small role in the policy process in contrast to other countries where industry, and particular large users, have been key in pushing for regulatory reform and greater competition.

2.2. *Regulations and related policy instruments in the telecommunications sector*

The main telecommunication and broadcasting Acts are summarised in Table 2. The two key acts for telecommunication services are the Telecommunication Basic Act and the Telecommunication Business Act.

The purpose of the *Telecommunications Basic Act* is to contribute to the enhancement of public welfare by managing telecommunications effectively and stimulating the development of telecommunications.¹⁶ A significant portion of the Act is taken up by articles on the 'promotion of telecommunication technology', promotion of research, technical criteria (standards), providing MIC with authority to 'adopt new telecommunication modes' (Article 28(1)), promotion of standardisation (Article 29), type approval issues, etc. For regulatory reform the *Telecommunications Business Act* (TBA) is more relevant than the Telecommunications Basic Act. The TBA is concerned with defining types of telecommunication business, licensing, cancellation of licenses, telecommunication business practices, promotion of competition among telecommunication service providers, the installation and maintenance of telecommunication facilities and penal provisions. Transparency would be facilitated through merging of the two Acts, at least as regards provisions relevant to telecommunication networks and services and enhancing competition in telecommunication services.

The Telecommunication Basic Act created the KCC in 1992. In addition to the KCC, an Information and Communication Policy Deliberation Council was set up within the Ministry as an advisory body in such areas as licensing for market entry.

The Telecommunication Basic Act also has given the Ministry discretionary powers in 'advising' facility-based operators on areas where they should invest in research and development (this latter provision was lifted at the beginning of 1999) as well as on the percentage of their revenue which should go to research (Article 12). The provisions of the Act which emphasise industry promotion means that, unlike many other regulatory bodies in the OECD that have a single task to enhance consumer benefits, MIC is responsible both for enhancing consumer benefits as well as industry promotion in the telecommunication sector. In that fair and transparent regulatory supervision requires that the regulator distances itself from interested parties, there is concern that MIC's industry promotion role, while important, may have negative consequences on its regulatory functions.

Table 2. **Main telecommunications legislation**

Legislation	Major Provisions concern:
Telecommunications Basic Act	Basic guiding principles on telecommunications. Ministerial authority regarding promotion of telecommunications technology and technical standards for telecommunication facilities. Management of telecommunication networks. Organisation and operation of the KCC.
Telecommunications Business Act	Licensing criteria and reporting procedures for telecommunication service providers. Telecommunication service providers competition safeguards. Rights of telecommunication service users. Construction and maintenance of telecommunication facilities.
Telecommunications Construction Business Act	Basic guiding principles for telecommunications construction principles. Construction business classification, licensing criteria and scope. Establishment of the Association of Telecommunications contractors.
Cable TV Broadcasting Management Act	Licensing of CATV operators. Technology standards of CATV facilities.
Basic Act on Informatisation Promotion	Basic guiding principles on building KII and creating an information society. Basic and Action Plan for Informatisation Promotion. Operation of the Informatisation Promotion Fund.
Radio Waves Act	Efficient utilisation and control of radio waves. Establish Basic Plan for Promotion of Radio Waves.

Source: Ministry of Information and Communication.

Telecommunications Construction Business Act. Unlike other OECD countries Korea requires that the construction of telecommunications facilities be done by specialised construction companies independent of the telecommunication operators. This requirement is laid down in the Telecommunications Construction Business Act. Though it is possible for a facility-based carrier to register a separate company for construction the requirements of the Act are in effect a means of providing special privileges to the construction industry and can raise costs to users. The requirements of the Act can result in inefficiencies by reducing potential economies of scale and scope of telecommunication operators in constraining their flexibility in facility construction, and imposes an unnecessary requirement on the industry. The Act should be abolished and telecommunication facility providers, as in other OECD countries, should be free to determine how best to construct their own infrastructure. The provision in the Telecommunication Basic Act which provides the MIC to recommend joint-construction of facilities by different telecommunication operators also should be eliminated in view of the fact that this should be a business decision.¹⁷

Regulation of entry and licensing

The licensing classification system, introduced in 1991 and maintained until 1995, required that value-added service providers register, while the fixed facility based operators were required to obtain designation and the mobile facilities-based operators were required to obtain authorisation. Several positive reforms have been since then to the licensing system which streamlined entry for VAN providers and other specialised service providers. A new service classification system adopted in April 1995 maintained the two categories of services: value-added services that required notification and facility-based services that required authorisation.

Further streamlining and improvement in the licensing classification and thus licensing system was introduced in late 1997 (Table 3). Telecommunication operators were classified as facilities-based service providers, specialised service providers and, value-added service providers (Article 4 of the TBA). These different activities were also subject to different entry limitations (Table 4). This system required authorisation for facility-based providers, registration for special service providers (resellers, Internet Service Providers) and notification for VAN providers.

Table 3. Existing conditions for market entry

Category	Classification Criteria	Types of Services	Entry conditions
Facilities-based Service Providers	Owning facilities & providing facility-based services	Wire telephony Cellular telephony, PCS, TRS,CT-2, radio paging Leased line services	Authorisation
Special service providers	No facilities, but providing facility-based services	Internet telephony International call-back Premises communications Voice resale	Registration
Value-added service providers	No facilities, but providing value-added services	PC Online, Internet, e-mail and voice mail services	Notification

Source: Ministry of Information and Communication.

Essentially the licensing system differentiates between those carriers with their own facilities and non-facility carriers and is similar to the Type I and Type II classification used in Japan. Licences for fixed facility-based services are still differentiated by the type of service offered (local, long distance, international) as in the past. In other words, a prospective licensee needs to apply for multiple licenses if it wishes to offer local, long distance, international and leased line services.

With digitalisation, and the significant reduction in the number of switches needed to service a country, there is rapid change in network structure and in what constitutes national long distance and local services. In several OECD countries, the incumbent operator has already adjusted prices so that the national territory has become a single call zone. In view of these developments, it is unnecessary to maintain licence differentiation, and require multiple licenses for the different public switched telecommunication services.

In Korea, the registration process can also benefit from streamlining. For example, for special telecommunication businesses MIC still reviews the “application and determine[s] whether to grant a licences within 30 days of application”.¹⁸ The reason for this is to ensure that the company registering meets the requirements set down in the regulations, in particular with respect to protection of users and adequate insurance. However, if this policy objective is deemed necessary, it can be undertaken *ex post* so as not to delay market entry.

An important change in the 1997 licence modifications was the elimination of the ‘request for proposal system’ or competitive tender. Thus, Hanaro, the new entrant in the local telecommunication market, was the last fixed telecommunication operator to obtain entry through a competitive tender by MIC. There is therefore no longer an *a priori* limit on the number of market entrants (except those requiring spectrum) in any of the designated licence categories.

The MIC has retained the system whereby licences for facility based services are awarded on a periodic basis. This means that a company can only make a request for a licence either between 25-31 March and 25-30 September. While this is an improvement over the previous limitation of once a year, the limited period for requesting a licence imposes an unnecessary obstacle to market entry. MIC should allow companies to file for a licence application at any time, and provide these licences within the predetermined time limit. The decision on whether to grant a licence, submitted during the limited period, has to be made within 30 days of the application.

The required criteria to obtain license have been subject to important changes in recent years. In the past these included limitations on foreign ownership, a single person ownership ceiling, a cap on equity and cross-ownership restrictions. Except for foreign ownership restrictions, which have been reduced ahead of scheduled WTO commitments (Table 4), the other restrictions on licensing have been eliminated. As argued in 2.2., (Section on Foreign ownership), there is little justification for maintaining the restrictions on foreign ownership.

Table 4. **Licence limitations**

Category	Facility-based providers	Special service providers	Value-added Services
Restrictions on foreign ownership	A foreign corporation, foreign government, a foreigner cannot own more than 49% from 1 July 1999 (the original date was 2001).	Until 31 December 2000: 49% 1 January 2001: 100%	None
Restrictions on single person ownership ceiling	None (originally 10% for wired and 33% for wireless: changed in September 1998).	None	None
Cap on equity (50%), State ownership, etc.	A corporation whose majority shareholder is government, or local government, or government-invested entity.	None	None
Cross-ownership between operators	None (originally prohibited (except with the Minister’s approval).	None	None

Source: Ministry of Information and Communication.

Licenses impose certain obligations on holders. These include:

- Starting service within a period set by the Minister;
- Approval for sale and transfer of licence to non-facility-based service providers;
- The need for approval to engage in two or more types of facility-based businesses;
- The possibility for the MIC to impose additional conditions necessary for service delivery.

Prospective facility-based licensees have been obliged to provide MIC with extensive data. These include:¹⁹ marketing and sales strategy, including a marketing and sales strategy for the period between the issuance of the license and the 60th month after the commencement of business; market analysis, plans for investment, financing and service delivery; system and network configuration plan, network building and expansion plan, and operation and maintenance plan; and a R&D and human resources plan. In addition the licensing authority can attach conditions it deems necessary for delivery of service or R&D for the promotion of the telecommunication sector.²⁰ The license review requirements have been reduced from 6 to 5 and detailed review requirements have been streamlined from 56 to 24. Compared to best practice OECD licensing procedures these requirements for data are excessive and many appear unnecessary for the provision of licences. They can have the unintended effect of slowing market entry and suggest, in fact, that licence approval can be subject to whether MIC agrees with the marketing and sales strategy and technology strategy put forward by a company, and thus may undermine market confidence and transparency. License approval is carried out by a Review Committee²¹ so that MIC has argued that licensing is not subject to whether the government agrees with the plans and information provided by prospective licensees. The question then remains as to why detailed data are necessary, especially when market entry is no longer subject to limits.

One of the more onerous requirements on holders of telecommunication licences is that regarding research and development. Companies are required to contribute 3% of revenue by law to R&D. KT and DACOM contributed 2.24% and 2.1% in 1998. SK Telecom's contribution amounted to 2.52% of sales in 1998. Voluntary contributions are also solicited from telecommunication service providers for the Korean Software Financial Corporation.

The licensing procedures for mobile services are the same as for other facility-based services except that their spectrum resources must be made available by the MIC. Once an operator using radio frequencies is granted a license, spectrum is allocated. In the case of the allocation of spectrum for broadband wireless local loop licences (B-WLL) there was no license procedure since MIC provided 2 of the 3 B-WLL spectrum bandwidth to existing local loop licensees.

There have been only 3 new entrants in the fixed telecommunication infrastructure market in Korea. By comparison with OECD European countries that opened their markets to competition on 1 January 1998, the progress in Korea has been slow.²² In a number of OECD countries with smaller industrial manufacturing sectors, there is greater investment activity in deploying competing high-speed backbone infrastructures and PSTN long distance infrastructures.

KT is the only integrated operator in Korea offering local, long distance and international telecommunication services. There are no rules against integrated operators, but the way the telecommunication market was initially opened to competition (*i.e.* by creating a duopoly in international telecommunication services and then national long distance services) has resulted in an industry structure that is not very conducive to creating effective competition to the incumbent. As new entry increases this should change.

Now that Korea has opened its telecommunication market fully to competition it would be appropriate in the context of regulatory reform and the streamlining of regulations to review the licensing framework and further streamline the licensing system by introducing class licences. Since there is no longer any limitation on entry to the wire-based telecommunication market it remains unnecessary to maintain an individual licensing framework. Such a generalised class licensing system, adopted by a number of OECD countries, would reduce the regulatory burden on companies, and would ensure transparency and eliminate the potential for any discriminatory treatment. For a class licensing framework, the regulator needs to set down minimum criteria that need to be met by prospective licensees, and they need to inform the regulator if they change their service offering. Streamlining licensing could also stimulate new entry which would facilitate broadband infrastructure deployment.

Licence fees

In Korea telecommunication operators are subject to a number of fees. There is an initial licence fee (contribution fee), an annual fee²³ (starting from when the company begins commercial service). In addition to licence fees facility-based operators also pay a research and development fee. These fees are in addition to the normal tax requirements of the companies. For example, ONSE, a new market entrant in long distance, international and leased line services, pays 80 billion won in combined fees for these services. Companies generally decide how much to pay in their licence proposal by forecasting total sales for first 5 years of operation. The heavy fee requirements on telecommunication operators can be one explanation for the limited number of new entrants in the PSTN market.

Because of the economic crisis in 1997 the fee requirements were reduced. For example, facility-based operators that paid 2.1% of total revenue in 1998 would pay 1.26% of total revenue in 1999. Mobile companies were also subject to these fees. For example, SKT paid 2.5% total revenues in 1998 and 1.5% in 1999. On several occasions MIC has raised concern about the lack of profitability of mobile companies. Reducing fee requirements on these companies would help reduce their costs of production and help profitability. The MIC has announced that the R&D one-time contribution will be reduced in 2000 and abolished from 2002 and the annual contribution will be reduced for both fixed and wireless to between 2-5% of expected sales for the first 5 years and will become a uniform rate of 1% starting in 2001. A number of OECD countries impose administrative fees on telecommunication operators to cover the costs of examining an application for a licence, granting authorisation and verifying compliance with terms and conditions once the service or network is operational. However, it is not common practice to charge a fee for R&D.

Regulation of KT

The government presently owns 59% of Korea Telecom. The Chief Executive Officer of KT is approved at the shareholders' meeting following a recommendation of an independent committee to the shareholders. The Act on Privatisation of KT provides a legal basis for independent management of KT although the government retains shareholder rights. KT is subject to normal operator licensing requirements and not to a specific licence. Asymmetric regulation is imposed on KT, in that its local tariffs require approval from the MIC and it is subject to some interconnection requirements. KT is also at present responsible for universal service in Korea.

Foreign ownership

Important improvements have been made in terms of foreign ownership restrictions subsequent to the implementation of the WTO's agreement on basic telecommunication services. Korea has also implemented 18 months earlier its scheduled WTO commitments on foreign ownership. Foreign equity ownership is allowed, up to 33% from September 1998 in Korea Telecom and from July 1999 at 49% for all other telecommunication operators (wired and wireless). From January 1998 foreign companies could become the major shareholder in a facilities-based company (subject to the previously mentioned limitations).

The ceiling for foreign equity ownership for wireless operators has been expanded to up to 49% from 1 July 1999. For resale of leased lines, that is a non-facilities based service provider (referred to as special service providers in Korea), foreign ownership was raised to 49% from September 1998 and complete foreign ownership will be allowed from 2001.

In the past a ceiling was in place limiting an individual investor's share ownership to 3% for Korea Telecom, 10% for other wired telephone companies and 33% for mobile service providers. In 1998 the ceilings on single person ownership in network service providers were removed for all telecommunication operators except KT (where it is 15%).

Compared to most OECD countries Korea maintains important barriers to foreign ownership in the telecommunications sector.²⁴ The restrictions on foreign ownership (and investment) works against a number of government policies, both general, such as restoring growth to the economy, and sector specific. In telecommunications, foreign investment can help meet the significant investment requirements needed to build a Korea Information Infrastructure that has been given high priority by the government. New entry by foreign companies can help stimulate competition in the telecommunication market and, through competition provide benefits through lower prices and more rapid diffusion of advanced services.²⁵ The restriction on foreign ownership in resale services is unjustified and should be lifted, and the Korean government has said it will do this by 2001. With respect to KT, while many OECD countries try to maintain control over their incumbent operators, they have found that this can be undertaken more efficiently through a 'golden share' rather than maintaining majority ownership.

Cross-ownership and shareholdings

In 1996, the MIC eliminated a provision in the law that prevented cross-ownership between telecommunication operators. However, this allowed for the development of much cross share ownership so that many companies active in the telecommunication market in Korea also have shareholdings in other telecommunication companies, including those against which they compete. This is not healthy for competition. Table 5 shows the present ownership structure of the major telecommunication market players in Korea.

Table 5. **Ownership of the major operators in Korea (as of July 1999)**

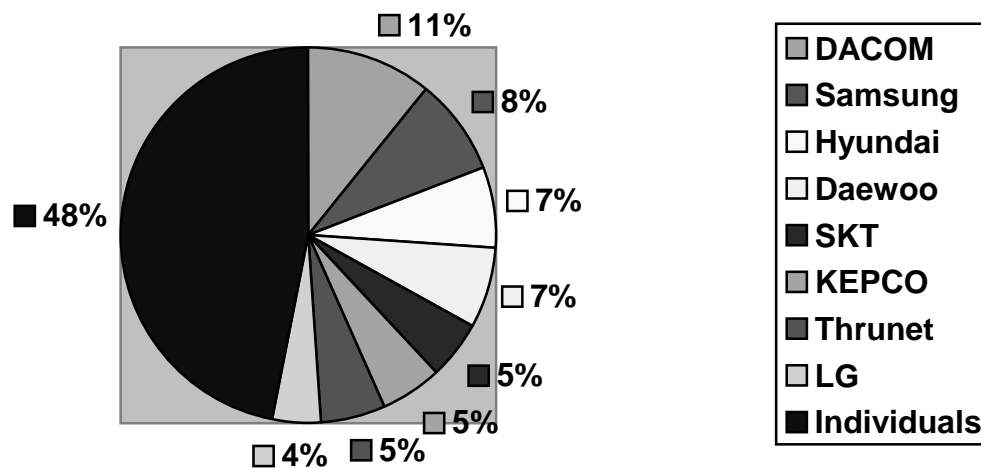
Company	Ownership
KT	Government 59%
DACOM	LG 25%, Samsung 17%, Dongyang 17@
ONSE	Kepeco 4%
HANARO	DACOM 11%; KEPCO 5%; LG 4%; Thrunet 5%
THRUNET	
SK Telecom	KT 18% plus one board seat
KT Freetel	KT 36%
Shinsegi	POSCO 23%, KOLON 21%, Airtouch 12%

Source: MIC.

An example of such cross-ownership is Hanaro, the new entrant in the local market. As Figure 1 shows, DACOM is the principal shareholder in this company. In addition, two mobile companies LG (now also a major shareholder of DACOM) and SK Telecom (in which KT owns 18.16% of the shares) also have shares. KEPCO, which has important holdings in cable television infrastructure (which could potentially be used for the provision of local services) is also a shareholder.

This type of cross-ownership can support collusive behaviour and may lead to conflict of interest within companies. Cross-ownership between existing market participants should be discouraged for IMT-2000 licences. In addition, the incumbent, which already has its own mobile company, should not be allowed to hold shares in other mobile companies.

Figure 1. Hanaro's shareholders



Source: MIC.

Regulation of interconnection

Since 1995 a number of changes have been made which have improved the interconnection framework. The present interconnection framework and the framework applicable during 1996-97 are summarised in Table 6. Telecommunication service providers owning essential facilities are required to provide interconnection from the local exchange, long distance exchange and facilities of common channel signalling network. Service providers requesting interconnection can choose the point of interconnection. Only Korea Telecom and SK Telecom are subject to mandatory interconnection. KT and SK Telecom are not required to publish a standard interconnection offer. They are required to have the interconnection agreement between them and other operators approved by MIC after being reviewed by KCC and follow criteria set by MIC.²⁶

MIC requires that all facilities-based service providers should, when requested, conclude an interconnection agreement within 90 days of the request at any technically feasible point in the network.²⁷ If no agreement is reached within the specified period, either of the parties may request KCC's arbitration (these concern technical feasibility of the requested interconnection and the sharing of the extra costs involved). KCC has 60 days to make a decision. Differences in jurisdiction between MIC and KCC implies that while MIC sets the criteria on interconnection charges, conflict resolution is undertaken by KCC.

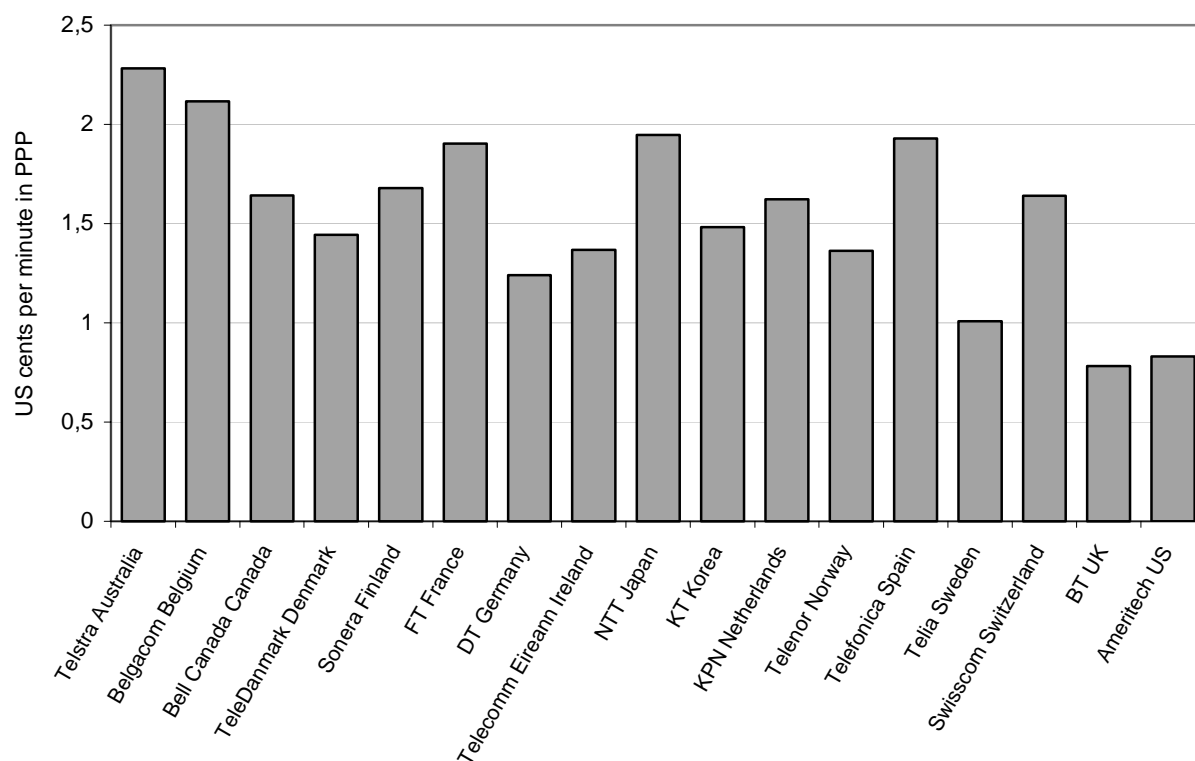
Table 6. **Interconnection framework**

	1996 to 1997	1998 to present
Accounting methodology	Based on fully distributed costs (FDC) with total operating costs, except marketing expenses.	Based on FDC with telecommunications network costs only.
Unbundling	Local: Traffic sensitive, non-traffic sensitive access deficit contribution. Long distance: toll exchange, toll transmission, line between local station to toll exchange.	Local: Local exchange, local transmission, subscriber lines. Long distance: toll exchange, toll transmission, line between local station to toll exchange.
Payment	Interconnection operators pay interconnection charge to KT.	Originating call service providers pay charges to terminating call service providers.
	Long distance and international service providers pay charges to both sides.	

Source: Ministry of Information and Communication.

Table 7 indicates current interconnection charges in Korea. The fully distributed cost methodology is used in Korea to determine interconnection prices. Most countries have realised the inadequacy of this methodology which is not sufficiently rigorous in distributing common costs across different services (and as such subject to manipulation) and does not discount inefficiencies of the former monopoly carrier. For this reason many OECD countries are adopting the long run average incremental cost (LRAIC) methodology based on forward-looking costs, including an allowance for a sufficient profit margin for the incumbent. Interconnection charges in Korea are in the mid-range relative to other OECD countries (see Figure 2), but high relative to retail prices and high relative to revenues. Thus, with present interconnect pricing a domestic long distance service provider pays approximately 28-37% of revenue in interconnection charges. The present interconnection framework was put in place in 1998. These charges were reduced in 1998. DACOM began paying interconnection charges from 1998 when the 2 year interconnection charge exemption expired.

Figure 2. Average interconnect charges for call termination



Source: Ovum.

New entrants require interconnection with KT and access to premises (collocation). Regulations stipulate that KT should open its network to all points that is technically feasible. Some companies have asserted that they have experienced delays in accessing KT's lines and that there are insufficient access points. There have been a number of complaints on interconnection and KCC has in a number of cases ordered correction measures related to unfair practices on interconnection.

With respect to mobile carriers, a reciprocal compensation system was in place in 1992. This was replaced in 1995 through a system whereby wireless companies paid both interconnection charges from fixed to mobile and mobile to fixed calls. In 1997, a further revision in interconnection was implemented. Wireless carriers had to pay for interconnection charges from mobile to fixed networks (determined according to network cost) while wireless carriers received interconnection charges for fixed to mobile calls on a revenue sharing basis. For mobile to mobile calls, the bill and keep method is being used. Thus, on average:

- For Mobile to Fixed calls, the fixed operators receive an interconnection charge equivalent to 8.5% of the tariff;
- For Fixed to Mobile calls, the mobile operator receives 70% of the tariff.

Mobile to mobile interconnect issues are determined through industry negotiation and the KCC is available as a final arbitrator if necessary. At present KT seems to be earning more than the OECD average revenue from fixed to mobile calls.²⁸ In the OECD, on average, fixed operators gets 20% of call revenue, compared to 30% in Korea. In most countries, as well, these payments are well above cost. For companies such as SK Telecom, a leader in the mobile market, interconnection payments have become a major source of revenue increasing from 13% of revenue in 1996 to 20% by 1998.

For purposes of interconnection, SK Telecom’s interconnection agreements with other operators is approved by the MIC after review by KCC.

SK Telecom had also been charged an access deficit contribution as part of their interconnection charge to the fixed network,²⁹ now a contribution to the ‘Public Related Service Expense’. Since no objective determination has been made of the cost of providing universal service using an agreed methodology, such charges should only be imposed once the costs of implementing universal service have been determined. However, any access deficit contributions should be separated from interconnection payments.

There is provision in the regulation to permit facility-based operators having access to each other’s facilities, ducts and cables by agreement. Dominant operators are required to allow facility sharing at the request of other operators. The Ministry publishes the criteria, conditions and procedures for this.

The concept of “real” or historical costs is not meaningful as a basis for determining interconnection charges. There is common agreement that the FDC methodology tends to overestimate interconnection costs. KT is in the process of price adjustments by eliminating cross-subsidies and operating inefficiencies that resulted from its former monopoly position. For example, the MIC claims that KT’s local prices only cover 83.7% of actual (historic) costs. Efficient interconnection pricing needs to be based on forward-looking LRAIC costs, including a reasonable profit margin. This should be applied in particular to the dominant incumbent fixed carrier. Interconnection charges should also reflect capacity usage and thus use peak and off-peak charges.

Table 7. **Standard interconnection charges of Korea Telecom (won per minute)**

	Local	Long-distance	International
Rate	14.75	4.92	8.97

Source: MIC.

Unbundling

A weakness in the regulatory framework in Korea is the lack of any provisions for unbundling of the local loop. Access to raw copper can provide a rapid way for new entrants to begin competing in the local loop and provides a way to place pressure on the incumbent to improve efficiency and pricing structures. Unbundling has been viewed as important by many regulators both as a means to stimulate local loop competition, but also in view of the diffusion of ADSL technologies to ensure adequate access by new entrants to these technologies. It has also been recognised by some regulators that unbundling may not be effective in the long run in stimulating the roll-out of competitive infrastructures. For these reason some countries (*e.g.* Canada) have decided to oblige unbundling for a limited time period (only five years in the case of Canada). It is anticipated that limitations on access to raw copper would allow for quick market entry and customer build-up by new entrants and the required incentive to construct their own facilities. Unbundling policy can be rapidly implemented and does not need to be deferred until a more effective interconnect costing methodology is in place.

Regulation of prices

At the end of 1995 the prior approval system for telecommunication tariffs was abolished. Under this system MIC had to approve all telecommunication tariffs from all operators. Now, operators are at liberty to determine their own tariffs, and any changes in tariffs have to be notified to the MIC. However, MIC has intervened in tariff setting and can refuse a change in prices.

The only tariffs that now require formal approval are those of KT's local service and those of SK Telecom, the market leader in cellular service. The justification for maintaining the approval system on KT's local charges (fixed and usage charges) is that it is dominant in this market. However, KT is also dominant in the leased line market and could be viewed as dominant in the national long distance market. These services should also be subject to price control. This should take place through a price cap system, which is transparent, and not subject to political interference. The MIC is reviewing the possibility of introducing price caps in the first half of 2000 for national long distance and leased lines, and during 2001-2002 for local phone service. There are strong reasons to introduce price caps quickly rather than gradually and it is more important that they are imposed on local calls than on leased lines and national long distance services so that the priorities in their introduction should be changed. The present tariff approval system has not been sufficient to provide KT with an incentive to reduce costs and improve its efficiency.

KT has been trying for several years to increase its local call charges and rebalance prices to reflect cost. It increased local charges in 1997 so that, according to MIC, tariff revenues covered 83.7% of costs. The second rebalancing is aimed at increasing cost coverage to 90%. Although it had received permission in June 1999 to increase local call charges, these have not yet come into effect. The agreed increase was to raise local call charges from 45 won to 50 won for a three minute call.

The rapid implementation of a price cap would avoid non-sector specific considerations from distorting the process of building competition and improving efficiency in the sector, and would ensure a smoother and more rapid adjustment to cost-based pricing structures. The restriction on price rebalancing has repercussions on competition and market entry in the local loop and on the ability of KT to upgrade their network. The weight of local telephone charges in the consumer price index is relatively small so that an increase in 5 won per three minute call is unlikely to have a significant or sustained impact on the CPI.³⁰ Further, as can be seen in Table 8, the net effect of price changes in the telecommunication sector has led to a net reduction in prices by stimulating efficiency gains that are passed through in price changes. In circumstances such as this, an independent regulator would be in a much better position to ensure the implementation of a decision on pricing than the government. This example also argues for an acceleration of the implementation on price caps on KT that would allow for an automatic adjustment of prices and isolate telecommunication pricing policy from political considerations.

Table 8. **Changes in the consumer price index (%)**

	1985	1990	1995	1996	1997
CPI: All Sectors	2.4	8.6	4.5	5.0	4.5
CPI: Telecommunication services	0.0	7.0	-2.4	0.2	-2.9

Source: Bank of Korea.

Table 9. Development of Korea Telecom's PSTN tariffs (won per 3 minutes)

		1995	1996	1997	1998	1.7.1999	Change (%)
Subscription fee		1 039	1 039	1 039	1 287	2 500	23.9
local call		40	41.6	45	45	45	12.5%
Long distance	Adjacent long distance call	40	41.6	45	45	45	12.5
	31-100km	200	183	172	172	172	- 14.0
	> 101km	313	277	245	245	245	- 21.7
International call		4 010	3 398	3 064	3 332	3 332	- 16.9

Notes: International call rates are an average of the major OECD countries.

Percentage rate of change is for 1999 compared to 1995.

Source: Ministry of Information and Communication.

SKT, which provides mobile services, is also subject to price controls. The present price control system is through a tariff approval system. The rationale for imposing price controls on a cellular mobile company is not clear and is rarely done in OECD countries. The only other OECD country to impose price controls on mobile services has been Australia. The MIC is examining the possibility of imposing a price cap system instead of the price approval system and it is planned to impose this after the first half of 2000.

SKT had a monopoly position in 1996 when the second licensee, Shinsegi, started service. Although SKT's subscriber base has grown rapidly since then, with the overall growth in the mobile market, its relative market share in terms of subscribers has declined to 41% and 60% in terms of revenue (July 1999). In most OECD countries, the market share of mobile incumbent operators is above 40% in terms of subscribers, but with competition, prices have declined while markets have grown rapidly. In most OECD countries the incumbent mobile operator has also benefited from a number of years of monopoly operation. MIC has justified its regulation of SKT's prices on the grounds that it is dominant in the mobile market and therefore there are concerns of unfair pricing practices.

The requirement for any type of price control in the mobile sector, whether through a price approval system or price caps, is questionable given that the market is competitive and prices are declining. Further, it needs to be recognised that there are a number of technical difficulties in imposing caps in the mobile market. This is because the trend in that market is to compete through price, but as well through a package based on different call plans which over time are difficult to compare and thus would be able to easily by-pass any price cap regime.

In the context of interconnection regulations in Korea, a facilities based provider is considered dominant if it has a market share of more than 50%. In terms of price regulations this criterion is different. SK Telecom, the mobile cellular incumbent, is treated as a dominant company for interconnection as well as for price regulation. KT, the incumbent wire-based carrier, is considered dominant for purposes of interconnection and in the local service market. It should also be considered dominant in the leased line market on the basis of the formula used to determine whether a firm is dominant in a particular market. The criterion used to determine which services are subject to price regulation depends on whether the total

market size for a specific service is above a revenue level which is decided by the Minister, and, if a company's market share is more than 50% of the specific market segment. The total market size set by the MIC for a specific service can be changed year to year. In the national long distance market, KT has a high market share and a case can be made to consider it dominant in that market as well.

At present, all facility-based service providers are required to establish and maintain separate accounting systems for each of their service operations. The MIC has justified the need for accounting separation for all facilities-based service providers on the grounds that they are obliged to provide interconnection and share facilities. Accounting separation would ensure transparency for setting interconnection charges for services or facilities proposed to other non-facilities-based service providers. The government established the accounting separation methodology. For new facility-based entrants it should not be necessary to have accounting separation and may constitute an unnecessary burden; accounting separation should only be necessary for carriers that are in a dominant position, that is KT.

Korea's three largest routes account for about 58% of outgoing international traffic;³¹ these are the United States (23.2%), China (18.1%) and Japan (16.9%). Over the last several years, Korea has had a surplus in its international traffic balance, but this surplus has been declining relatively rapidly and is unlikely to be maintained. Part of the reason is that collection charges (retail prices for outgoing telephone calls) have not declined sufficiently relatively to prices of incoming calls. This has resulted in Korea becoming an important market for callback operators taking advantage of price arbitrage opportunities. This may change as international simple resale puts downward pressure on prices.

In terms of international telecommunication services, the MIC needs to approve accounting rates that are negotiated with other international carriers. There is a requirement on all Korean carriers providing international telecommunication service to have uniform accounting rates. There is no specific obligation with respect to proportionate return of traffic but in practice, it is used. The requirement for uniform accounting rates should not be a blanket requirement and should be modified to reflect the extent of competition with the corresponding market if it is competitive. Thus, it would seem to be unnecessary to maintain uniform accounting rates with markets such as the United States, Canada, Japan, and other Asia-Pacific OECD countries, as well as with many OECD European countries. This would also help reduce the high accounting rates Korea has with foreign correspondents (see Section 3.3). Uniform accounting rates are to be phased out by April 2000 by 16 OECD countries. The obligation for proportional return of traffic on international simple resale providers has been eased so that the required ratio of originating to terminating calls is now 1:2. However, this still constitutes a barrier on their operations. This is because resellers, without their own infrastructure, obtain a less steady flow of traffic than fixed operators. Their obligation for proportional return should be lifted.

Quality of service

There is a close relationship between regulating prices and regulating quality of service. This is because changes in quality are tantamount to a real change in prices. For this reason many regulators have imposed quality of service requirements on incumbent operators and have often published these data to increase transparency and help consumer choice where there are alternate operators. In Korea KT has been obliged to provide compensation to customers (Article 27 of KT's terms of service contract) if phone service becomes unavailable and also provide compensation if malfunctions are not corrected within 12 hours after being reported. The requirement to compensate customers when faults are not repaired by a specified time period also applies to other service providers.

In June 1999 the MIC started a Telecommunication Performance Monitoring System (TPMS) aimed at auditing call quality and customer service. This was begun for mobile calls, local, international and long distance services. TPMS will use both subjective and objective indicators. Customer service will be evaluated by an independent agency based on data submitted by operators. Results of TPMS will be published and eventually it is planned to use TPMS as a measure to fine operators that do not meet quality of service requirements. For mobile service data were first published in September 1999 and it is expected that biannual data will be published.³² Although in principle providing data on quality of service is important a careful evaluation of the costs and benefits of publishing such data for mobile networks needs to be undertaken. This is because such measures reflect a number of underlying factors that are not always dependent on the quality of the underlying network. The initiative of MIC with respect to TPMS should be applauded.

2.3. Resource issues

Access to spectrum

The MIC is responsible for spectrum planning and allocation. The legal basis for MIC's authority is the Radio Wave Act and the Cable TV Broadcasting Management Act. A number of important changes have taken place over the last decade in the policies used to allocate spectrum. The policy in 1991 was for the MIC to provide information on the detailed allocation of spectrum bandwidths, select the operators and allocate the spectrum within given bandwidths.

Recent changes in spectrum allocation policy have improved on past practice, although there is still scope for reform. At present, the MIC decides on the number of operators for available bandwidths³³ and publicises the number of licences to be issued and the application procedures. Licences are allocated through a competitive tender procedure ("beauty contest"). The licensees are required to start services by an agreed date, implement an agreed business plan, and pay a license fee consisting of a lump sum contribution and annual contributions equivalent to 3% of annual sales revenue. This amounted to approximately US\$ 130 million in 1997.

The recent allocation of B-WLL spectrum provides an example of why further reform is required. MIC granted B-WLL spectrum to KT and Hanaro Telecom³⁴ without an open bidding procedure. The reason that the B-WLL frequencies were provided to these two companies was that wireless subscriber lines are to be initially used for local phone service. KT and Hanaro, as the two companies with local loop licences, were therefore granted the frequency since there were no other applicants. A new license for B-WLL spectrum was allocated using normal licensing procedures six months later and four facility-based operators applied to use the spectrum for high speed Internet access. DACOM won the licence and is also likely to use it to enter the local loop market.

The allocation of the first two B-WLL licences was not consistent with stated policy to develop local loop competition since allocating B-WLL spectrum to KT, as the dominant carrier, can only help enhance its dominant position. In addition, KT also has access to alternate technologies to enhance its local loop network (*e.g.* xDSL, and ISDN). Pressure from new market entrants using B-WLL technology would have also spurred KT to invest more rapidly in these new technologies. Experience from other OECD countries has shown that the most rapid and efficient means of stimulating incumbents in upgrading their networks is through competition. In most cases, relatively technological backwardness is due to the lack of effective competition, and thus economic incentives, to invest.

In the context of the 3rd B-WLL spectrum allocation, bidders had to pay a “contribution fund” which was set in the range of 9.5 to 19 billion won. Payment to this fund, destined for state-owned research centres, is a fee for the right to bid. However, in addition to the allocation of the spectrum to the two fixed telecommunication providers, there was a further competition problem in that the two licensees were not required to pay a “contribution fee”. The reason was that the third licensee is paying for a licence (as opposed for spectrum usage), whereas the two local loop companies already have a licence for the provision of local services. DACOM, will use its B-WLL spectrum as well to offer access to its national and international long-distance services, *i.e.* for access to the local loop, so that in effect the licences are being used for similar services.

To avoid non-transparent and discriminatory action a spectrum auction allocation system should be implemented for the allocation of all mobile licences. The present system of paying for a licence rather than for access to spectrum does not take into account the scarcity value of the resource and has reduced confidence in the licensing framework and weakened competition in the market.

A recent positive development in spectrum licensing has been the decision by MIC to allow for the possibility of awarding IMT-2000 licences through an auction procedure. This initiative has not yet been approved by the Parliament. Auctions should be the preferred mechanism for awarding IMT-2000 licenses. To enhance competitive conditions in the market a pre-qualification system should be considered in order to impose some limitations on the companies which can participate in the auctions. Such pre-qualification is important in view of the limited number of IMT-2000 licences that will be auctioned. In particular, this system should consider excluding wire-based dominant carriers from the first round of licences in order to stimulate competition in the market and level the playing field for new entrants. It is also important that the criteria and qualifications necessary to participate are made transparent.

These third generation mobile licences will provide a unique opportunity to provide an alternate source of competition to broadband local loop markets. The allocation of new licences, which because of spectrum limitations are likely to be limited to between 3-5, will be crucial for the future emergence of competition in the Korean market.

The MIC needs to examine the issue of competitive conditions between new IMT-2000 licensees and between existing CDMA licensees who obtain an IMT-2000 licence. For example, new entrants without an existing CDMA licence will need access to the CDMA networks for national roaming. Consideration should be given to allocating to these new IMT-2000 entrants CDMA spectrum, and require accounting separation (for a limited time period) between CDMA and IMT operations of existing licensees.

A concern in the mobile sector is the fees demanded from operators that can place an excessive burden on their operations. This is in particular the case with respect to R&D fees mentioned previously. On the other hand, the payment of spectrum usage fees, which are paid by operators, can be considered a justifiable cost of business. They constituted about 1.01% of sales in the first half of 1999.

Korea is unique among OECD countries in that users of cellular mobile services have been subject to pay a spectrum usage fee of 12 000 won.³⁵ There is no economic justification for such a fee and it constitutes an implicit tax on use (in effect double taxation since service providers already pay for use of the same spectrum and presumably pass on this cost to users).³⁶ The MIC has decided to rescind this fee from 1 January 2000.

Access to rights-of-way and related facilities

Facility-based operators can request the MIC (Article 18(3) of the Telecommunication Basic Act) to use land or structures owned by the state, local governments, government-owned institutions or other facility-based operators when agreement cannot be reached by the operator and other parties. The Minister of MIC can recommend to other institutions to consult with operators in the context of rights of way and these institutions need to comply with this request. MIC also has recommended to mobile operators to share antennae sites. This recommendation should be embodied in regulation. -

An issue raised by new entrants is access to directory information services operated by the incumbent. There should be a requirement for KT to make these resources available to new entrants in the PSTN market until alternate solutions are implemented. Operators are currently consulting on methods to provide telephone directory services more effectively and fairly.

Cable landing facilities

The only new facility-based entrants in the provision of international telecommunication services, DACOM and ONSE can establish their own cable landing stations. These new entrants in international services have not yet joined international cable consortia. This affects the ability of these new entrants to compete both in the international (as well as national) long distance voice market but also in the data traffic market. International facility-based service providers can interconnect to cable landing stations.

Numbering issues

The Korean government took over the management of numbering resources in 1991 when the telecommunication market first opened to competition.³⁷ For long distance the MIC adopted a carrier pre-selection system which began in November 1997. At that time users needed to register with KT if they wished to change their pre-selected carriers. To increase transparency and ensure fairness the MIC established on 1 July 1999 the "Long Distance Carrier Pre-selection Registration Center" which will be responsible for changing and maintaining records on pre-selection.³⁸ Users can now register with the Center if they wish to change their pre-selected carrier. This is important in view of complaints that KT has used discriminatory verification to review customer request forms to change carriers.

At present, there is no number portability available in Korea. Currently the MIC is reviewing and studying the time for initial introduction of number portability and plans to provide a plan by the year 2000.

Numbering policy is important in the context of enhancing local competition. Not only do new entrants require adequate access to number resources to expand their services, but also they need to be assured that number portability will be implemented. Number portability allows customers to change their location, or service provider without the requirement to change their telephone number. Lack of portability creates a disincentive to change service provider because it can impose relatively high transaction costs especially for small businesses. The delay in implementation of number portability helps to support the incumbent. It is recommended that MIC quickly set a deadline to implement number portability and ensure that all relevant service are covered, including mobile services.

2.4. Universal service obligations

Korea, as noted previously, has rapidly developed a nation-wide network with a high rate of telephone penetration. Network expansion is no longer an essential policy goal for universal service. At present, Korea does not have an explicit cost allocation framework for implementation of universal service in a competitive environment. The TBA defines universal service as "... a basic telecommunication service which anyone within Korean territory can use regardless of time, or place with a rational charge".³⁹ Further, the Act states that all telecommunication service providers are obliged to contribute to providing universal service.

KT claims to have a deficit in subscriber line charges, and public payphones. In addition, it is required to provide discounts in tariffs for the disabled and for emergency services as well as for war veterans and the aged. However, KT receives local loop access charges which are bundled with interconnect payments. It is important to ensure that there is a transparent and separate payment for any access deficit and interconnection charges. It is also necessary to ensure that adequate cost allocation methods are in place to prevent all non-traffic sensitive charges from being allocated to the local loop. Access deficit payments should not take place until such a methodology is in place and agreed to by all parties.

The government is planning in the future to address the deficits through a universal service compensation fund and by determining the cost of universal service provision. A task force set up by the MIC has, over the last three years, been examining the issue of universal service coverage and the framework to support universal service, including cost allocation. MIC has decided that the scope of universal service should cover local calls, emergency calls, and discount-rate phone service for handicapped, low income people and residents in remote areas. All facility-based licensed carriers, including mobile carriers, will contribute to revenue shortfalls.

A number of OECD countries in order to simplify the administration of universal service, to reduce the financial burden on new entrants, and as a way of imposing asymmetric regulation, have given the incumbent total responsibility for the provision of universal service. In this context, in view of KT's dominance the MIC may consider allocating total responsibility for universal service to KT for a fixed period of time (*e.g.* 5 years). As OFTEL in the UK has recognised, responsibility for universal service may also confer benefits,⁴⁰ and experience has shown that, at least in the short term, the incumbent can shoulder the responsibility of universal service without undue hardship. Under such a provision the incumbent should always have the option of being able to show that it has difficulty in meeting its universal service responsibilities allowing the government to implement other options.

If universal service responsibility is to be shared among all market participants, then it is necessary to establish an explicit, competitively and technologically neutral universal service fund.

The definition of universal service needs to be very limited since the funding of a broadly defined universal service concept, funded through levies on the telecommunication service sector, can reduce efficiencies and undermine other policy goals. In particular, social policies, such as providing schools and hospitals with broadband connections, are best funded directly through general government revenues rather than by imposing requirements on telecommunication operators.

2.5. International issues

Korea's schedule submitted to the WTO negotiations on basic telecommunications was for a phased-in process of market opening. (Table 10).

Table 10. Korea's WTO schedule

Category	Schedule	Current status
Limit on aggregate foreign ownership in facilities-based services	From 1998: 33% in wire and wireless services (KT: 20%). From 2001: 49% in wire and wireless services (KT:33%).	Up to 49% as of July 1999.
Limit on individual share-ownership in facilities-based services	Wire 10%; Wireless 33% (KT: 3%).	Removed as of Sept. 1998 (except for KT, 15%).
Foreign company can be the major shareholder in facilities-based service company	Permitted from 1999 (Prohibited for KT).	Allowed from Jan. 1999 (except for KT).
Resale-based services: - Other than resale of voice telephony - Resale of voice telephony	No limit on foreign ownership. From 1999, 49% foreign ownership and from 2001, 100% foreign ownership.	Up to 49% (100% from 2001).

Source: Ministry of Information and Communication.

Korea has accelerated its commitments, in particular permission for foreign companies to own 49% of shares in wire and wireless facility-based services was brought forward by 18 months and made effective from 1999. In addition, the ceiling imposed on individual ownership was eliminated in 1998.

Korea permits facilities-based service providers to use satellite systems including INTELSAT for either voice or data communications using their own facilities. Although KT is still the signatory for INTELSAT, other facilities-based service providers who want direct access to INTELSAT can do so as direct access customers based on consent by KT at the beginning of their operations. KT cannot impose any competitive disadvantages on direct access customers. A multiple signatory system will be introduced soon by INTELSAT and Korea has ratified this system.

2.6. Consumer protection

Consumer interests are best enhanced through effective competition, which will deliver lower prices, improved choice and better quality. However, there is a continuing role for the government to ensure that consumer interests are protected. An area where Korea is following best practice is in the area of consumer protection where, at present, telecommunications operators established steps to resolve consumer complaints and the Telecommunications Business Act⁴¹ laid down provisions for failure to remedy problems. Consumers may claim compensation from operators in a number of areas specified in the Consumer Protection Act, including double-billing, property damage from telecommunication facilities installations, and overpayment from operator errors. The KCC maintains a Consumer Complaints Center. The operators, however, should be required to report on the number of consumer complaints.

The publication of quality of service indicators (see 2.2., Section on Quality of service) is a positive step in enhancing consumer choice and information.

The industry also has means to seek redress for complaints, in particular, complaints about unfair practices of other carriers, and consumers' claims for indemnity. KCC is responsible for examining unfair practices notified by carriers and consumers, and recommending appropriate action to the Minister. If carriers fail to reach an agreement with consumers and carriers on complaints for indemnity, they are allowed to request intervention by KCC. KCC can then arbitrate under Section 40-2 (Ruling by the Korea Communications Commission) of the Telecommunications Basic Act.

2.7. Streamlining regulations

In 1998, Ministries in Korea were under pressure by the Prime Minister's Office to dramatically reduce regulation by 50% (see Background report to Chapter 2) and to establish quality controls to ensure that regulations are needed. At the MIC, the Office of Planning and Management Review undertakes periodic reviews of regulations. New regulations also need approval of the Regulatory Reform Commission in the Prime Minister's Office.

However, reviews of regulations in a number of cases appear to only partially streamline these regulations. Reviews of regulations need to be all encompassing and question fundamentally whether regulations are needed to support competition that benefits users. Licensing and regulations requiring the use of specialised construction companies are two areas where streamlining could be rapidly implemented.

A positive area of intervention by the MIC was to abolish the minimum subscription period mobile service providers usually imposed on users (a period of between 1-2 years). This benefits user choice by allowing them to change service provider. The subscription period for mobile services is usually closely linked with the subsidisation of handsets by mobile service providers since a long subscription period allows them to recoup the subsidy through fixed monthly charges. This action was marred by intervention by MIC in the question of subsidies for handsets and by 'advising' mobile companies that they should all have the same financing scheme to facilitate handset purchase. Recently several mobile companies requested MIC to intervene so as to persuade all mobile companies to take similar action in the context of new initiatives on handset subsidies. The MIC, taking a positive market oriented approach, declined to intervene further in the area.

2.8. Competition policy

The Korea Fair Trade Commission (KFTC) is the administrative body responsible for competition policy in Korea. The MIC has responsibility for anti-competitive behaviour in the telecommunication sector, but this authority is not exclusive since the telecommunication service industry is subject to the Fair Trade Act without any exemptions. Thus, Article 36-3 of the TBA explicitly requires that in situations of unfair competition, when the type of standards of unfair practices have been defined, the MIC should consult with the KFTC.⁴² For mergers and acquisitions, the MIC has shared jurisdiction with the KFTC.

A Ministry, according to Article 63 of the Fair Trade Act, must consult with the KFTC when enacting a law that could have anti-competitive implications. Thus when the MIC intends to establish a law or policy with competition law implications the KFTC have the opportunity to comment. This can also take place at cabinet level meetings at which the Chairman of the KFTC participates. Further, it is important to ensure that concepts and definitions in use by the MIC and KFTC are similar. Continuing co-ordination between MIC, KCC and the KFTC is important in ensuring progress toward an open competitive telecommunication service market.

Since the anti-monopoly Act applies to the telecommunications sector, there is a possibility of inconsistent regulatory supervision in the sector, for example, in the case of mergers and acquisitions. While there is no mechanism to prevent inconsistent supervision of the two regulatory bodies, there is an article in the TBA that prevents double penalties for the same offence. Thus, under Article 37 of the TBA,⁴³ the MIC can impose penalties on telecommunication service providers for “prohibited acts” that include hampering fair competition, unfair discrimination concerning the supply of telecommunication facilities, interconnection, provision of information, non-performance of existing agreements, and for “cost-padding”.⁴⁴ The MIC can levy penalties up to 3% of revenue. Article 37-3 ensures that a company fined by the MIC will not be subject to a fine for the same offence by the KFTC.⁴⁵

In investigating anti-competitive practices specified by Section 36-4 of the Telecommunications Business Act, KCC officials are entitled to enter the office buildings of telecommunications operators or companies commissioned by telecommunication operators to carry out investigations, and examine their accounts, documents, physical assets and other data.

2.9. *Convergence in communications markets*

As technology develops, communication infrastructures are becoming less and less service specific, and can provide a range of services. In addition, new services are emerging which are difficult to classify in existing service and regulatory categories. Such technological and service convergence requires a fundamental review of the regulatory regimes for broadcasting and telecommunications to ensure that present regulatory frameworks are not hindering service and infrastructure convergence, and the benefits convergence can generate. Ineffective frameworks can cause distortions in the market and in the development of new services and infrastructures. Convergence can also create tensions between regulatory institutions when, as in some countries, these two sectors are regulated by separate regulatory institutions.

MIC is in charge of planning for broadcasting transmission, including the management of spectrum, the setting up of broadcast stations and facilities, and setting broadcast technical standards. The Ministry of Culture and Tourism implements policy in the content area. The Korea Broadcasting Commission (terrestrial broadcasting) and Korea Cable Communications Commission are responsible for providing the review of broadcasting content and regulation of programming. Thus the broadcast business in Korea is divided into three areas and placed under two Ministries and regulatory commissions.

A report by the Broadcasting Reform Committee⁴⁶ submitted in February 1999 recommended that a Broadcasting Commission be set up with full administrative authority for broadcasting policy and licensing. The Broadcasting Reform Committee also proposed the creation of a Telecommunications and Broadcasting Committee that would combine the policy and regulatory functions of both telecommunications and broadcasting sectors. The suggested timetable for setting up such a body was July 2001.⁴⁷ The MIC believes that the responsibility for telecommunication and broadcasting should be held by one organisation and that that policy functions and regulatory powers should be separated and that the regulatory framework of broadcasting and telecommunications should be unified. Until now there is no inter-Ministerial agreement on how to regulate communication services in a converged communication environment. The MIC has argued for the separation of the regulatory body from the administrative branch of government. Such an independent regulatory body is viewed as requiring quasi-legislative and quasi-judiciary powers. The MIC position is one which is gaining much support in many OECD countries and seems the most effective way forward to ensure efficient convergence between communication technologies and services.

Korea has 13 terrestrial TV channels provided by 12 licensed operators. Following the Cable TV Law of 1992, cable television (CATV) was launched in 1995. Thus, the Korean cable television (CATV) market is just beginning to grow. The number of subscribers is approximately 1.15 million, equivalent to 1.7% of the population, and 45% of households are passed by CATV infrastructure. The market structure differs from that of other OECD countries. The Korean CATV traditionally differentiated between:

- Network operators that build and provide transmission facilities;
- System operators that deliver the programmes of programme providers to subscribers.
- Programme providers that produce programmes and distribute them through system operators.

Korea has 77 CATV broadcasting zones each with an exclusive system operator. There are 104 authorised network operators (August 1999) with only some of them providing service, that is operating systems (these include KT). The 1992 Cable Act prohibited vertical cross-ownership among system operators, program providers and network operators, or horizontal cross-ownership between system operators and program providers. System operators had to use transmission facilities of network operators. The MIC was responsible for authorising the network operators, while system operators and programme providers were subject to the Ministry of Culture and Tourism.

Amendments to the Cable Act in 1999 allowed cross-ownership between system operators, network operators and program providers.⁴⁸ System operators were allowed to install their own transmission facilities or use facilities owned by facility-based service providers. This would allow for integrated CATV companies and provide the opportunity for system and network operators to obtain and upgrade networks in order to compete with other facility-based communication companies. CATV network operators can enter the market through registration.

Amendments made to the Telecommunication Business Act allowed CATV companies to offer value-added telecommunication services (but not voice services with their existing licenses) and some system operators provide such valued-added services as Internet service and remote measuring. The sale, presently underway by KT and the Korea Electric Power Corp. (KEPCO) of their coaxial cable transmission networks, would help the process of developing alternate infrastructures to compete with KT's local loop. Government encouragement of CATV companies in upgrading their networks and in expanding their services to include voice telephony is important in the context of creating competition. Cable companies can also offer Internet access. Internet services, such as webcasting, have been classified as value-added services, thus exempting them from regulation.

By allowing the cable operators that carry terrestrial or satellite broadcasts to turn into system operators, the government was increasing competition between the system operators and providing an incentive for mergers and acquisitions between system operators and broadcast carriers. Further efforts need to be made by the government to introduce competition in the CATV sector and to use the sector as a means of creating competition in the PSTN market for local telephony. It is important, for example, to allow CATV companies to offer voice telephony on their own networks. The changes left intact the existing market structure of 77 local CATV monopolies instead of trying to reduce the number of franchise areas and allow competitive entry into the franchise areas. Such entry would ensure investment in broadband infrastructures that would also meet the requirement of the government for the development of the information society. If a policy goal is to create an information society and broadband infrastructures to support such a society, then competition is necessary (as well as investment from overseas) to develop the necessary services and infrastructures. This investment will only occur if the proper market incentives are in place, including the elimination of restrictions on foreign ownership.⁴⁹

Although it is important for all OECD countries to ensure that their communications infrastructure is upgraded to meet the requirements of the information society and electronic commerce, governments should try not to participate in direct investment projects. In Korea private financing is being used for the project “Building Cyber Korea 21”, which is aimed at upgrading the telecommunication network to up to 2 Mbps and upgrade lines from analogue to digital. The government is investing a total of 416.5 billion won of government funds in this project to establish a public network linking public agencies (government agencies and local authorities).

3. MARKET PERFORMANCE

3.1. Introduction

Regulation is not an end in itself. Rather, the final objective of regulation should be the efficient delivery of benefits to users and consumers. This section assesses the performance of the Korean telecommunications industry in the delivery of those benefits to users and consumers, using indicators related to price, quality, investment, network penetration and so on.

The telecommunication service sector in Korean has increased from 430 billion won in 1980 (\$708 million) to 7 246 billion won by 1997 (\$4.9 billion) on a value-added basis. The sector’s share in GDP increased from 1.1% to 1.7% during this period⁵⁰ (Table 11). During the same period the number of telephone mainlines expanded significantly, as did employment. Value-added per employee increased tenfold.

Table 11. Main telecommunication indicators

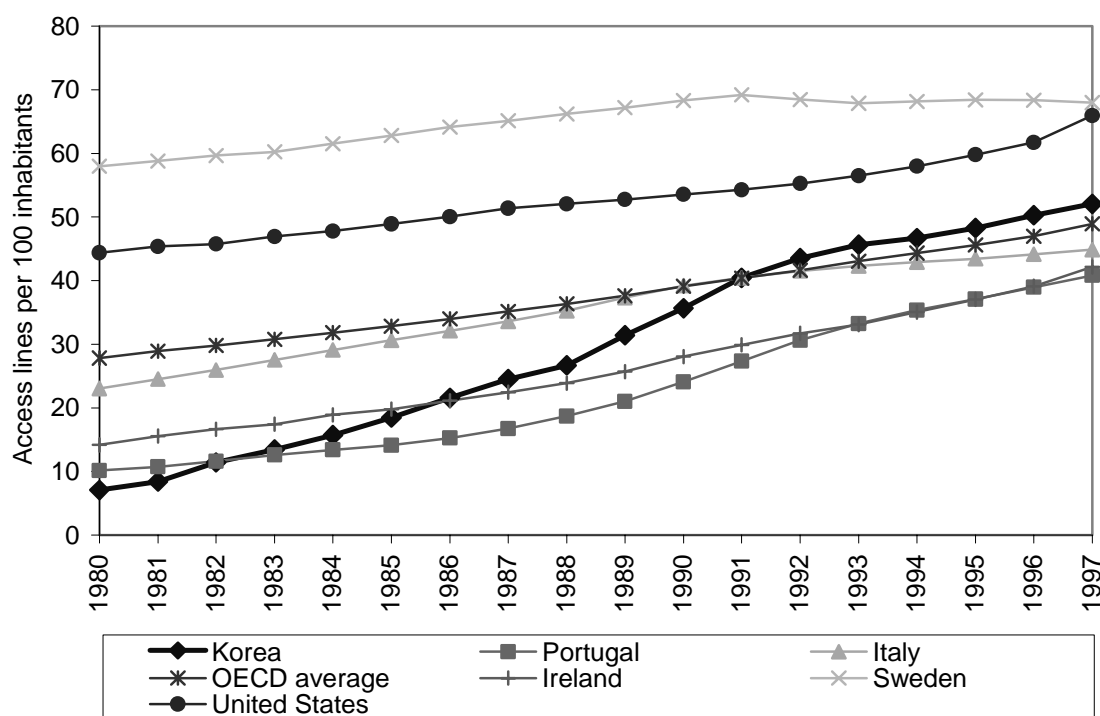
	1980	1985	1990	1995	1996	1997
Telecommunication services: value added (Billion won)	430	1 362	3 034	5 871	6 972	7 246
Total employment ('000)	46.7	45.5	57.8	66.9	70.7	73.3
VA/employee (won '000)	9207.7	29 934.1	52 491.3	87 757.8	98 613.9	98 854.0

Note: Total employment includes wireline and wireless services.

Source: Derived from Computer and Communication Promotion Association of Korea.

In 1980 Korea’s telecommunication infrastructure was extremely weak. Telecommunication penetration was 7.28 access lines per 100 inhabitants. A concerted effort began at that time to develop the telecommunication infrastructure. In particular, structural changes were implemented to separate policy and operational functions, which were integrated in the same Ministry. These led to the creation of the Korea Telecommunication Authority (the present Korea Telecom). By 1985, the penetration rate in Korea had reached 18.5 compared to an OECD average of 32.9. However, by 1995, Korea’s penetration rate had surpassed the OECD average, and in 1997 had attained 52.0 access lines per 100 inhabitants compared to an OECD average of 48.9 (Figure 3).⁵¹

Figure 3. Access lines per 100 inhabitants in selected OECD countries, 1980-97



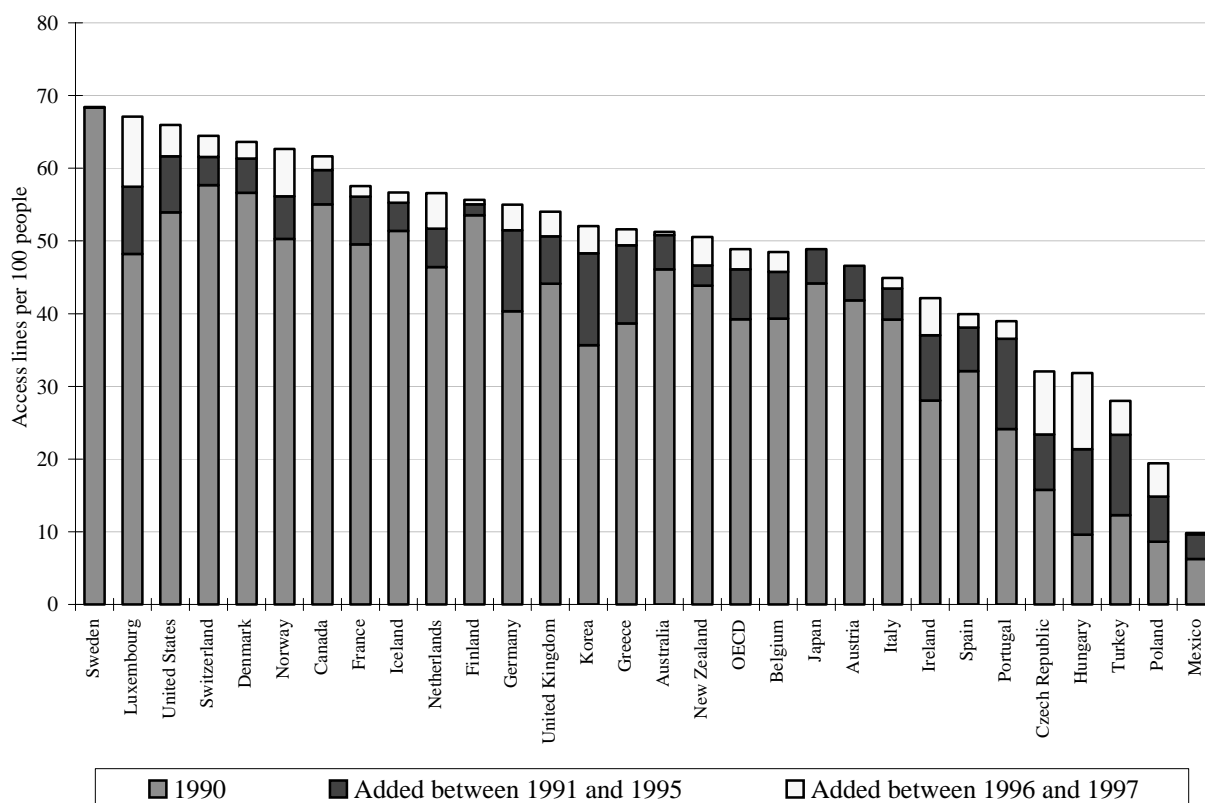
Source: OECD.

Korea made very significant progress in construction of the telecommunication infrastructure over the last decade, but now Korea remains relatively behind in providing many advanced telecommunication services (*e.g.* low ISDN penetration,⁵² a late start in providing high speed leased lines available over 155Mbps, no customer billing services or automatic call routing).

This lag can be explained by inadequate network investment and because development of the network concentrated on expanding the network rather than on quality of service. In addition, because prices were maintained at a low level, KT has argued, that it had inadequate resources to upgrade its network. Because of these factors, the rate of network digitalisation is relatively low. For example, in 1997 it was 66.7% compared to an OECD average of 89%. There has also been a slowdown in investment in recent years. In 1997 public telecommunication investment in Korea totalled US\$3 billion compared to an average of US\$4.5 billion over the period 1994-96.⁵³ This is also reflected in a reduction in investment as a percentage of revenue. In part this reduction is attributed to the 1997 economic crisis.

The other reason for the slow diffusion of advanced services has been the lack of effective competition at the local level. Only after the introduction of competition at the local level was there an effort by the incumbent to introduce new technologies and to begin the process of upgrading the infrastructure (KT had 90 000 ISDN customers as of end May 1999, *i.e.* 0.45% of its customer base). The new local entrant, Hanaro, has been the first to begin the process of introducing ADSL technology.

Figure 4. International comparison of progress toward network penetration



Source: OECD/Teligen.

Growth in fixed line infrastructure was also accompanied by rapid growth in cellular mobile infrastructure and markets where the benefits of competition to users can be clearly seen. As a result, the share of revenue of mobile cellular service in total telecommunications revenue increased from 12% in 1995 to 39.4% in 1998 (Table 12), a share significantly higher than in other OECD countries.⁵⁴ This reflects the vibrant competition between the five operators in the mobile market. The change in revenue structure has resulted from the growth in mobile, and also from a relative lack of performance in the fixed market which, because of insufficient price competition, has not grown as quickly (see 3.2., Section on Price rebalancing).

Table 12. PSTN market shares, 1999 (1st half)

Local	KT 99.7%	Hanaro 0.03%	
Long-distance	KT 91%	Dacom 9%	Onse (service in Dec. 1, 1999)
International	KT 57%	Dacom 20%	Onse 10% (resellers 13%)

Source: Ministry of Information and Communication.

Table 13. Accounting rates with the United States (US\$)

	1996	1997	1998	1999
Korea	\$1.23	\$0.98	\$0.85	\$0.71
France	\$0.35	\$0.26	\$0.21	\$0.20
Germany	\$0.23	\$0.20	\$0.21	\$0.20
Italy	\$0.52	\$0.33	\$0.22	\$0.21
Japan	\$0.91	\$0.86	\$0.29	\$0.28
New Zealand (TNZI)	\$0.43	\$0.27	\$0.26	\$0.27
Australia (Telstra)	\$0.45	\$0.42	\$0.30	\$0.29
United Kingdom (BT)	\$0.36	\$0.20	\$0.21	\$0.21

Source: FCC.

Table 14. Distribution of telecommunication service revenue

	1995		1998	
	Won (billions)	Per cent	Won (billions)	Per cent
PSTN Service Revenue (incl. Revenue from fixed charges)	6 008	87.6	8 171	60.6
Local services	2 764	40.3	4 458	33.1
Long distance	1 817	26.5	1 632	12.1
International	917	13.4	1 053	7.8
Leased lines	510	7.4	1 028	7.6
Mobile services	847	12.4	5 322	39.4
Total (PSTN & Mobile)	6 855	100	13 493	100

Note: Excludes paging revenue.

Source: MIC.

3.2. Development of competition

Competition has brought benefits to Korean consumers and users, but the impact of competition has not been as significant as for other OECD countries in the fixed voice telephony market, in particular because user choice is much more limited given fewer facility-based market entrants.

In the international telecommunication market, the first market segment to open to competition, price performance has been poor after nine years of competition. Korea is among the most expensive countries in the OECD international tariff comparison basket.⁵⁵ The rapid growth in call-back services to Korea also are indicative of the arbitrage opportunities which exist in providing international call services

due to high prices in Korea. Further, unlike most OECD countries that introduced competition there was not a rapid growth in the market following the introduction of competition. This growth followed only after the third licence was given to Onse to enter the market. Accounting rates also remain high in Korea (Table 13). Only after the duopoly ended and Onse entered the international telecommunication service market was there a significant erosion in KT's market share, which now stands at 57% (Table 12). The opening of the international market to international resale has been important in spurring competition and in reducing KT's market share. Resellers already have about 13% of the international market.

In the national long distance market, KT had a 91% market share by mid-1999 and close to a 100% market share in the local market. Lack of effective competition and price performance in these markets has resulted in slow growth in the volume of traffic in these markets and in revenues (Figure 6). Between February 1996 and February 1999 the longest distance telephone charge in Korea declined by 22%, whereas for the equivalent period similar charges declined by 50% in Japan, 46% in France and 42% in Germany. Unlike most other OECD countries, Korea's call revenues from national long distance services declined over the 1995-98 period. In general, OECD countries have experienced growth in markets where significant price reductions stimulate demand sufficiently to increase market growth. Although growth in mobile services may have played a role in this decline, the expectation would be that mobile would in fact increase call volume on the fixed network in the 1995-98 period when the calling pattern was mainly from fixed to mobile phones.

In most OECD countries with vigorous long distance competition, long distance call charges move toward the price of local call charges so that distance becomes a less important factor in prices. In Korea, however, despite increases in local call charges, the longest distance charge is five times higher than the local call charge indicative of insufficient price competition in the long distance market (Table 15).⁵⁶ The relative reduction in long distance charges over the last 5 years has been relatively small compared to other OECD countries.

Table 15. Long distance service charges (won per 3 minutes)

		Feb 10, 1993	Jul 1, 1993	Aug 1, 1994	Dec 1, 1996	Sep 1, 1997	August 1999
Distance	10 km -30 km	100	30	40	41.6	45	45
	31 -100 km	360	360	200	183	172	172
	>101 km	675	675	313	277	245	245
Classification of distance		3	3	3	3	3	3
Average price changes (%)		- 18.3	- 5.7	- 42.4	- 7.1	- 5.1	0.0
Ratio of local call to long-distance call charge		1:23	1:23	1:8	1:7	1:5.4	-

Source: Ministry of Information and Communication.

Restructuring of long distance call zones took place in 1993 resulting in the closest long distance zone (10-30 km.) being priced the same as a local call. At that time local competition was not allowed so that it was necessary to maintain that zone as part of the long distance market in order to allow DACOM to compete. In this context, now that markets are fully opened, wire-based operators (with the exception of the incumbent) should not be constrained in their pricing policy by the call zone structure. The impact in allowing local competition is evident when taking into account the fact that 8 cities generate 65% of total Korean telecommunication revenue.⁵⁷

The mobile market in Korea, driven by competition, has grown significantly. In 1995-98 mobile revenues increased nearly six-fold. Mobile revenue is now close to 40% of total PSTN revenue. Mobile growth is contributing significantly to revenue in the total telecommunication service market. For example, in 1998, 30.6% of local service revenue was due to land-to-mobile calls. Korea is now fifth among the OECD countries in terms of mobile penetration rates.

Price rebalancing

The increase in local telephone charges in Korea has been much more rapid than the rate of increase in consumer prices. Table 16 shows the increases that took place in local prices, an increase of 1.5 times in the call charge per minute from 1993 to 1999. In addition to these increases, the call charge, which was for an unlimited call period before 1994, became a time-based (per minute) charge. Charges are relatively low compared to other OECD countries and the rate of rebalancing has been rapid. In June of 1999, the MIC stated that KT would be allowed to increase its local call charges. KT has claimed that the cost of a three minute call is 59 won whereas the present price is 45 won (the increase MIC had approved was for 50 won but this has yet to be implemented).

Table 16. **Local call charges (won per 3 minutes)**

	Feb 10, 1993	Aug 1, 1994	Dec 1, 1996	Sep 1, 1997	July 1999
Residential	30	40	41.6	45	45
Pay phone	30	40	40	50	50

Source: Ministry of Information and Communication.

The basic monthly subscription rate in Korea is as follows:

Table 17. **Monthly PSTN subscription charges (won)**

Subscription Class	1 Jan. 1991	1 Jan. 1993	August 1999
8 or higher	2 500	2 500	2 500
7	2 600	2 100	2 100
6 or lower	2 000	1 500	1 500

Source: Ministry of Information and Communication.

At the same time, the Ministry of Finance and Economy should refrain from intervening in price determination for local rates. This is causing confusion and preventing creation of an efficient market, and may prevent entry, if prices are below cost. The net benefit of competition in telecommunications in Korea has been to reduce the basket of prices paid by consumers and business customers. It is this basket that is important for the consumer price index not the individual prices in the call basket (see Table 20).

Most OECD countries have become concerned with the high cost of local call charges, especially for intensive use, such as for electronic commerce and Internet access. Regulators and incumbent operators, who view Internet as a new business opportunity, are therefore making efforts to readjust their call charges downward. Where KT is faced with competition, such as in Internet access, it has

implemented innovative, and lower, prices for local calls. This is in contrast to its efforts to increase local prices overall. The fact that KT can make such special tariffs available for its Internet customers would imply that there is scope to increase efficiency in lieu of increasing prices.

In other countries, the rapid development in Internet usage has had significant positive benefits on the local call market. Although Korea also has a growing Internet market, this growth is not evident in KT's local call revenue because of the separation of online services from PSTN services (online service revenue growth increased from 29 billion won in 1996 to 144 billion by 1998).

Cellular mobile markets

Competition has been vigorous in the mobile market. This has led, as noted previously to high rates of mobile penetration and falling end user prices (Table 18). In August 1999, the rate of penetration of cellular mobile phones reached 43.4% of the population, the fifth highest rate in the OECD. The month of March 1999, in fact, saw unprecedented growth with an increase in the customer base by 3 million new subscribers. The reason for this surge in new subscribers was the lifting of the restriction of a compulsory subscription period of up to 2 years as of 1 April 1999.⁵⁸ But, as well, the perception that subsidies to handsets would decline stimulated new entry by subscribers (the subsidy was being reduced in 1999⁵⁹ and completely abolished in 2000).⁶⁰

Table 18. **Mobile telephony prices (won: SKT standard rates)**

Date	Basic rate (per month)	Call charge (nationwide uniform rate)	Other fees	Note
Jun 1, 1990	27 000	25 per 10 seconds (nationwide uniform rate)	Installation fee: 650 000	
Feb 1, 1996	22 000	32 per 10 seconds	Deposit, 200 000 Subscription fee, 70 000	Abolished installation fee and introduced deposit and Subscription fee. * rate decreased by 6.2%.
Dec 1, 1996	21 000	28 per 10 seconds	Deposit, 200 000 Subscription fee, 70 000	Reduced basic rate and call charge and introduced price package options. * rate decreased by 12.6%.
Sep 1, 1997	18 000	26 per 10 seconds	Deposit 200 000 Subscription fee, 70 000	Reduced basic rate and call charge. * rate decreased by 12.7%.
Feb 1, 1998	18 000	26 per 10 seconds	Deposit 200 000 Subscription fee 70 000	Reduced the charges offered by optional price package plan. * rate decreased by 4.3%.

Source: Ministry of Information and Communication.

Competition has also kept margins low for the service suppliers who have been more concerned with increasing market share than profit margins. For example, SK Telecom, the leading mobile operator in terms of market share, had an operating margin in 1994 of 36.7% that declined to 4.3% by 1998.⁶¹ Another indicator of competition in the mobile market is customer churn. For SKT average monthly churn for cellular services was 1.95% in 1998, an increase of 40% since 1995. Mobile operators in Korea, and in other OECD countries, are also faced with the fact that as the subscriber base grows the average monthly revenue (and monthly outgoing minutes) per subscriber declines reducing the net profitability per customer.

The first mobile company, Korea Mobile Telecommunications, now called SKT has the largest market, a result of its monopoly from 1984 to 1995 (Table 19).

Table 19. Mobile market shares, April 1999

	Revenue (Bn won)	Market share (%)	Subscribers (‘000)	Subscriber share (%)	Date service began
SK Telecom	2 971	55.8	7 136	41.2	1988
KT Freetel (PCS)	649	12.2	3 162	18.3	1997
Shinsegi Telecom	771	14.5	2 547	14.7	1996
LG Telecom	521	9.8	2 447	14.1	1997
Hansol (PCS)	409	7.7	2 008	11.6	1997

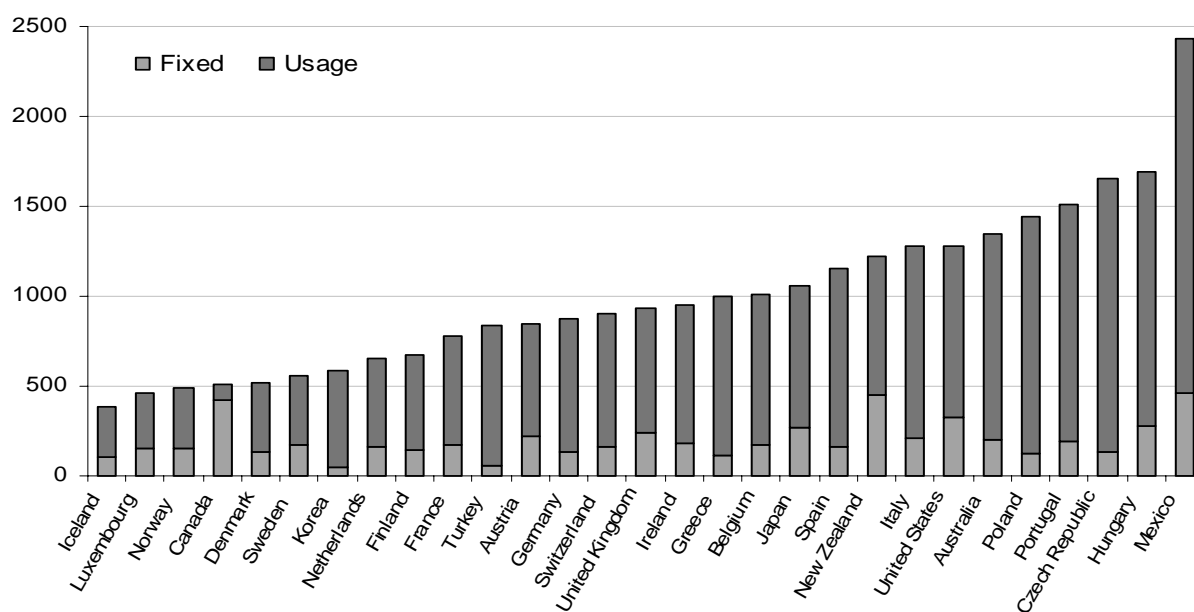
Note: Includes only cellular and PCS services. SK Telecom started service for automobile phones in 1984 and PCS in 1988.

Source: MIC.

3.3. Price indicators

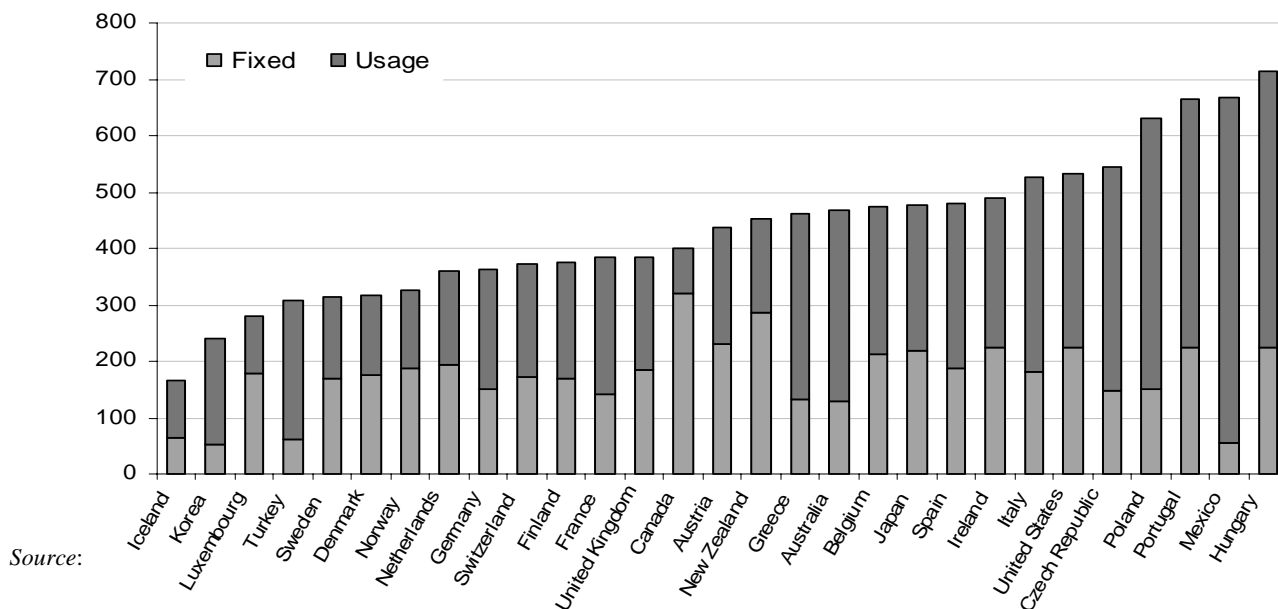
Price levels in other countries provide an important source of price benchmarks. For these purposes the OECD collects the prices of a basket of telecommunications for residential and business customers in each of the OECD countries.⁶² The results of these comparisons with other OECD countries are displayed in Figures 5, 6 and 7 below. It is apparent that in both the business and residential cases Korea’s prices are well below the OECD average. In both cases, the fixed (*i.e.* monthly rental) component of the basket is also below the OECD average. This results from government policies in the 1980s and 1990s that maintained low prices as part of universal service policy. This does not necessarily imply that price increases are justified, or that KT, the dominant carrier is more efficient than other operators. In contrast to the residential and business baskets, KT’s performance is weak (the third most expensive in the OECD) in terms of relative leased line prices (which had not been subject to universal service constraints)(figure 7)

Figure 5. Comparison of national business tariff baskets, November 1999 (US\$PPP)



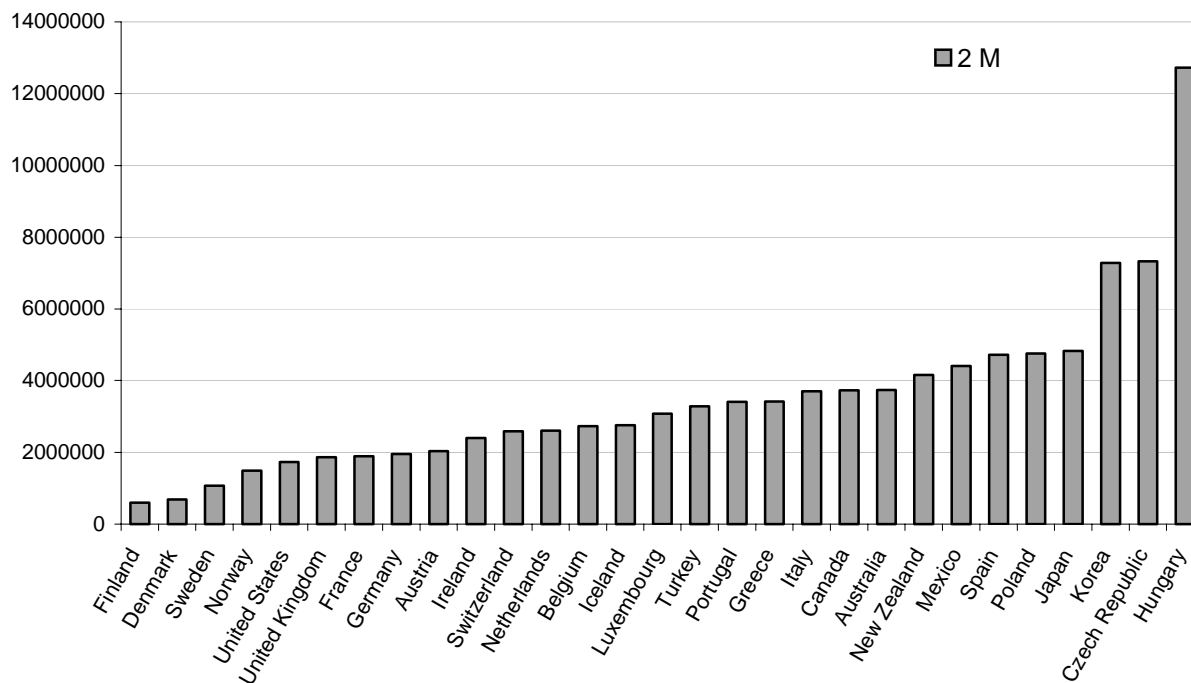
Source: OECD/Teligen.

Figure 6. Comparison of national residential tariff basket, November 1999 (US\$PPP)



Source:

Figure 7. OECD leased line basket, November 1999



Source: OECD/Teligen.

Table 20. Changes in price indices in Korea

		1985	1990	1995	1996	1997
Producer price index	All sectors	0.9	4.2	4.7	2.7	3.9
	Telecommunication equipment	- 4.3	- 1.4	- 1.7	- 4.0	- 2.5
Consumer Price Index	Total sector	2.4	8.6	4.5	5.0	4.5
	Telecommunication services	0.0	7.0	- 2.4	0.2	- 2.9

Source: Bank of Korea.

3.4. Quality of service

Korea ranks high on some measures of service quality, but, as for most countries, there is scope for improvement. The percentage of faults repaired within 24 hours is the highest in the OECD. Yet, the number of faults per 100 lines per year was 14.2 in 1997, or 12th of 17 reporting countries OECD countries at that time,⁶³ but showing improvement over the years before.

On 13 September 1999, MIC released quality survey results on mobile and fixed telecommunication services. MIC used two indicators: access success rates and call drop rates to monitor quality of mobile telecommunication services. The survey shows the connection rate and disconnection rate of each mobile operator in specific regions, such as large cities, small and medium sized cities, rural areas highways, national roads and the Seoul metropolitan area. MIC concluded that it was satisfied with the results because the quality in mobile services was almost similar to that of the UK (connection rate 97-99%, disconnection rate 2-7%).

In terms of fixed voice telephony services, 5 indicators were used to monitor the quality of service for fixed telecommunications services, such as the rate of installation within the promised date, the trouble rate, the repair rate, the rate of transfer within the promised date and the rate of questions answered properly.

3.5. *Employment and productivity*

A simple measure of labour productivity is the number of access lines per employee. Although this measure has many shortfalls,⁶⁴ it is useful as a point of comparison. Because of rapid network expansion, and despite a rapid increase in employment in the sector, labour productivity has increased rapidly with 324 lines per employee in 1997 compared to the OECD average of 203 lines.⁶⁵ One factor to explain this is the requirement that facilities construction, a relatively labour-intensive area, has to be outsourced. KT's workforce peaked in 1996 and it reduced employees by 11% in 1998 and it plans to cut a further 10% in the first half of 1999. KT's employment plans, as the largest employee in the telecommunication sector, will undoubtedly impact on total telecommunication employment in the sector although overall this has been growing (Table 21).

Korea has one of the lowest ratios of revenue per employee among the OECD.⁶⁶ In Korea this ratio increased from US\$ 89 500 in 1990 to \$ 124 100 by 1997 whereas the OECD average in 1997 was \$236 700.⁶⁷ Lack of competitive pressure, and rigorous price control through price caps can provide an incentive to improve efficiency and improve this performance.

Table 21. **Number of employees in telecommunications service supply**

Year		1985	1990	1995	1996	1997	1998
Employees		45 530	57 769	66 921	70 712	73 323	
	SKT			4 378	5 456	6 253	5 212
	LG Telecom						740

Source: Ministry of Information and Communication.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1. *General assessment of current strengths and weaknesses*

The regulatory regime in Korea displays some distinct strengths (see Box 2). These strengths relate to the series of pro-competition and structural reforms undertaken by MIC over the past decade. These strengths in the essential regulatory framework position Korea well for effective competition and will provide substantial benefits to consumers and users if further reforms are taken to complete the implementation of a transparent and neutral regulatory framework based on sound economic principles.

Box 2. Strengths

- Universal availability of infrastructure with high penetration rates.
- Market entry liberalised.
- No line of business restrictions.
- Competitive mobile sector.
- Carrier pre-selection implemented.

The rapid development of the telecommunication infrastructure during the late 1980s and early 1990s is due in large part to structural and regulatory changes taken by MIC. These policies have led to the attainment of universal service and high penetration rates. Competition has been introduced progressively culminating in full competition in 1997 with no line of business restrictions (although separate licences are still required to provide the range of PSTN services) and no services are reserved to monopoly. Commitments made in the context of the WTO's agreement on basic telecommunications were fully implemented earlier than had been scheduled. Foreign ownership restrictions were reduced in 1999 and important steps were taken in further privatising KT.

Carrier pre-selection was implemented relatively early in Korea. Although a number of important safeguards have yet to be implemented, the government has recognised their need through the setting up of different study groups. Measures to cover consumer protection have been incorporated in legislation.

Korea showed foresight in the early licensing of a large number of mobile operators and is one of five OECD countries that have licensed 5 or more mobile operators. Competition in mobile has led to high rates of mobile penetration surpassing now the level of penetration in the fixed telephony market. Regulatory intervention to eliminate the mandatory subscription period for mobile customers was important, although the process used to do this could have been more efficient. The mobile sector has provided an example of how competition can grow a market and provide significant benefits.

Significant regulatory and institutional weaknesses are also evident (see Box 4). These weaknesses can be corrected in the short to medium term to provide a basis for a stronger and more efficient competitive market.

Box 3. Weaknesses

- Lack of an independent regulatory authority with adequate powers to regulate the sector.
- Conflict between regulatory functions and industry promotion functions.
- Insufficient reliance on market forces to direct telecommunication service development.
- Lack of essential regulatory safeguards.
- Unnecessary regulatory burdens on telecommunication operators.
- Lack of local competition.

In its general assessment of structural change in Korea the 1999 OECD Economic Survey stated that “[w]hile much has been accomplished in establishing a new legal framework, Korea now faces the task of putting the new system into practice through changing behaviour”.⁶⁸ This observation is equally valid for the telecommunication service industry. Much of the broad regulatory framework necessary to stimulate effective competition is in place. However, many necessary details are missing but they can be rapidly implemented given that MIC has, and has access to, knowledgeable expertise to implement these. A concerted effort to change behaviour through leadership and necessary institutional and structural change would quickly transform the Korean telecommunication scene into a leader and provide strong support in transporting the Korean economy into the information age.

Greater emphasis on ensuring consistent decisions and in creating a strategic vision for the development of competition in the telecommunication service sector would be of benefit to Korea. There should be greater reliance on competitive market forces to improve the competitive characteristics of the marketplace and benefit users. This would stimulate investment in new technologies and services, enhance industry competitiveness, and improve price performance.

In the fast growth period of Korean development, the MIC was very effective and played an important role in the transformation of the telecommunication sector. Steps were taken toward structural change in the 1980s transforming the MIC and reorienting its role in the sector. Further structural changes in the role of the Ministry of Information and Communication changes are now necessary. The role of the MIC should be restricted to the formulation of policy where rapid development of new policies is required for convergence, for electronic commerce, and for the introduction of IMT-2000. There is also a role for an independent regulatory body to ensure the smooth and effective transition from a monopoly market to a competitive market. The KCC is well suited to play such a role. The sector regulator should have sufficient powers to regulate market players transparently, neutrally and in line with competition principles. This also requires implementation of the necessary regulatory safeguards that are still not in place.

A particular concern is the lack of a number of necessary safeguards to promote competition in the marketplace and a clear-cut timetable to implement these policies. This is the case for cost-based interconnection prices, network unbundling, price caps, cost-based prices, a methodology to calculate the cost of universal service, number portability, and licensing for third generation mobile services. These issues, at the forefront of debates in other OECD countries, merit more consideration in Korea.

Further regulatory streamlining is necessary. In particular, this is needed in the area of licensing where consideration should be given to introducing class licensing, regulations relating to specific companies for the construction of facilities need to be eliminated, and the fees paid by telecommunication service operators need to be eliminated, except where strictly necessary.

Significant progress is needed if Korea’s telecommunication regulatory framework and practices are to converge with international best practices. The driving objective of regulatory oversight should be to enhance efficiency in the telecommunication service sector, increase competition and ensure that all users

benefit. But, today, many decisions are made with the aim of helping the equipment manufacturing industry, and helping individual firms obtain a market position. The interests of users, both business and residential, seem often to be secondary to producer interests. In addition, there is still an excess of unwritten Ministerial “guidance” and “advice” that distorts the development of competitive market forces and economic efficiency.

4.2. *Potential benefits and costs of further regulatory reform*

Section 3 pointed to some early evidence that market liberalisation and competition are bringing significant benefits through:

- Lowering of national and international long distance prices;
- Vigorous competition stimulating investment, and innovation in the mobile service sector;
- The introduction of advanced technology into the market (xDSL and ISDN);
- Increasing customer choice; and
- Improving quality of service.

The immediate task is to ensure that local competition develops and is translated into improved price structures, and more advanced services. From a longer term perspective, the most important impact of pro-competitive regulatory reform will be to accelerate broadband development and provide the foundations for electronic commerce and the information society. These developments can lead to important new growth (and employment) opportunities for the Korean economy.

A sustained commitment to regulatory reform will also benefit market players by reducing the regulatory burden, including payment of a range of fees. The elimination of foreign ownership restrictions can aid in stimulating new investment and accelerating the diffusion of new technologies and services.

4.3. *Policy recommendations*

The following recommendations are based on the above analysis, taking into account the “Policy Recommendations for Regulatory Reform” set out in the OECD *Report on Regulatory Reform* (OECD, June 1997).

1. *Ensure that regulations and regulatory processes are transparent, non-discriminatory, and applied effectively*

- *Restructure KCC as an independent communications sector regulator and thus clearly differentiate between MIC’s policy responsibilities from regulatory responsibilities.*

Creation of an independent regulatory body is of prime importance in Korea to ensure transparent and non-discriminatory regulations aimed at maximisation of consumer welfare through a market-oriented regime. The creation of an independent regulator, by divesting KCC from the MIC, will improve the effectiveness of regulation and help eliminate the conflict between industry promotion functions and regulatory functions. In turn, this will also help eliminate regulatory inefficiencies due to a heavy-handed regulatory approach. In this context, it is important to define clearly the policy functions that will be retained by MIC from the regulatory functions of the new regulator.

- *Reduce barriers to entry by introducing a system of general authorisation, thus minimising the requirements to obtain a licence, reduce the number of conditions attached to licence, and eliminate the pre-set dates for licence applications.*

Broad discretion has been available to the Ministry for Information and Communication on what terms to attach to a licence. Excessively detailed information is required and licence applications can only be made during two periods in the year. Licensing procedures should be simplified and the information burden reduced. This could best occur through implementing a general system of authorisation (class licensing framework) rather than requiring individual licences for entry in each service area. Potential market entrants should be able to apply for a licence throughout the year. The licence condition requiring telecommunication operators to contribute to research and development funds or pay other fees should be abolished except for fees which cover the direct administrative costs of license provision and monitoring.

- *Implement a price cap system for KT's local charges, leased line services and national long distance services, and eliminate all other price approval requirements.*

The regulation of prices through government authorisation is not appropriate for current competitive circumstances particularly since it depends on a process which lacks transparency and seems to be driven by political considerations rather than the pro-competitive need for price flexibility. There has been insufficient competitive pressure in a number of market segments on KT to increase efficiency and improve pricing structures. Further, government intervention has prevented scheduled price changes aimed at price rebalancing. This has harmed the adjustment of prices from a monopoly market to a framework where prices are set through market mechanisms. For national long distance prices, price caps may be required for a short period until sufficient competition has developed. Only KT should be subject to price caps. The independent regulatory body should implement price cap regulation.

- *Implement an interconnection pricing framework using long-run average incremental cost (LRAIC) as the appropriate cost basis for pricing.*

Assuring interconnection to the incumbent's public switched telephone network is a key competitive safeguard. Such safeguards are particularly important where the incumbent carrier, like KT, is vertically integrated into local, long distance and other services and therefore with strong incentives to hinder equal access. Progress in establishing an effective interconnection regime is important to assuring that the benefits generated from competitive market structures are fully realised. The current methodology used to determine interconnection charges forces new entrants to pay high interconnection charges. Further the present methodology is not meaningful as KT is in the process of price adjustments by eliminating cross-subsidies and operating inefficiencies developed as a result of its former monopoly position. Efficient pricing needs to be based on forward-looking LRAIC costs, including a reasonable profit margin.

- *Implement number portability as rapidly as possible and ensure that numbering allocation policies for both wireline and mobile carriers are competitively neutral.*

Local loop competition will not be able to develop effectively unless number portability allows customers to reduce the "transaction costs" of changing service provider. This is important in the fixed telecommunication service market but should also be implemented for the mobile market.

- *Develop an adequate methodology to cost universal service.*

The government needs to develop a transparent universal service funding mechanism that is competitively and technologically neutral should be established. Current universal service obligations on KT are implicitly funded through access deficit charges. Until a rigorous methodology has been developed

to determine the net costs of universal service and allocate KT's costs across services, the regulator should refrain from collecting funds to offset any "access deficit" or fund universal service as a surcharge on the interconnection price.

- *Use auctions to allocate licences for 3rd generation mobile services and also for licence allocation in the mobile sector as a general rule.*

MIC has attempted to allow for the possibility to use auctions for IMT-2000. This possibility should be used and would be important in enhancing transparency and increasing regulatory efficiency in spectrum allocation. The auction system should be maintained for all wireless licences.

- *More comprehensive measures should be taken to promote infrastructure competition in the local loop, including unbundling of the local loop.*

Future local competition will depend importantly on the ability of alternative infrastructure to offer both voice telephony services and newly developing information services. A number of initiatives can be taken in this context. KT should be required to provide unbundled access (access to raw copper) to its local loop to other operators on reasonable terms, including any ADSL enhanced segments. Forward-looking LRAIC-based pricing is the appropriate cost basis for pricing unbundled network elements. To maintain incentives on new entrants to deploy their own infrastructure rather than depend indefinitely on the incumbent's, the requirement on KT to provide unbundled elements of its network can be restricted to a specific specified period (for example, five years). Such policies will help enhance competition in the local loop. Furthermore, the licensing of IMT-2000 services should be accelerated. Consideration should be given to a pre-selection procedure for IMT-2000 license to prohibit dominant fixed carriers from licence applications and promote local loop competition.

- *Streamline regulatory framework and introduce competition in the CATV market.*

CATV infrastructure provides one of the most rapid and efficient means to stimulate entry into the local loop. Although improvements have been made over the last few years in industry structure there is still scope to simplify this structure by not differentiating between service operators, programme providers and network operators. This would allow for the integration of these functions in one company. In addition, entry should be by registration, allowing multiple entry by integrated cable companies in any geographic area. In this context MIC has taken a positive decision to require KT to divest its cable networks. The franchising system of market entry should be eliminated in order to allow competition.

2. Reform regulations to stimulate competition and eliminate them except where clear evidence demonstrates that they are the best way to serve the broad public interest.

- *Eliminate foreign ownership restrictions in both the fixed and wireless markets.*

Restrictions on foreign ownership work against the long term interests of Korea to develop a state of the art communications infrastructure and stimulate the rapid diffusion of new advanced services and technologies. New investment is required to develop high speed backbone networks and to create further competition in the local as well as leased line market and national long distance markets. Effective means already exist to provide guarantees for network security.

3. *Review, and strengthen where necessary, the scope, effectiveness and enforcement of competition policy.*

- *Review regulations in all areas of telecommunications regularly and systematically with a view to streamlining and where appropriate abandoning them.*

The government already reviews regulations, but these reviews need to be conducted more systematically and in depth to ascertain whether the regulations are still in the public interest, benefit users, and whether such regulation should be abandoned or modified. “Forbearance” procedures (or “sunset clauses”) should be incorporated to ensure that regulations no longer necessary are eliminated.

NOTES

1. See Table 3.1, *OECD Communications Outlook 1999*, Paris, 1999. Compound annual growth rate in current prices and local currency. Growth between 1987-92 was at 17.7% per year.
2. OECD (1999), *OECD Communications Outlook 1999*, Table 1.2.
3. In 1997 28.3% of Korean GDP was attributable to manufacturing industry and 51.4% to services. The latter also accounted for 58.8% of employment.
4. A detailed analysis of developments in Korean telecommunications is presented in Larson, James F., *The Telecommunications Revolution in Korea*, Oxford University Press, New York, 1995.
5. This rate of penetration was equivalent to Denmark's rate in April 1999, and much higher than in France (21.4%) or the UK (25.5%).
6. *Communications Outlook, op. cit.*, Table 4.5.
7. Korea Mobile Telecom was initially owned by Korea Telecom. KT has maintained an 18.5% share holding in SKT.
8. DACOM began service on 3 December 1991.
9. The 1993 plan to build a national information infrastructure by 2010 was estimated at that time to cost 34 billion Won.
10. For example, the Korea Information Infrastructure Initiative in 1995, the Master Plan for Informatization Promotion in 1996 and the Action Plan for Informatization promotion established in 1997. As early as 1994 the Ministry of Information and Communication was given responsibilities for implementing informatization policies (the Basic Act of Informatization Promotion of 1995 established the statutory power for MIC).
11. In Korea, a class 1 Special Service Provider owns a minimum level of switching facilities. In some countries new entrants that install their own equipment may be required to obtain a PSTN licence.
12. DACOM has also agreed to sell a 20% share to NTT of Japan.
13. LG already has a PCS licence and when it obtained that licence in 1996 it pledged to the Government that it would maintain its share in DACOM at 5% in exchange for the mobile licence.
14. The MIC has already adopted a number of laws in this area including the Informatization Promotion Act and the Framework Act on E-commerce.
15. MIC Official Gazette, Information and Communications Policy Statement for the Realization of an Information Society, http://webdb.mic.go.kr/e_home/policy/lead40.
16. Article 1.

17. The concept of joint construction was adopted following strong pressure from Parliament and the Press.
18. Ministry of Information and Communication, Investing in Korea's Telecommunications, June 1999. MIC states that the average delay is ten days.
19. Ministry of Information and Communication, Response to OECD Review Questions for Korea's Regulatory Reform in the Telecommunications Sector.
20. Ministry of Information and communication, *op. cit.*
21. The Committee includes experts from Universities and Research institutes.
22. See *OECD Communications Outlook 1999*, Table 1.1 for an indication of market entry in the PSTN market. For example, in Belgium there were 11 licensed facility-based operators in the PSTN market by January 1999, increasing to 20 by mid-1999, and in Ireland which opened its market to full competition in December 1998 there were 29 facility based operators by January 1999.
23. Dacom, for example, paid 5% of revenues in 1998 and starting in 1999 will pay 3% of revenues for five years.
24. See *OECD Communications Outlook 1999*, Table 2.5.
25. Foreign direct investment in the telecommunication service industry in 1998 was US\$2 billion, or about one-quarter of all foreign direct investment made in Korea in 1998.
26. The relevant ordinances are the Ministerial Notice of the Criteria on Interconnection and the Criteria on Accounting Separation and Standard Form of Telecommunication Service Business.
27. Article 34—6 of the Telecommunications Business Act.
28. A lower interconnection rate is applied to PCS as compared to cellular service (86 won per minute compared to 101 won per minute in 1999).
29. This charge was equivalent to about 0.65% of total revenue.
30. A shift to a pulse system of charging, as soon as technically possible, would also facilitate price adjustments, while minimising any impact on measured rates of inflation, through adjusting the metered pulse rates rather than the price.
31. See Staple, G. (1999), *TeleGeography 1999*, Washington, D.C.
32. The indicators which are being considered include access failure rate, successful connection rate, disconnection rate, and completion rate.
33. MIC conducts a survey through the Advisory Committee on the spectrum Resources and makes public the available bandwidths.
34. Licences have to be utilised within three years or they will be withdrawn.
35. This usage fee was 20 000 won at the beginning of 1999. In arguing for the elimination of handset subsidises the MIC stated that there was 'overheating' of competition in the mobile service sector and low industry profit margins. Taxes, such as the user fee increase prices faced by consumers, reduce usage and therefore play a role in lowering profit margins.

36. Both the Fair Trade Commission and the Korea Consumer Protection Board have pushed for the elimination of this spectrum usage fee. Further, they questioned whether the MIC has the legal basis to impose such a tax. The *Radio Waves Act*, for example, foresees a fee on service providers but makes no mention of an end user fee.
37. See Section 36 of the Telecommunications Business Act. The government allows the individual service providers to manage the direct subscriber numbers (except the switching prefix of local service providers).
38. In the interim, the MIC required KT, in December 1998, to separate within 3 months its local marketing personnel from its long distance marketing personnel
39. Article 2.2.
40. See OFTEL, <http://www.oftel.gov.uk/consumer/uts799.htm>.
41. See Sections 33, 33-2 and 33-3 of the Act.
42. Article 36-3, 4(3).
43. Article 37-2 and 37-3.
44. Article 36-3, (1)3 mentions examples of acts where there may be unfair itemising of the expense or revenue such as when calculating service fees, or the compensation for the supply of facilities, interconnection, joint-use, or supply of information.
45. However, there is no regulation in the Fair Trade Act that stipulates that if the KFTC imposes sanctions that the MIC cannot also impose sanctions.
46. The Committee is an ad hoc Presidential Advisory Committee.
47. The timetable calls for the creation of a consultative body in January 2000 between the Broadcasting Committee and the MIC followed by an ad hoc body in June 2000 set up under the President's authority to prepare the integration of different agencies.
48. Equity ownership of large conglomerates, newspaper companies and foreigners is allowed up to a ceiling of 33%. However, ownership of news channels by large conglomerates, news agencies or foreigners is not allowed.
49. The foreign ownership ceiling has been raised to facilitate the inflow of foreign capital.
50. Bank of Korea and National Statistical Agency.
51. Communications Outlook, op. Cit. Table 4.2. Korea ranked 14th in the OECD in terms of access line penetration per 100 inhabitants by 1997.
52. ISDN penetration increased from 4 184 subscribers in 1995 to 37 686 in 1998 or about 0.2% of main lines.
53. OECD (1999), *Communications Outlook 1999, op. cit.*, Table 4.8.
54. In 1997, the share of mobile revenue in total telecommunications revenue was 20% on average for the OECD.
55. OECD (1999), *Communications Outlook 1999, op. cit.*, Table 7.7.

56. This is also partly due to low local service charges which account for around 40% of KT's total revenues.
57. Data provided by Hanaro. The 8 metropolitan areas also have an average subscriber revenue 35% higher than in other geographic areas.
58. In most OECD countries the minimum subscription period has been 1 year but some regulators have reduced this to 6 months.
59. The MIC has required the 5 mobile carriers to keep subsidies under the average of 4 months service charges, or about 150 000 won per handset and completely abolished by 1 January 2000. SK Telecom, the market leader would pay about 70 000 won less in subsidies than the other 4 firms until January 2000.
60. Handset subsidies are reported to range from 250 000 - 300 000 Won. (See *Korea Times*, 4 February 1999).
61. SK Telecom Annual Report, 1998.
62. The basket includes a number of calls distributed at different times of the day, different days of the week and over different distances. The statistics are prepared in \$US using both purchasing power parity (PPP) and current exchange rates. In general, it is considered that the PPP figures provide a more reliable comparison.
63. See OECD (1999), *Communications Outlook 1999*, *op. cit.*, Table 8.5.
64. See, for example, the OECD (1997), *OECD Communications Outlook 1997*, Chapter 8, Paris.
65. OECD (1999), *Communications Outlook 1999*, Chapter 9, Paris.
66. This is also partly due to low local service charges.
67. OECD (1999), *Communications Outlook 1999*, Table 9.5.
68. OECD (1999), *1998-99 Annual Survey - Korea*, Paris.