RESTRUCTURING THE MOBILE TELEPHONE INDUSTRY

By

Young-Dal SON

THESIS

Submitted to
School of Public Policy and Management, KDI
in partial fulfillment of the requirements
for the degree of

MASTER OF BUSINESS ADMINISTRATION

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ABSTRACT

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Recent structural changes in the telecommunications industry (TI) induced by various factors such as technological improvement, changes in customer demands, deregulation and the explosion of the Internet and mobile telephone, are bringing about rapid changes in the competition of telecom operators. In order to meet the challenges, telecom operators are pursuing industry restructuring as an effective way to survive and grow in the future.

In this thesis, I analyzed several restructuring cases in the world TI such as MCI WorldCom, Vodafone AirTouch and DDI. From this analysis, the strategic rationale for industry restructuring in the global telecom market was analyzed.

Industry structure, marketing performance, financial performance, quality performance and IMT-2000 services of Korean mobile telephone industry (MI) were analyzed to review the factors for promoting industry restructuring. From this analysis, recommendations for Korean MI were formulated to enhance global competitiveness and social efficiency.

The study suggests that industry restructuring has to be conducted in pursuit of economies of scale and scope to create customer value and to achieve cost efficiency. Also industry restructuring should be considered in the IMT-2000 licensing process because it influences Korean MI with its global standard and high transmission rates. In addition, industry restructuring has to be carried out under the condition of deregulation to facilitate competitive mechanism based on market principles.

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CHAPTER 1 INTRODUCTION

1.1 Background and Research Objective

With the launch of the Agreement on Basic Telecommunications Services in 1998, the world telecommunications industry (TI) has been rapidly privatized, liberalized and globalized. Technological advancement has removed barriers between wireline and wireless telecommunications services, TI and other industries such as the broadcasting industry. IMT-2000 (International Mobile Telecommunications 2000), the third generation telecommunications, which will adopt a global standardized telecommunication protocols to allow seamless roaming services at any location in the world, will remove geographical borders among countries. These rapidly changing environments in the telephony market pose difficult challenges to participants and create the need for industry restructuring.

In Korea, after the launch of PCS (Personal Communications Service) in Oct. 1997, the five mobile telephony operators (MOs) competed fiercely to enlarge their subscriber base. The average growth rate of subscriber base was 95% from 1996 to 1999. Today, the mobile telephony subscriber base is well over 23 million, surpassing the wireline subscriber base. Even though the market witnessed a substantial growth in total subscribers since 1997, critics argued that excessive competition in handset subsidy hampered the financial viability of MOs and the duplicate investment of the five MOs' nationwide network facilities caused social inefficiency.

The purpose of this study is to examine the evolution and restructuring in the world TI and to develop implications for the Korean mobile telephone industry (MI). In this thesis, I would like to study the following major issues:

- Analyzing the recent industry restructuring trends and patterns of global telecommunications carriers related to the radical changes in the environment

- Analyzing the current situations of Korean MI

- Recommending the desirable ways of industry restructuring for Korean MI

Cellular and PCS phone are categorized as the same services but the other wireless services such as paging, CT-2 and TRS services are excluded in this paper.

1.2 Organization of the Study

Chapter 2 examines the restructuring cases of U.S, Europe and Japan in the context of environmental changes in the world TI and derives implications for Korean MI.

Chapter 3 provides an overview of the Korean TI and analyzed the performance of Korean MI. Factors for restructuring Korean MI will be drawn through the description of marketing performance, financial performance, and quality performance. The influence of IMT-2000 on MI will also be covered in this part. On the basis of these analyses, recommendations and future directions for Korean MI will be discussed.

Finally, Chapter 4 summarizes the key findings of the research.

CHAPTER 2 RESTRUCTURING IN THE WORLD TI

2.1 Characteristics of TI and Environmental Changes

2.1.1 Characteristics of TI

Due to the huge up-front investment and high ratio of fixed cost that generate economies of scale, TI can be described as a natural monopolistic industry. It can also be explained as a public industry, because it provides people with essential services and contributes much to the development of other industries. The following characteristics of TI are noteworthy.

First, TI is a facility-based industry that requires large investment to install telecommunications equipment such as networks and exchanges for providing services. Basic telecommunications operators' fixed assets amount to 85~90% of their total assets and depreciation cost account for 25~40% of total cost. In this context, economies of scale occur as average cost falls significantly with increases in demand for services. Consequently, operators are required to obtain a certain level of demand (subscribers) to take full advantage of economies of scale.

Correspondingly, excessive entry in the market cause duplicate investment and prevent the effect of economies of scale. For that reason, the authorities regulate entry or issue licences for new entrants. Furthermore it is very difficult to convert telecommunications facilities into other business because they are specialized for providing telecommunications services. This factor accelerates the integration among carriers for achieving economies of scale, strengthening price competitiveness and recovering sunk costs.

Network effect, the second characteristic, is an essential element of TI. Although wire and wireless phone services are not the same, they have to be connected to each other's network for offering better services. For example, mobile originated calls need to be

connected to wireline network to complete calls, and land originated calls require to be linked to wireless network. Economies of scope exist when the cost of producing multiple goods (services) is less than the aggregate cost of producing each good (services) separately. [1] In this regard, offering multiple services by one operator can not only raise efficiency in using the network but also reduce the total cost in sales, administration, R&D, and so forth. For consumers, it can improve convenience through a reduction in the complexity of options, one-stop shopping, unified billing and integrated customer service. Accordingly, the strategy to achieve economies of scope and to satisfy customer needs promotes the restructuring of the network industry

The third characteristic of TI is that it plays a role as a media to connect consumers who use voice and information, and simultaneously it produces them as well. With the effective use of telecommunications network due to the technological improvement such as compression, transmission, multiplexing, and etc; with various and high degree of consumer demands; and with surplus capital earned in telecom industry, this characteristic promotes integration between different telecommunications services.

Fourth, TI is a technology-intensive industry, which is characterized by digitalization of telecommunications methods, upgrade to high-speed and wide-band telecommunications networks, and emergence of multimedia services. Rapid changes in the telecommunications market, system and policy are closely related to the recent trends of technological development. However, not only does TI need a huge amount of R&D investment to develop a new technology, but also requires a long time horizon to commercialize it. In addition, high risks and uncertainty are inevitable. Accordingly there are incentives for M&As and alliances in order to reduce R&D cost, to avoid risks and to achieve technological competitiveness.

Finally, TI influences a lot on developing other industries as the social overhead capital as well as it provides consumers with indispensable services. To approve unlimited entry causes overlapping investment, on the other hand to restrict entry might lead to market

[1] William F. Samuelson and Stephen G. Marks, Managerial Economics, Dryden Press, 1999

manipulation by a monopolistic company. Therefore the authorities should implement policies to prevent duplicate investment, and simultaneously promote competition for achieving competitiveness and social welfare.

2.1.2 Environmental Changes

As the world TI underwent rapid changes since the beginning of 1990s, most companies in the advanced countries have striven to cope with them. At first, technological improvement which can be summarized as digitalization and wide-band enables the provision of multiple services with a single network and additional new services through existing equipments or frequencies. The barriers that separated wireless, wireline, voice, data, local and long distance are crumbling and a new communications framework is being constructed in its place. In this context, technological improvement intensifies competition, and consequently accelerates M&As and alliances among telecommunications services.

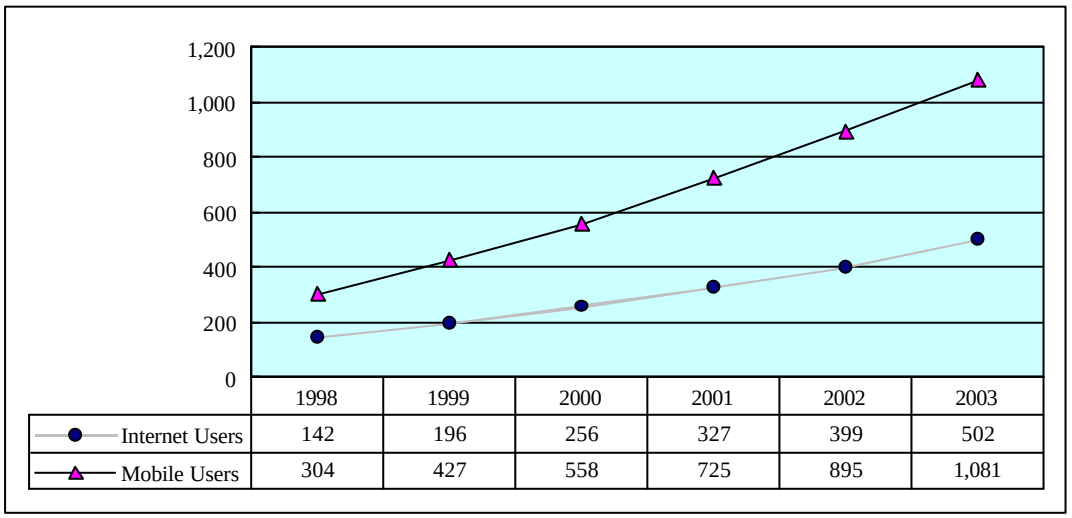
Secondly, not only technological aspects but also customer needs have been swiftly changed by the advent of multimedia that makes information available in the form of graphics, sound, text and video. To meet with a variety and a high degree of customer needs, carriers try to offer bundled services through M&As and alliances, because they can not effectively respond to customer needs by utilizing their own internal resources and capabilities.

Thirdly, in the wake of the establishment of the WTO multilateral trading system, the global market is now embracing the trends of liberalization and deregulation. In the area of telecommunications, many of the WTO signatories participated in the Group on Basic Telecommunications ("WTO/GBT") negotiations to seek major liberalization of the basic telecommunications service markets in their countries. These trends intensify competition in the world telecom market and promote the appearance of the global mega-carriers through integration between carriers such as MCI WorldCom/Sprint merger, Vodafone AirTouch/Mannesmann deal, DDI/KDD/IDO contract, and etc.

Finally, mobile phones and Internet are the biggest growth area in the TI. In 1998, mobile revenues surged to $154 billion, whereas fixed-line revenues dropped to $429 billion, continuing a decline that began in 1996. If current trends are any indication, mobile revenues will overtake total fixed-line revenues by 2004.[2]

The Internet has exploded onto the commercial scene, both in the consumer and corporate space, and has become the main media for delivering information. Consequently, it has forced to change competition structure from each service within a network to bundled services through the Internet. Providing bundled services requires tremendous resources such as capital, technology etc. Accordingly the trend of offering bundled services accelerates M&As and alliances. <Figure 2-1> shows the trend of mobile phone and Internet users worldwide

<Figure 2-1> Global Mobile and Internet Users (in millions)



	1998	1999	2000	2001	2002	2003
Internet Users	142	196	256	327	399	502
Mobile Users	304	427	558	725	895	1,081

Source: IDC

2.2 Restructuring Cases in the World TI

Alliances offer a quick solution, but they can prove sticky and awkward. Partners frequently come to an alliance with different agendas, making for a marriage of convenience

[2] The Economist, "Telecommunications: The World in Your Pocket", October 9, 1999

that sooner or later dissolves in divorce. Indeed, most of the alliances that have been tried so far in the TI have either failed or are on the way to doing so. Although M&As can be much more risky and expensive, as well as more difficult to integrate, manage and operate, they are cleaner. This is why the following three cases in this study are related to M&A.

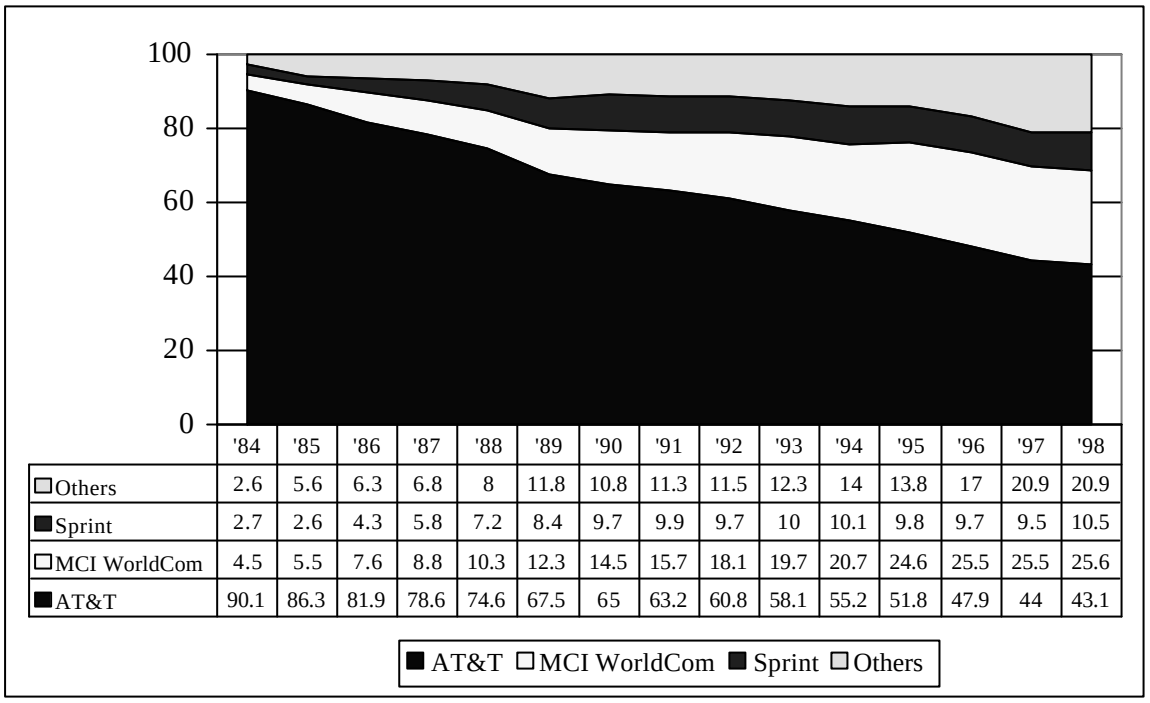
2.2.1 MCI WorldCom - Sprint Merger

2.2.1.1 Overview of the US Long Distance Industry

With the divestiture of AT&T by the Modified Final Judgment in 1984, the US long distance market had been changed from monopolistic structure into competitive structure. In 1984, AT&T's toll revenues of $35 billion accounted for 90% of revenues received by all long distance carriers. As shown in <Figure 2-2>, by 1998, with its revenues having increased by 16%, its share of total revenues had fallen to about 43%, while MCI WorldCom's share had increased from 4.5% in 1984 to 25.6% in 1998; Sprint's share from 2.7% to 10.5%; others' share from 2.6% to 20.9%. In 1998, services provided by long distance carriers generated about $94 billion in revenues. During the past few years, revenues have grown at a far slower pace than the volume of long distance calling because of sharp price cut. That is, interstate calling has grown steadily, with access minutes growing more than 200% from 167.1 billion minutes in 1985 to 518.9 billion minutes in 1998, but on the other hand revenues have grown 120% during that same period of time.

Prior to the Telecommunications Act of 1996, long distance carriers sold long distance services primarily between states and to international locations. Today, it allows all telephone carriers to sell both local and long distance calling. To compete in new markets and protect their own territories from encroachment by competitors, long distance companies are creating strategic alliances and mergers with companies that have complementary skills and/or additional capital to finance expansion.

<Figure 2-2> Total Toll Revenue Market Shares for US Long Distance Carriers (Percent)



	'84	'85	'86	'87	'88	'89	'90	'91	'92	'93	'94	'95	'96	'97	'98
Others	2.6	5.6	6.3	6.8	8	11.8	10.8	11.3	11.5	12.3	14	13.8	17	20.9	20.9
Sprint	2.7	2.6	4.3	5.8	7.2	8.4	9.7	9.9	9.7	10	10.1	9.8	9.7	9.5	10.5
MCI WorldCom	4.5	5.5	7.6	8.8	10.3	12.3	14.5	15.7	18.1	19.7	20.7	24.6	25.5	25.5	25.6
AT&T	90.1	86.3	81.9	78.6	74.6	67.5	65	63.2	60.8	58.1	55.2	51.8	47.9	44	43.1

Source: FCC, "Trends in Telephone Service", March 2000

2.2.1.2 Company Profile

MCI WorldCom, Inc. is one of the largest telecommunications companies in the U.S, serving local, long distance and Internet customers domestically and internationally. Organized in 1983, the company provides telecommunications services to business, government, telecommunications companies and consumer customers.

The company's operations have grown significantly in each year of its operations as a result of internal growth, the selective acquisition of telecommunications companies and international expansion. On December 1996, the company merged with MFS Communications Company, Inc. Through this purchase, the company acquired local network access facilities via digital fiber optic cable networks installed in and around major US cities, and in several major European cities. Before this merger, MFS acquired UUNET Technologies, Inc. on August 1996. UUNET is a worldwide provider of an Internet access options, applications, and consulting services to businesses, telecommunications companies and online service providers. On January 1998, the company merged with BFP, which is a

facilities-based provider of competitive local telecom services in selected cities within the US On September 1998, the company merged with MCI Communications Corporation. Through the merger, the company acquired one of the world's largest and most advanced digital networks, connecting local markets in the US to more than 280 countries and locations worldwide.

The company offers voice services which include local and long distance services with a 72,405 km fiber optic nationwide network; data and Internet services in 114 countries, to more than 70,000 businesses; international services with more than 300 offices in 65 countries and global networks covering over 96,540 km route miles throughout Europe, North and South America, and the Asia-Pacific region; and wireless paging services.

Revenues for 1999 were $34.3 billion, up 12.9 percent from $30.4 billion 1998. 38 percent of communications services revenues and more than 80 percent of its incremental communications services revenues were from high growth areas such as data, Internet and international services.

Sprint begins as the Brown Telephone Company in Kansas in 1899. Sprint is a global telecom company, serving long distance, local, wireless and Internet communications services for combined 20 million wireline and wireless customers. In late 1998, Sprint completed the restructuring of Sprint PCS and recapitalized its common stock into two separate classes: PCS stock, reflecting the company's wireless operations, and FON stock, representing all other operations.

Sprint FON Group consists of Sprint's wireline operations, including its core businesses which include the long distance, local telecommunications and product distribution and directory publishing businesses; Sprint ION which enables Sprint to provide the network infrastructure to meet customers' demands for data, Internet and video; Global One which is a joint venture between Sprint, Deutsche Telekom and France Telecom to provide communication services to large corporations, other carriers and calling card users in more than 65 countries outside of Germany, France; and other equity investments.

Sprint PCS Group operates the largest 100 percent digital, 100 percent PCS wireless network in the US, serving more than 4,000 cities and communities across the country. Sprint PCS has licensed PCS coverage for the entire US, as well as Puerto Rico and the US Virgin Islands. Sprint PCS is ranked ninth in US MI according to number of total subscribers, which are 3.35 million, as of March 31, 1999.[3] Revenues for 1999 were $19.9 billion, up 18.0 percent from $16.9 billion in 1998. Revenues of Sprint FON Group and Sprint PCS Group increased 7.9% and 64.2% in 1999 to $17.0 billion and $3.2 in 1999 from $15.8 billion and $1.2 billion in 1998 respectively. Although Sprint PCS Group takes only 16.0% in total revenues, it takes 64.2% of total incremental revenues. The data in <Table 2-1> illustrate profile of both companies, MCI WorldCom and Sprint.

<Table 2-1> Company Profile as of December 31, 1999

(Dollar Amounts Shown in Millions, Except Per Share Data)

		MCI WorldCom	Sprint	
Assets		87,053	39,250	
Debt		35,049	25,690	
Equity		52,004	13,560	
Revenues		34,348	19,928	
Operating Income (Loss)		7,503	(307)	
Net Income (Loss)		3,865	(935)	
			FON	PCS
Shares*	Total Shares Outstanding (thousands)	2,790,986	871,441	830,000
	Price Per Share	45.4375	61.5	55.0
	Market Cap	126,815	53,594	45,650
	EPS**	1.34	1.82	- 2.17
Customers (millions)		23.7	21.6	
Business		Local & Long Distance Internet International Paging	Local & Long Distance Internet International Wireless Phone	
Employees		83,000	77,600	

[3] Wireless Review, "Top 25 Carriers", September 1, 1999

* Shares figures are for April 28, 2000.

** EPS is based on data of the latest four quarters.

Source: MCI WorldCom Annual Report, 1999; Sprint Annual Report, 1999; NASDAQ

2.2.1.3 M&A Profile

On October 5, 1999 MCI WorldCom and Sprint announced that the boards of directors of both companies have approved a definitive merger agreement. The combined company, to be called WorldCom, will provide a full range of services to residential and business customers on its owned, end-to-end, state-of-the-art network infrastructure.

Under the agreement, each share of Sprint FON Group will be exchanged for $76.00 of MCI WorldCom common stock, subject to a collar. The actual number of shares of MCI WorldCom common stock to be exchanged for each Sprint FON Group share will be determined based on the average trading prices prior to the closing, but will not be less than 0.9400 shares (if MCI WorldCom's average stock price exceeds $80.85) or more than 1.2228 shares (if MCI WorldCom's average stock price is less than $62.15). In addition, each share of Sprint PCS Group will be exchanged for one share of a new WorldCom PCS tracking stock and 0.1547 shares of MCI WorldCom common stock. The terms of the WorldCom PCS tracking stock will be equivalent to those of Sprint PCS and will track the performance of the company's PCS business. The total value of the transaction is approximately $129 billion ($115 billion in equity and $14 billion in debt and preferred stock). The merger will be tax-free to shareholders and accounted for as a purchase.

Upon completion of the merger, William T. Esrey, chairman and chief executive officer of Sprint, will become chairman of WorldCom. Bernard J. Ebbers, president and chief executive officer of MCI WorldCom, will be president and chief executive officer of the combined company. The board of directors of the combined company will have 16 members, 10 from MCI WorldCom and 6 from Sprint. <Table 2-2> shows the terms of this merger.

The factors for this merger can be explained as the following. The economies of scale can be described as the first motive of this merger. More than ever before, scale is an

<Table 2-2> Terms of The Merger

Value	- $129 billion ($115 billion in equity, $14 billion in debt and preferred stock)
Price	- Sprint FON common receives $76 in MCI WorldCom common stock (collar of $62.15 to $80.85)
	- Sprint PCS receives 1.0 share of WorldCom PCS tracking stock plus 0.1547 shares of MCI WorldCom common stock
Transaction Mode	- Stock swap transaction
Post-Merger Ownership	- MCI WorldCom 55%, Sprint 45%
Board Composition	- MCI WorldCom 10, Sprint 6
M&A Type	- Horizontal & Product Extension Merger*
	- Friendly Merger
Motive	- Economies of scale & scope, customer access

* FTC Categories

important element of economic success. That's because TI, with its constant changes in access economics, has become a high fixed-costs business, and it follows that the most efficient and competitive companies will be those that can effectively leverage their economies of scale, that is, drive more traffic over a bigger network. The combined company will have about 35% of the traditional long distance market, compared to about 43% for AT&T. Seen in this light, the merger represents an opportunity to achieve the scale necessary to compete with AT&T and RBOCs (Regional Bell Operating Companies) which still control approximately 96% of access lines in their territories with GTE.

The second motive of the merger is economies of scope necessary to provide bundled services. Cutthroat competition and endless price wars in long distance market has made this service alone unattractive. Average revenue per minute for interstate and international calls has been decreased to $0.14 in 1998 from $0.32 in 1984.[4] Moreover the marketplace is completely different than just a few years ago. Industry consolidation by the RBOCs, AT&T ventures into the cable industry, Bell Atlantic's entry into long distance in New York and even America Online's merger with Time-Warner require new strategies for success. In this new

[4] FCC, "Trends in Telephone Service", March 2000

marketplace companies are positioning themselves to provide bundled, end-to-end solutions to their customers. In this context, wireless has been a major strategic headache at MCI WorldCom. Although it has been a major wireless reseller in the US, it has no physical presence in the MI. Many large corporate customers would prefer to receive most of their telecom services from one source. Sprint PCS will fill a critical gap in MCI WorldCom's product portfolio.

Customer access can be the third motive of this merger. To be able to play in the plethora of new markets and control their own destiny, companies need access to real customers. The bottom line for many recent M&A decisions has been the goal of gaining customer access. What AT&T was buying in TCI and MediaOne, and what Qwest bought in US West, was customers. Without local access, even the most successful company with the biggest customer base can end up paying a third or even a half of its revenues to local access providers. AT&T, for example, in 1998 spent 32% of its revenues for local access, MCI WorldCom 48%, and KDD 36%. Though local access costs will improve over time, for carriers without direct customer access, local fees are still likely to account for an average of some 30% of their costs in 2003.[5] This merger will give the combined company direct access to millions of customers, long controlled by the RBOCs, through fixed wireless technology, called MMDS (Multichannel Multipoint Distribution Service). MCI WorldCom and Sprint have MMDS licenses for areas that include 60% of US households.

The combined company will have revenues of $54.2 billion, assets of $123 billion and approximately 145,000 employees. The combined company will serve 38 million wireline customers, 6 million PCS customers and 1.7 million paging and advanced messaging customers. Together, MCI WorldCom and Sprint will have 8 million local access lines and incumbent local operations in 18 states. The company will have operations in more than 65 countries. The data in <Table 2-3> summarize the combined company's profile.

[5] Kamel Maamria, "The Quest for Access", Telecommunications, February 2000

<Table 2-3> The Combined Company Profile (Dollar Amounts Shown in Billions)

Total Customers	45.7 million
Assets	123
Market Value	290
Revenues	54.2
Employees	145,000

Source: Reconstructed from Sprint Annual Report, 1999; Business Week, October 18, 1999

The companies estimate that annual cash operating cost savings of $1.9 billion are achievable in 2001, the first full year of operation, increasing to $3.0 billion annually by 2004. These cost savings are anticipated to result from better utilization of the combined networks and other operational savings. Capital expenditure savings of $1.3 billion a year are expected in 2001 and beyond, primarily as a result of economies of scale and procurement efficiencies.

However, the companies have to overcome the following challenges.[6] First, the FCC vows to take a close look at the proposed Sprint takeover. In particular, the agency worries about concentration in long distance and in the Internet backbone. Second, the new company must solve technical problems. The merged company is building its local strategy around largely untested wireless systems. The new company maintains that the systems are reliable and cost effective. But so far analysts aren't convinced. Third, MCI WorldCom is paying a whopping 50% premium over what Sprint's market value was before deal speculation began in late September. It will take enormous synergies and cost-savings to justify such a rich price. Finally, the new company has to settle cultural problems. MCI WorldCom's freewheeling culture stands in sharp contrast to that of Sprint, based in Westwood, Kansas.

The merger is subject to the approvals of MCI WorldCom and Sprint stockholders as well as approvals from the Federal Communications Commission, the Justice Department, various state government bodies and foreign antitrust authorities. The companies anticipate that the merger will close in the second half of 2000.

[6] Business Week, "What's a Cell-Phone User Worth?" October 18, 1999

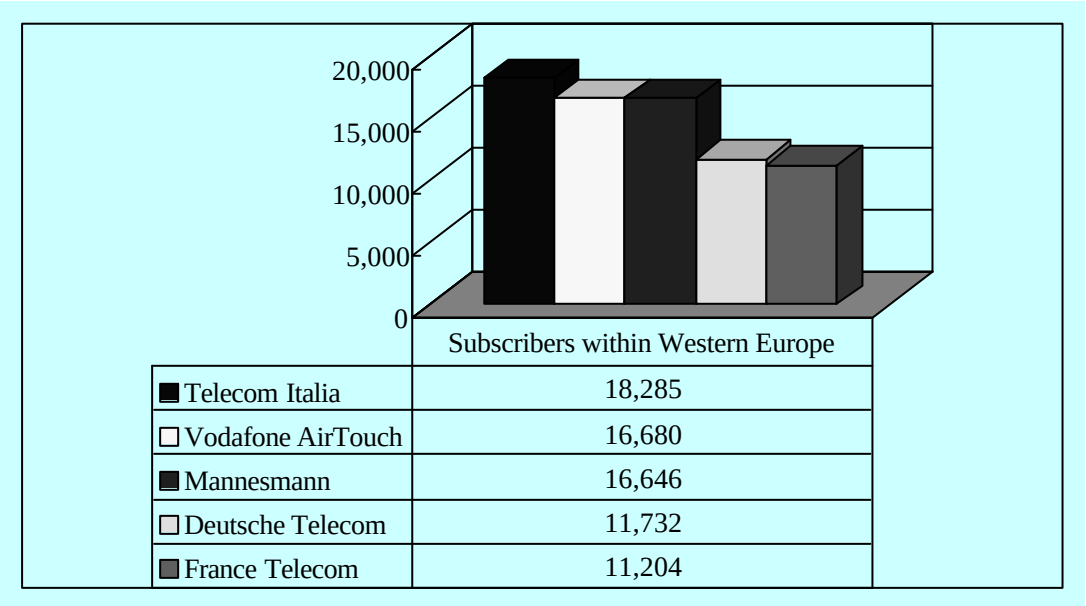
2.2.2 Vodafone AirTouch - Mannesmann Merger

2.2.2.1 Overview of European MI

The MI is expanding rapidly in Europe owing to a favorable technological and regulatory environment. The market environment should become much more homogeneous across Europe as EU regulation governs national regulation. As the market grows the industry is moving to an increasingly competitive structure. The number of subscribers to mobile networks in the European Union is estimated to be 143 million at the end of 1999. This corresponds to a penetration rate of 37.1 mobile telephone subscribers per 100 inhabitants.[7]

The data in <Figure 2-3> show the five largest MOs in Europe according to the number of total subscribers as of September 1, 1999. By far the largest operator is Telecom Italia, which had 18.2 million subscribers as of September 1999. Vodafone AirTouch and Mannesmann are second and third with 16.7million and 16.6million subscribers respectively.

<Figure 2-3> Top 5 MOs in Europe as of September 1, 1999 (in thousands)



Source: Sang-Oh Lee, "Restructuring European Telecommunications Market through M&A", Information & Communications Policy, November 1, 1999

[7] MobileComi, November 1999

2.2.2.2 Company Profile

Vodafone AirTouch is the world's largest international MO, with more than 31 million proportionate customers and interests in 24 countries, across five continents. Originally Vodafone was a subsidiary of Racal Electronics Plc. Then known as Racal Telecom, in December 1982, the company won a competitive tender to build and operate the second UK cellular phone network. On January 1 1985, Vodafone was launched. In 1991, Vodafone became completely independent of Racal, and in 1999 Vodafone joined forces with AirTouch to create the world's largest international MO. In the three months following the completion of the merger with AirTouch, Vodafone AirTouch has recorded an increase in proportionate customers to over 31 million at the end of September from approximately 28 million at the end of June 1999. Vodafone AirTouch's strategy is to concentrate on wireless telecommunications globally. The company is the largest of the four MOs in the UK. At the end of September 1999, the company had market share of over 35% of the UK mobile market with more than 6.8 million customers on its networks. The company's operations cover the vast majority of Western Europe and extend into Eastern Europe, Africa and the Middle East. In 1999, total proportionate subscribers in the region passed 12 million. In the US, Vodafone AirTouch is a leading MO with approximately 9 million proportionate customers as of September 1999. The company recorded more than 3.4 million proportionate customers in Asia at the end of September 1999.

Revenues for the fiscal year of 1999 increased by 36% to 3,360 million pounds from 2,471 million pounds in 1998. This increase includes a full year's revenues from the acquisition in January 1998 of a controlling interest in the Dutch network operator, Libertel, and revenues in relation to the acquisition in October 1998 of New Zealand's GSM cellular network business.

Mannesmann, founded in 1885, is a multinational company with its core business fields of engineering, automotive products, telecommunications and tubes. Over the last thirty years, Mannesmann has changed with the objective of pushing forward into high-growth business

sectors such as the telecommunications sector.

Across Europe, Mannesmann offers its customers a wide range of services, including mobile and fixed-line telephony and Internet. Mannesmann is the majority shareholder in two of the top three European mobile operators, Omnitel in Italy and Mannesmann D2 in Germany, both with more than 8 million subscribers; it holds a 15% stake in SFR, the French MO, and has recently gained the fourth mobile license for Austria. Since November 1999, Mannesmann has also held a majority share in Orange in the UK. In fixed-network telecommunications, Mannesmann is the powerful competitor to the former monopolists in the three major European markets: Arcor and Otelo in Germany, Infostrada in Italy, and Cegetel in France. Additionally Tele.ring provides fixed-network services for Austria.

At 23,265 million marks, Mannesmann's revenues increased by 22 percent in 1999 from 19,065 million marks in 1998. This increase was due to the growth in Telecommunications sector (93%). Meanwhile Engineering & Automotive sector recorded a sales increase of only 3 percent, and other companies experienced a decline mostly due to the weak market development at Mannesmann Tubes. <Table 2-4> shows profile of both companies.

2.2.2.3 M&A Profile

On Feb. 3, 2000 Vodafone AirTouch Plc. and Mannesmann AG announced that they reached agreement on the terms of a merger that would create the largest wireless entity in the world. The approximately $183 billion merger creates a mobile services colossus with more than 42 million subscribers. Originally Vodafone AirTouch approached Mannesmann with a $106 billion merger proposal on November 14, 1999 with a view to reaching a friendly agreement. This proposal was rejected and Vodafone AirTouch has therefore decided to approach the shareholders of Mannesmann directly with and increased offer. The new company, to be called Vodafone AirTouch, will provide mobile, fixed, data and Internet services. Under the terms of the new agreement, Mannesmann shareholders will receive 58.9646 Vodafone AirTouch shares for each Mannesmann share. Based on Vodafone

<Table 2-4> Company Profile

	Vodafone AirTouch* (March 31, 1999)	Mannesmann** (December 31, 1999)
Assets	3,643.6	60,244
Debt	2,829	36,515
Equity	814.6	23,729
Revenues	3,360	23,265
Operating Income (Loss)	962.6	1,548
Net Income (Loss)	683.1	497
EPS	20.61 Pence	1.85 Marks
Stock Performance	Multiplied by 4 times since Nov. 1997, providing currency for the company takeovers, including $62 billion buyout of AirTouch.	Multiplied by five times since Nov. 1997, as it has been changed from machine-tool maker into cell-phone powerhouse
Customers (millions)	35	18
Business	- Wireless Phone	- Engineering & Automotive - Wireless Phone - Fixed Network Services
Business Strategy	To concentrate on wireless telecommunications globally	To offer cellular, fixed-line, and cable service
Employees	32,000	130,000

* Money amounts shown in million pounds, except per share data

** Money amounts shown in million marks, except per share data

Source: Vodafone AirTouch, "Annual Report, 1999", "Offer for Mannesmann AG, Jan. 11, 2000"; Mannesmann, "Annual Report, 1999"; Business Week, November 29, 1999

AirTouch's closing price of 368.5 pence on Feb. 3, 2000, the revised offer values each Mannesmann share at EUR 350.5 and Mannesmann's share capital at EUR 181.4 billion. Following the Revised Offer, and assuming full acceptance, Mannesmann Shareholders will hold 49.5% of the Combined company. Klaus Esser , chief executive officer of Mannesmann, will join the Vodafone AirTouch's board as an executive director. After stepping down from Mannesmann, he will become non-executive deputy chairman of the new company. Mannesmann will have 5 representatives (1 executive and 4 non-executive) out of the total of 19 on the new Vodafone AirTouch Board. <Table 2-5> illustrates the terms of this merger.

<Table 2-5> Terms of The Merger

Value	- $183 billion
Merger Ratio	- 58.9646 Vodafone AirTouch shares for each Mannesmann share
Transaction Mode	- Stock swap transaction
Post-Merger Ownership	- Vodafone AirTouch 50.5%, Mannesmann 49.5%
Board Composition	- Vodafone AirTouch 14, Mannesmann 5
M&A Type	- Horizontal & Product Extension Merger
	- Hostile Merger
Motive	- Economies of scale & scope
	- Customer access
	- To have more weight in the 3G network licensing processes

Economies of scale also can be the main motive of this merger. Vodafone AirTouch could have solid strategic reasons for wanting to acquire Mannesmann. Some of the company's stakes in MOs in Europe are looking quite small. For example, it has only 20.0% stake in SFR and 21.6% in Omnitel, whereas Mannesmann holds 15% and 55% respectively.[8] At the forefront of Vodafone's mind will be how it can strengthen its European position. Obviously, Vodafone would benefit from gaining Mannesmann's stakes in companies in which it already has stakes. Through this merger Vodafone will significantly strengthen its European position, especially in the German and Italian markets with 29 million proportionate subscribers in Europe. The takeover has created a combined enterprise that will be able to compete toe-to-toe with telecom titans such as NTT DoCoMo and the Concert global alliance of AT&T and BT.

The second motive is to offer integrated services. Although Vodafone AirTouch was already the world's largest MO, it is only providing mobile phone services and announced its Internet strategy only earlier this year. Meanwhile Mannesmann is one of Europe's largest Internet service providers, combining mobile and land-line telephony to deliver online services. Mannesmann has approximately 40,000 km network throughout Europe, Arcor and Otelo in Germany, Infostrada in Italy and Tele.ring in Austria, and 7,000 km of them is fiber

[8] "Vodafone AirTouch Annual Report, 1999" and " Mannesmann Annual Report, 1999"

optic cable.[9] Before this merger, on Jan. 30, 2000, Vodafone announced alliance with Vivendi, the French telecom company, to create a European Internet portal and pool their resources to build a continent-wide fixed-line phone network. With this takeover, the new company will be able to combine Mannesmann's network with Vivendi's to build pan-European fixed network, and enable to link mobile network and fixed network. The enlarged company is sure to offer tailor-made mobile service packages over a wide geographic territory and free roaming across international borders. It will be well positioned to exploit the convergence of wireless and the Internet.

Finally, the combined company will be in a strong position to shape the development of next generation wireless standards. It is also expected to have more weight in the 3G network licensing processes currently beginning in various European countries. By the same token, Vodafone AirTouch plus Mannesmann should have the financial muscle to shoulder the not inconsiderable cost of building these 3G networks.

The total value of the Vodafone AirTouch on the stock market, after paying $183 billion for Mannesmann in shares, will be $365 billion making it by far the largest company on the London stock market and the fourth largest in the world.[10]

The board of Vodafone AirTouch has quantified substantial synergies resulting from this merger. These reach approximately 500 million pounds on a proportionate after tax cash flow basis in 2003 and approximately 600 million in 2004. The synergy benefits comprise approximately 20-25 percent from additional revenues, 40 percent from cost savings such as handset and other purchasing efficiencies and the remainder from savings on capital expenditures, particularly as third generation networks are rolled out.[11]

The success of Vodafone AirTouch and Mannesmann, however, is not assured. The management task of the new company will be complicated by the Internet deal struck between Vodafone AirTouch and French telecom and utilities group Vivendi at the end of January.

[9] "Mannesmann Annual Report, 1999"
[10] BBC News, "Vodafone seals Mannesmann deal", February 11, 2000
[11] Vodafone AirTouch, "Offer for Mannesmann AG", January 11, 2000

Moreover Vodafone still has not fully digested its AirTouch properties. And the cultural integration of a German industrial giant such as Mannesmann will be tricky.

While many attractions are attached to being able to provide the same service repertoire in different markets, the dynamics of mobile markets in different regions are quite different, making it necessary for operators to play a somewhat different tune in each market. Mobile phone usage and trends in medium-to-large corporations vary dramatically across Europe.

The combined company also will face a considerable loss from the enforced sale of Orange to satisfy competition regulators in the UK.

2.2.3 DDI-KDD-IDO Merger

2.2.3.1 Overview of Japanese TI

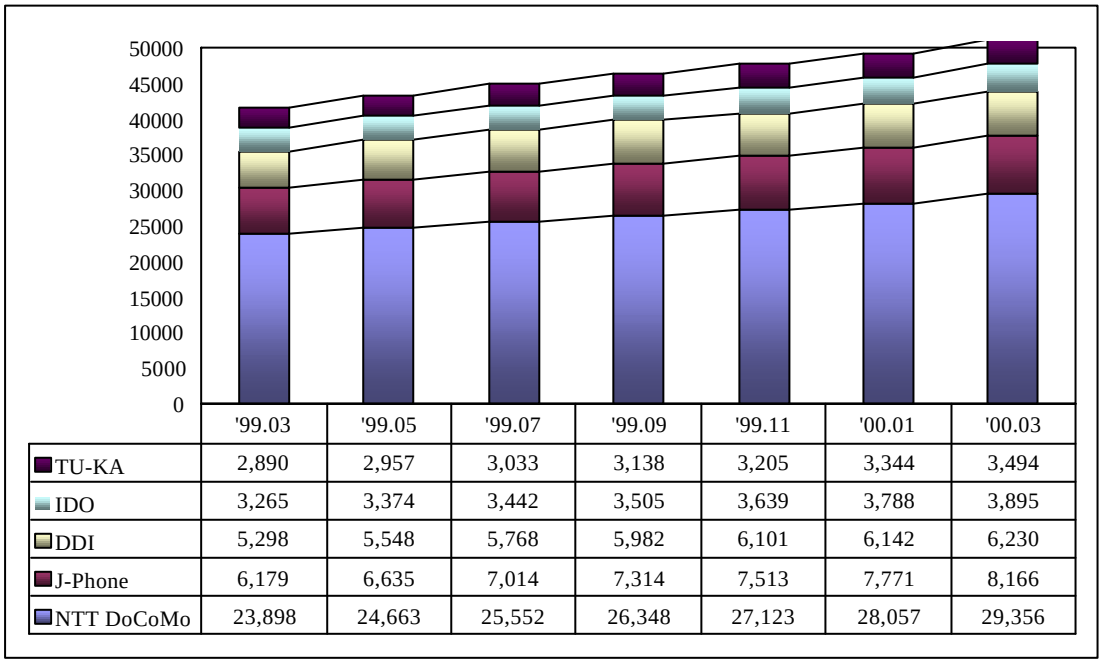
The world's second largest telecom market is going through a series of fundamental structural changes that are creating a new set of threats, challenges and opportunities for the various market participants. WTO agreements, the break-up of NTT, which took place in July 1999, a new wave of market entrants, plus increasing involvement by foreign operators, and shifting market demands, are all combining to create the blueprint for a very different competitive landscape. In local services, the main competitors are NTT and TTNet; in long distance services, NTT, DDI, JT, KDD; in international services, KDD, IDC, JT and NTT Communications.

International service provider KDD has been hard hit by callback and Internet telephony services. Rates have fallen by more than 60 per cent during the past 2 years. KDD reduced its 3 minutes daytime rates between US and Japan from 450 yen in 1996 to 180 yen on Nov. 1998. Domestic long distance NCCs (New Common Carriers), JT and DDI, meanwhile, have experienced sharp decline in their revenues; rates have fallen by more than 75% during the past 10 years. On Feb. 1988, NTT charged 360 yen for the longest distance rate zone for 3

minutes, however, reduced 90 yen on Feb. 1998.[12] As competition continues to reveal their weaknesses, the NCCs are looking at domestic mergers as a means of survival: JT has absorbed ITJ on Oct. 1997, and Teleway has merged with KDD on Dec. 1998. But with NTT still controlling 95% of the local access market, the NCCs are increasingly looking like acquisition targets for global players seeking a foothold in the Japanese market.

During the 1990s, one of the dominant transformations in the TI and in society in general has been the rise of wireless communications. In the twelve months ending March 1999, the MI generated over 4 trillion yen in revenues. At the end of March 2000, total subscribers were 51.1 million, up 23.1% from 41.5 million of the last day March 1999. <Figure 2-4> shows mobile subscriber growth in Japan.

<Figure 2-4> Mobile Telephone Subscriber Growth in Japan (in thousands)



	'99.03	'99.05	'99.07	'99.09	'99.11	'00.01	'00.03
TU-KA	2,890	2,957	3,033	3,138	3,205	3,344	3,494
IDO	3,265	3,374	3,442	3,505	3,639	3,788	3,895
DDI	5,298	5,548	5,768	5,982	6,101	6,142	6,230
J-Phone	6,179	6,635	7,014	7,314	7,513	7,771	8,166
NTT DoCoMo	23,898	24,663	25,552	26,348	27,123	28,057	29,356

Source: TCA

2.2.3.2 Company Profile

DDI Corporation, founded in June 1984, provides long distance, international and mobile phone services. It launched mobile phone services in 1989 and started roaming service using

[12] MPT, "Outline of the Telecommunications Business in Japan", January 2000

IDO Corporation networks outside its territory in 1992. In 1999, revenues showed an increase of 13% to 606 billion yen, as compared with the same period of the previous year. Net income in 1999, however, decreased to 16.9 billion yen, down 41% from 23.7 billion yen in 1998 due to reduction in prices for long distance services.[13]

KDD Corporation, established in March 1953, is the largest international service operator. It entered the long distance market by acquiring TWJ on Dec. 1998. Since 1997, it has suffered a decrease in revenues from 3,225 billion yen in 1997, to 3,164 billion yen in 1998 and to 3,132 billion yen in 1999 due to sluggish growth of demand and the sharp reduction in prices for international services. Net income for the same period also decreased from 20.8 billion yen in 1997 to 16.8 billion yen in 1998, and to 9.4 billion yen in 1999.[14]

In the wake of market liberalization, IDO Corporation, founded in 1987, entered the Japanese mobile telecommunications field in 1987. On April 1999, IDO, in conjunction with the DDI, has launched "cdmaOne", which is a completely new digital telecom technology based on CDMA (Code Division Multiple Access) in Japan. In 1999, revenues increased by 21.2% to 411 billion yen from 339 billion yen in 1998. Net income increased dramatically from negative 38.6 billion yen to 7.5 billion yen during the same period. The data in <Table 2-6> illustrate the profile of the three companies.[15]

2.2.3.3 M&A Profile

On December 16, 1999, DDI, KDD and IDO announced that they have agreed on the basic details for signing an agreement to merge on October 1, 2000.

Under the agreement, one share in DDI (par value per share: 5,000 yen) will be issued per 92.1 shares in KDD (par value per share: 500 yen). One share in DDI will be issued per 2.9 shares in IDO (par value per share: 50,000 yen). The merger ratio for DDI and KDD was calculated based on the average closing price on the TSE (Tokyo Stock Exchange) over the six months up to December 15, 1999 of shares issued by each company. The ratio in the case of IDO was determined based on the results of calculations by a third-party agency, and

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[13] "DDI Annual Report, 1999"
[14] KDD, "Corporate Information", "Merger of DDI, KDD and IDO", http://www.kdd.co.jp/press-e99/
[15] IDO, "Corporate Profile", http://wwwl.ido.co.jp; "Merger of DDI, KDD and IDO", http://www.kdd.co.jp/press-e99/

<Table 2-6> Company Profile as of Mar. 31, 1999 (Money Amounts Shown in Million Yen)

	DDI	KDD	IDO
Line of Business*	Type I Carrier	Type I Carrier	Type I Carrier
Wireless Technology	cdma2000	-	Cdma2000
Total Assets	810,895	924,733	457,995
Revenues	605,510	313,160	410,710
Net Income	16,867	7,269	7,509
Total Shares Outstanding (Par Value)	2,274,442 (5,000 yen)	76,224,823 (500 yen)	1,374,804 (50,000 yen)
Employees	2,990	5,792	979
Main Shareholders & Shareholdings (%)	- Kyocera 25.16 - Sumitomo Trust & Banking Co. 4.44 - IBJ Trust & Banking Co. 4.16 - Chase Manhattan Bank 3.33	- MPT Mutual Aid Association 9.26 - Toyota Motor 8.42 - NTT 8.42 - Nippon Life Insurance 486	- Toyota Motor 62.84 - Tokyo Electric Power Co. 11.78 - Chubu Electric Power Co. 7.57 - KDD Co. 2.40

* MPT Classifications: Type I business provides telecommunications services by establishing its own telecommunications circuits and facilities

Source: "Merger of DDI, KDD and IDO", http://www.kdd.co.jp/press-e99/

finalized by agreement among the parties to the merger. Number of new shares issued through merger will be 1,345,260.60 (par value per share: 5,000 yen), which is calculated on the basis of the capital stock of KDD and IDO as of December 15, 1999. DDI shall allocate to and Toyota Motor Corp. shall receive new share prior to the merger. The terms of this merger are summarized in <Table 2-7>.

<Table 2-7> Terms of The Merger

Merger Ratio	- One share in DDI will be issued per 92.1 shares in KDD - One share in DDI will be issued per 2.9 shares in IDO
Transaction Mode	- Stock swap transaction
M&A Type	- Horizontal & Product Extension Merger - Friendly Merger
Motive	- Economies of scale & scope, IMT-2000 License
Other	- DDI shall allocate to and Toyota Motor Co. shall receive new share prior to the merger

The combined company, to be called DDI Corporation, will provide long distance, international and wireless services as Type I carrier. Yusai Okuyama, president and chairman of DDI, will be the president of the combined company. The new company will have total assets of 2,193.6 billion yen, which combined total assets of each company as of March 31, 1999. For the first two years after the merger, it will have revenues of 1,160 billion yen at year ending March 2001 and 1,750 billion yen 2002, and net income 30 billion yen and 60 billion yen respectively.

The factors for this merger can be described as the following. The economies of scale are the first motive of this takeover. On March 31, 2000, NTT DoCoMo dominates the wireless market with a hefty 57.4% market share. Trailing NTT DoCoMo are J-Phone (16.6%), DDI (12.2%), IDO (7.6%) and TU-KA (6.8%). DDI became the large shareholder of TU-KA by acquiring its shares from Nissan Motor last year, and in this context it merged with IDO. These contracts enable DDI to secure its position as a second largest competitor in Japanese MI and to provide nationwide coverage with 13.6 million subscribers (26.6% market share). Furthermore with this takeover, the three companies can lighten the costs of building 3G networks, which take more than 1 trillion yen, by enhancing their capital base and concentrating management resources on one merged company.

Second, economies of scope can be another factor of this merger. The international telephone service that is the mainstay of KDD, which does not have wireless phone business, is faced with intensified competition due to the entry of NTT and sluggish growth of demand. Accordingly, its future seems uncertain without this merger. However, KDD is the largest international service provider with more than 10,000km submarine cable network to complement wireless network. The market is seeing a rapid shift from voice to data communications, and from fixed to mobile communications. Being able to offer seamless service by developing both mobile and fixed networks has thus grown to of vital importance. This merger will enable the new company to develop and expand an integrated backbone and to provide a seamless mobile, domestic and international telecom services as a comprehensive telecommunications carrier to compete against the dominant carriers in Japan and overseas.

Finally, the authority of Japan announced that the number of companies, which would have license for offering IMT-2000 services, would be three. It can be analyzed that Japanese

TI is reorganized into three groups that are NTT group, JT-BT-AT&T group and DDI group by this merger. Consequently the combined company will have advantageous position to obtain license for IMT-2000 service. By the same token, the new company will carry weight to shape the development of 3G wireless standards. Currently DDI and IDO will adopt cdma2000, meanwhile, NTT DoMoCo and J-Phone will adopt W-CDMA.

The combined company, however, has to overcome the following challenge. It does not have direct links to its customers and it must pay access charges to NTT, which has a virtual monopoly over local networks.

2.3 Characteristics of Restructuring Cases and Implications

2.3.1 Characteristics of Restructuring Cases

□ Transaction Value

The value of the merger is enormous. Although the transaction value of DDI-KDD-IDO merger has not been announced yet, the value of the other two cases is much greater than $100 billion. In expanding business area, acquiring one big company is more effective than purchasing a few small companies by enhancing synergy effects, reducing transaction cost and etc. In addition, stock for stock transaction enables company to achieve mega-merger without much financial burden.

□ Transaction Mode

The three mergers of described above were carried out through stock swap transaction. In 1988, less than 2% of large deals, greater than $100 million, were paid for entirely in stock; by 1998, that number had risen to 50%.[16] That's because stock swap transaction does not require to finance much capital for merger and enables to avoid taxes.

□ M&A Type

The combination of horizontal merger that a firm acquires former competitor, and

[16] Alfred Rappaport and Mark L. Sirower, "Stock or Cash? The trade-offs for buyers and sellers in mergers and acquisitions", Harvard Business Review, November 1, 1999

product extension merger that a firm gains access to complementary products through acquisition is shown in all three mergers. Contrary to the other two cases, Vodafone AirTouch acquired Mannesmann by hostile M&A through direct access to shareholders. As a result, it spent $12,400 per subscriber. Based on most available comparisons, it overpaid. In AT&T's cable deals, which are the heart of its Internet strategy, the company spent an average of $5,000 per home. Just last fall, Deutsche Telekom spent $6,000 per customer in buying Britain's One 2 One, and Mannesmann dealt out $7,000 per customer two months later, when it bought Orange. Vodafone AirTouch criticized Mannesmann for overpaying.[17]

□ Motive

The first motive is to gain economies of scale. As was noted earlier in this chapter, economies of scale are inherent characteristics of TI. It means that the integrated management and provision of telecom network facilities by a company would be much more efficient and economical than that numerous service providers try to manage and provide services through separate network facilities. Through the mergers, the combined companies can expand their network externality: MCI WorldCom gained additional 22 million subscribers, Vodafone AirTouch 7 million subscribers, and DDI 3.9 million subscribers.

The second motive is to acquire economies of scope. Many larger carriers offer wireline, wireless and Internet services on their own network. That's because bundles have become the preferred means of achieving customer retention, revenue growth and differentiation. However, it costs huge amount of time, capital and other resources for entering into new business. In this context, M&A might be useful method to give companies a quick solution: MCI WorldCom gained wireless network and Vodafone AirTouch and DDI achieved wire network.

The third motive is to gain direct customer access. One reason why access is so important is 'the law of relative scarcity' which holds that wherever scarcity exists, pricing power remains with the pipe provider. In the US, for example, backbone capacity is projected to increase by up to 200 times in the next three to five years while the cost of backbone bandwidth will fall by up to eight times. With this backbone bandwidth ramp-up, bottlenecks

[17] Business Week, February 21, 2000

in the local loop will become even more evident.[18] Although it is insufficient with fixed wireless method, MCI WorldCom can get direct customer access.

The fourth motive is to achieve strengths related to IMT-2000 services. Vodafone AirTouch and DDI gain more weight in the 3G network licensing and shaping standards in Europe and Japan respectively. In addition, they can cut down the costs of building 3G networks.

2.3.2 Implications

The restructuring cases of the above show some implications for restructuring Korean MI. First, to improve network efficiency and network externality, and to avoid duplicate investment especially building IMT-2000 network, it is inevitable for both incumbents and newcomers to gain economies of scale.

Second, The barriers that created separate worlds of wireless, wireline, voice, data, local and long distance are crumbling and a new communications framework is being constructed in its place. The explosion of Internet since the mid-1990s has forced to integrate various services into a single network. Accordingly, the operators should prepare for offering bundled services.

Finally, mergers have been surging in the US, due in large measure to the influence of the 1996 Telecommunications Act, and have begun to extend to Europe and Japan. The local competitions of the past few years are being transformed into international face-offs. After announcing agreement on merger with Mannesmann, Vodafone AirTouch immediately announced that it was looking for other acquisitions, especially in Asia. Therefore the authorities should implement deregulation policies to promote competition for competitiveness.

[18] Kamel Maamria, "The Quest for Access", Telecommunications, February 2000

CHAPTER 3 KOREAN MOBILE TELEPHONE INDUSTRY

3.1 Overview of the Korean Telecommunications Industry

Article 4 of the Telecommunications Business Act (TBA) divides the telecom industry into three categories: facilities-based service, special service and value-added service. Facilities-based service providers who provide basic telecom services by establishing its own telecom facilities shall obtain a license from the Ministry of Information and Communications (MIC). Special service providers who provide basic telecom services using leased telecom facilities from a facilities-service provider shall register required matters with MIC. Value-added service providers who provide value-added services other than basic telecom services using leased telecom facilities from a facilities-based service provider shall report to MIC. As of December 1999, 2 companies are engaging in local services; 3 companies in long-distance services; 3 companies in international services; 5 companies in mobile phone services. Also the person who wishes to run a facilities-based telecommunication business, which is classified into telephony, mobile phone, leased lines, paging, and etc., should obtain a license.

Pursuant to the WTO Basic Telecommunications Agreement, Korea has opened its telecom market. The Korean government opened voice resale service market in 1998, liberalized the foreign ownership limit to 49% in the wired and wireless sector from 2001, and allowed foreign largest shareholders from 1999. However, due to the financial crisis at the end of 1997, the Korean government enlarged the cap of foreign ownership up to 49% from July 1, 1999 earlier than the former planned date and abolished the cap on one person ownership of facilities-based service providers to promote foreign investment to the Korean telecommunications service market. Accordingly, it became possible to merge or acquire a common carrier not only by other common carrier but also by non-common carrier. <Table 3-1> demonstrates ownership restrictions on Korean TI.

<Table 3-1> Ownership Restrictions on Korean TI

	WTO Agreement	TBA (Sep. 17, 1999)
Foreign Ownership	- 33% in both wired/wireless from 1998 (KT: 20%) - 49% in both wired/wireless from 2001 (KT: 33%)	- 49% in both wired/wireless from July, 1999 (KT: 33%)
One Person Ownership	- Wired: 10% (KT: 3%) - Wireless: 33%	- No Restriction - KT: 15%
Foreign Ownership in Resale Service - Voice Resale - Others	 - 49% from 1999 - 100% from 2001 - No Restriction	 No Change

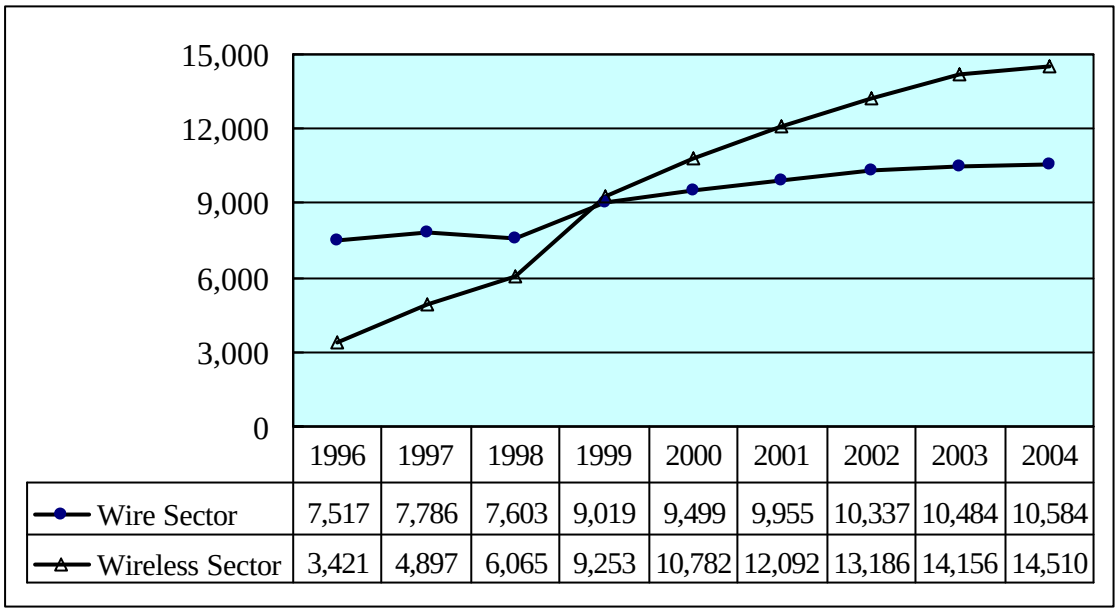
Source: http://www.mic.go.kr

TI has been growing continuously in spite of the IMF bailout program. The wireless sector has been the most dynamic segment in TI over the last four years. In terms of revenues, the wireless market has grown at annual rates 54.9% with 9,253 billion won in 1999. In comparison, revenues for the wire sector grew by 8.4% over the same period reaching 9,019 billion won. Revenues for the wireless sector would surpass the wire sector at the end of 1999. Mobile telephony subscriber base, however, has already surpassed the wire-line subscriber base since Oct. 1999. The wireless market is expected to maintain an annual average growth rate of 7.7% and to achieve 14.5 trillion won revenues by 2004, thanks to the continual growth of demands and rate reduction due to intensifying competition. The size of the total telecommunications market will reach 25 trillion won by 2004. <Figure 3-1> shows the prospect of telecommunications market based on revenues.

3.2 Korean MI Analysis

3.2.1 Structural Analysis

<Figure 3-1> Prospect of TI in Terms of Revenues (in billion won)



	1996	1997	1998	1999	2000	2001	2002	2003	2004
Wire Sector	7,517	7,786	7,603	9,019	9,499	9,955	10,337	10,484	10,584
Wireless Sector	3,421	4,897	6,065	9,253	10,782	12,092	13,186	14,156	14,510

Source: KISDI, Monthly Trends of Information & Communications Industry, Feb. 2000

Korea has five MOs. SK Telecom (SKT) started to offer services in 1984, Shinsegi Telecom (STI) joined this market on April 1996 and finally Korea Telecom Freetel (KTF), LG Telecom (LGT) and HansolM.Com (HMC) launched services on October 1997.

During the 1990s, the MI has experienced strong growth and competitive development. And it is also predicted as one of the most promissing industries for the next decade. However the ultimate profit potential of this industry is determined by the collective strength of the five basic forces: the threat of new entrants, the bargaining power of customers, the bargaining power of suppliers, the threat of substitute products or services, and jockeying among current contestants.[19]

As mentioned above, economies of scale is one of the characteristics of this industry which requires large up-front investment to install facilities. In addition, license by the authority is necessary to run this business. Therefore entry barriers are very high and the threat of new entry is low.

Second, suppliers can exert bargaining power on participants in an industry by raising

[19] Michael E. Porter, "How Competitive Forces Shape Strategy", Harvard Business Review, 1991

prices or reducing the quality of purchased goods and services. At the end of December 1999, two companies dominated the Korean handset market with nearly 70% market share: Samsung (50%) and LG (19.9%).[20] Moreover TBA prohibits for MOs to run manufacturing business, although they can produce mobile phone handsets by a subsidiary by MIC interpretation. Considering these factors, suppliers' bargaining power is higher than MOs'.

Third, customers can force down prices, demand higher quality or more service, and play competitors off against each other - all at the expense of industry profits. The services offered from this industry are nearly undifferentiated. Additionally, on April 1999, the MIC banned any contract of an obligatory subscription period. As a result, it is natural that customers have much more bargaining power than MOs have.

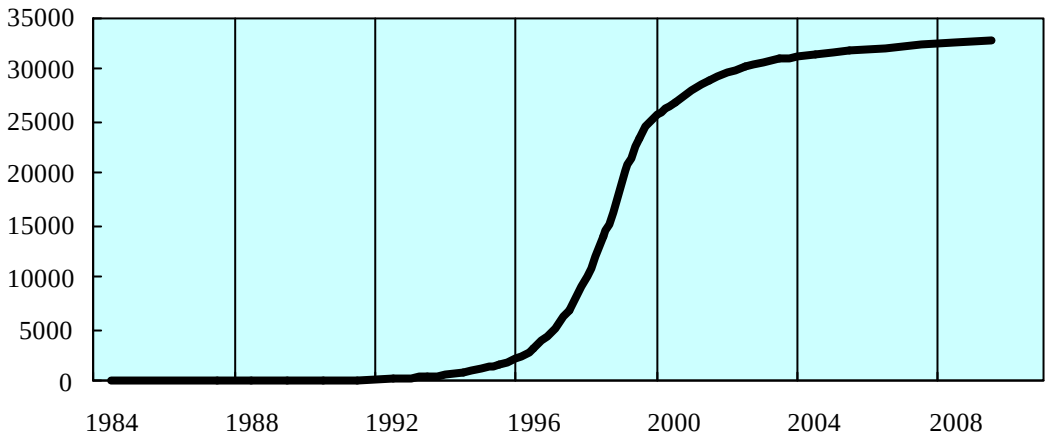
Fourth, substitutes not only limit profits in normal times but they also reduce the bonanza an industry can reap the boom times. Currently, wired phone can be regarded as the strong substitute for mobile phone due to its low tariff and network externality. However, as the number of subscribers to MI has increased, the price gap between the two services has decreased, year after year. Meanwhile, mobile phone is going to be an indispensable factor for life due to its intrinsic characteristic-mobility. In this regard, the threat of substitutes is relatively low.

Finally, high fixed costs create strong temptation to cut price and high exit barriers keep companies competing even though they may be earning low or even negative returns on investment. Facility-based industry, one of the characteristics of TI, results in high fixed costs and high exit barriers. Consequently, competition among the five MOs will be more intense than today.

The growth in the number of mobile subscribers has grown dramatically throughout the 1990s with a 90.2% annual growth rate. However, it is estimated that the growth of subscribers is going to slow down to 4.1% annually during the next five years and will be saturated by 2009 with 32,721 thousand subscribers. As shown in <Figure 3-2>, the Korean

[20] MobileComi, February 2000

<Figure 3-2> Korean MI Lifecycle, Based on Subscribers (in thousands)



Source: MIC; Yong-Je Choi, "Long Term Demand Analysis on Wireless Telecommunications Services", KISDI, December 30, 1999

MI is just in transition from growth stage to maturity stage from 2000.

According to Robert Grant., the onset of the maturity stage over the industry lifecycle is caused by increasing market saturation and slowing growth as new demand gives way to replacement demand.[21] Rapid consolidation around fewer players is certainly a feature of the transition to maturity when the slowdown of market growth causes excess capacity and a shakeout phase for the industry. This shakeout period may mark the onset of aggressive price competition in the industry. With the maturity stage, the key success factors are cost-efficiency through capital intensity, scale efficiency and low input costs, high quality, and fast product development.

Industry structural analysis explains that Korean MI has incentives in itself to promote reorganization such as customers' high bargaining power, high fixed costs and high exit barriers. Also the transformation to the maturity stage intensifies competition, causes a shakeout, and thus requires industry restructuring. Although MI has entered the maturity stage, it may experience a rejuvenation of its life cycle through the industry restructuring and breakthrough technology such as IMT-2000.

[21] Robert Grant, "Analyzing Resources and Capabilities", in Contemporary Strategy Analysis, Blackwell Publishers, 1998

3.2.2 Marketing Performance

3.2.2.1 Subscribers

Since the launch of competition in 1996, MI has seen major increase in the number of subscribers. Subscribers doubled every year during 1996-1998 and reached 23,443 thousands in 1999 with nearly 10,000 thousands net increase. The growth rate of subscriber base was 114.7% from 1996 to 1997, 104.8% from 1997 to 1998 and 67.7% from 1998 to 1999. This corresponds to a penetration rate of 6.9 mobile telephone subscribers per 100 inhabitants in 1996, 15 in 1997, 30.3 in 1998 and 49.8 in 1999. <Table 3-2> shows mobile subscriber growth in Korea.

<Table 3-2> Mobile Telephone Subscriber Growth (in thousands)

Year	SKT	STI	KTF	LGT	HMC	Total	Penetration Rate (%)
1996	2891	290				3181	6.9
1997	4571	1125	350	366	416	6828	15
1998	5966	2136	2353	2116	1411	13983	30.3
1999	10076	3236	4267	3086	2741	23405	49.8
2000						26779	56.7
2001						28933	60.7
2002						30205	62.9
2003						30968	63.9
2004						31459	64.5

Source: MIC; Yong-Je Choi, "Long Term Demand Analysis on Wireless Telecommunications Services", KISDI, December 30, 1999

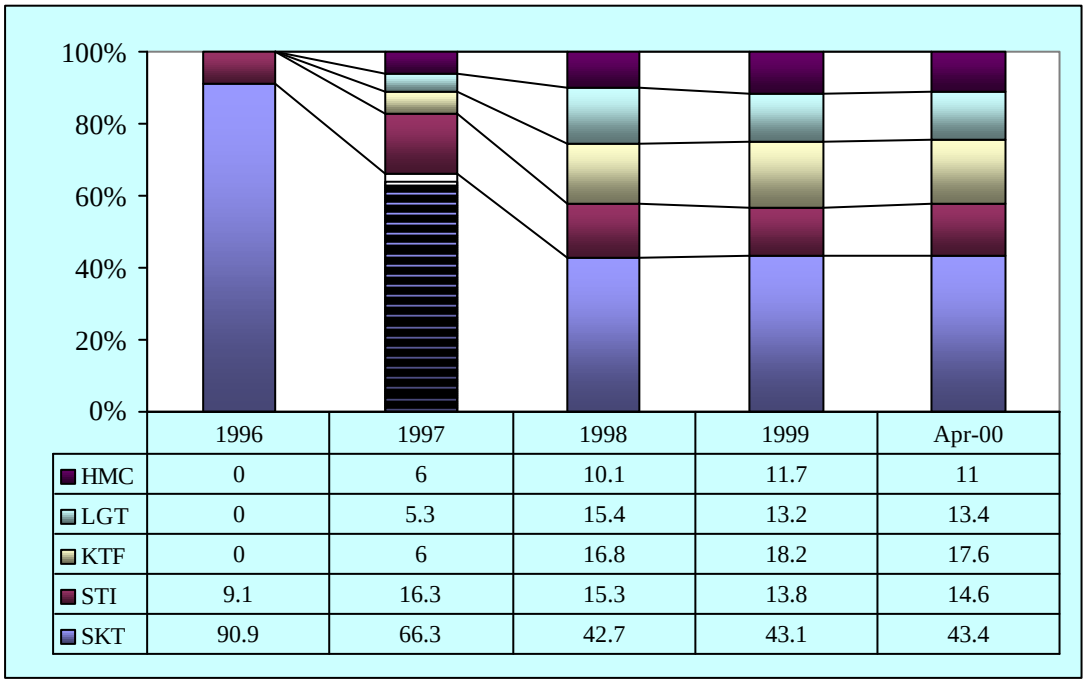
Such increase was possible mainly due to the efforts made by highly motivated service providers. After the launch of PCS in 1997, the five MOs exerted energetic efforts to capture as many customers as possible. They have completed nationwide service coverage in less than a year after the start-up of service by making huge up-front investment. They also offered large amount of handset subsidies, which apparently encouraged potential consumers to easily

subscribe with a little initial cost. As of September 1999, the Korean MI has accomplished the subscriber base of 21,560 thousand, the 5th in the world, and the penetration rate of 44.8% the 6th in the world.[22]

Taking wireless carriers individually, SKT has experienced sharp decline of the share of subscribers from 66.3% in 1997 to 41.2% in Mar. 1999 due to intensified competition with new PCS providers, together with the reduction in concentration from 8300 to 2588 during the same period as measured by the Herfindahl-Hirschman Index (HHI). However, with its vigorous efforts to obtain 10 million subscribers, SKT eventually jumped to 10,076 thousand subscribers at the end of 1999 and became one of the largest MO in the world in terms of subscribers.

The subscribers and market share of the other four MOs have rapidly increased until early 1999, however, since then market share has not shown much shift in spite of increases in the number of subscribers. <Figure 3-3> demonstrates subscriber base market share for MOs.

<Figure 3-3> Korean MOs Share of Subscribers



	1996	1997	1998	1999	Apr-00
HMC	0	6	10.1	11.7	11
LGT	0	5.3	15.4	13.2	13.4
KTF	0	6	16.8	18.2	17.6
STI	9.1	16.3	15.3	13.8	14.6
SKT	90.9	66.3	42.7	43.1	43.4

Source: MIC; MobileComi, February 2000

[22] Seon-Kyou Choi, Myeong-Ho Lee and Gyu-Hwa Chung, "Competition in Korean Mobile Telecommunications Market: Business Strategy and Regulatory Environment"

On December 20, 1999, SKT announced that it acquired 51.19% of STI shares from POSCO with about 1.09 trillion won of cash together with about 65% of SKT shares. On April 26, 2000, the Fair Trade Commission approved the transaction under the condition of lowering their combined market share to less than 50% by June 2001. Through this purchase, the combined company currently has more than 15 million subscribers with 58% market share. This deal will trigger off another M&A among the other MOs to compete with SKT.

Churn refers to the number of customers an operator loses over a given period of time. Rising customer churn will mean reduced profitability for operators. In 1999, annual churn in MI reached 18.5%. Although 14 million new subscribers entered the market, 4.3 million either switched providers or cancelled service. Compared to the US cellular market(23.4% in 1998[23]), the churn ratio in Korea is not significant. This is because switching cost was quite high until MIC banned any contract of an obligatory subscription period on April 1999. As a result, churn ratio has been increased since the latter half of 1999. On April 23, 2000, however, MIC announced to prohibit handset subsidy from June 1 this year. This will increase the initial subscription cost and lower the churn ratio.

As shown in <Table 3-2>, MI is close to saturation. Consequently, there will not be many new subscribers as before, and competition is going to be much more intense which will accelerate industry restructuring.

3.2.2.2 Tariffs

One of the most remarkable features of the Korean MI is the sharp increase of subscribers after the launch of PCS. However price competition has not been severe. As shown in <Table 3-3>, after PCS launch on October 1997, the tariffs of standard calling plans of five MOs have remained constant until March 2000 when they announced price reduction to the range of 3.6% to 12.7%.

[23] CTIA, "Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services", June 24, 1999

<Table 3-3> Price Reduction after Competition (Money Amounts Shown in Won)

		SKT	STI	KTF	LGT	HMC
Subscription Fee	4Q-97	90,000	90,000	50,000	60,000	67,000
	3Q-99	90,000	90,000	50,000	50,000	50,000
	2Q-00	90,000	90,000	50,000	50,000	50,000
Basic Fee Per Month	4Q-97	18,000	18,000	16,500	15,000	17,000
	3Q-99	18,000	18,000	16,500	15,000	17,000
	2Q-00	16,000	16,000	16,000	16,000	16,000
Usage Fee Per Ten Seconds (Day/Evening /Midnight)	4Q-97	26/ /	24/ /	19/ /	21/ /	18/ /
	3Q-99	26/18/13	24/18/12	19/15/10	20/13/12	18/14/19
	2Q-00	22/16/11	21/16/10	18/15/10	19/13/12	18/14/19
Percentage of Price Reduction (Except Subscription Fee)		12.7	11.7	3.6	-	3.6

Source: THE RADIO NEWS, March 23, 2000

This is in sharp contrast with the other countries. In the US, overall price reduction after PCS entry ranged from 13.1% to 43.8% depending on air-time usage, while in the UK, from 11.5% to 27.6%.[24]

This is mainly because of the current price regulation. Moreover, economic theory indicates that, in an oligopolistic market, participating firms are prone to collude noncooperatively rather than to engage in price war. Collusion is more likely, if further entry is closed, and market is concentrated. Korean MI satisfies these collusive conditions rather well. Further entry into the MI is prohibited by spectrum scarcity. The HHI of Korean MI as of December 1999 is 2,690, of which the level is regarded as a moderately concentrated market.[25] Therefore price deregulation might trigger full-scale price competition, then cost-efficiency through economies of scale will become one of the key success factors and this will lead to industry restructuring.

[24] Seon-Kyou Choi, Myeong-Ho Lee and Gyu-Hwa Chung, "Competition in Korean Mobile Telecommunications Market: Business Strategy and Regulatory Environment"

[25] Federal Trade Commission of the US uses HHI=0.2 as the threshold level for moderately concentrated market.

3.2.2.3 Service Differentiation

As competition intensifies, the mobile market faces an increase in churn and a substantial drop in profitability. MOs can soften the blow of a more competitive environment by differentiating their services. They can do so by integrating wireless products with other telephony-related products, and by tailoring their product and service offerings to different customer segments. Currently, MOs offer more than 100 wireless telephony services customized for customers and enter the mobile wireless data market to provide value-added services that would differentiate their services from competitors. (See <Table 3-4>.)

<Table 3-4> MOs Wireless Data Services as of February 29, 2000

	SKT	STI	KTF	LGT	HMC
Service Name	n.TOP	i-touch	Persnet	EZ0web	Click 018
Subscribers (in thousands)	574	17.1	82	160	40
Transmission Speed	64Kbps	9.6Kbps	64Kbps	64Kbps	64Kbps

Source: Samsung Securities Co., Weekly Stock Investment, May 2, 2000

However, this story is suitable only within wireless phone services. No operator provides wired and wireless phone services together. This is mainly because, as described above, MOs who want to provide wire phone services are required to obtain license per each service type.

3.2.3 Financial Performance

3.2.3.1 Stability

For MI, 1999 was a very successful year for financial stability. Total debt decreased by 549 billion won to 9,018 billion won, compared to 9,517 billion won in 1998. On the contrary, total equity more than doubled to 6,225 billion won in 1999, compared with 3,062 billion won in 1998, primarily as a result of attracting substantial amount of foreign capital. In 1999, for instance, LGT succeeded in attracting $400 million from British Telecom, and KTF $610

million from Microsoft, Qualcomm and CDPQ. These results show improvements in D/E ratio, 144.9% in 1999 from 312.4% in 1998.

The more debt, the more likely it is that the firm will have trouble meeting its obligations. Thus the more debt, the higher probability of financial distress and even bankruptcy. Taking companies individually, three companies, such as SKT, KTF and LGT, are relatively stable with less than 200% in D/E ratio in 1999, while STI and HMC seem to lack stability with 574.7% and 405.4% in D/E ratio respectively in 1999. (See <Table 3-5> and <Figure 3-4>.)

<Table 3-5> MOs Financial Performance (Money Amounts Shown in Billion Won)

Item	SKT		STI		KTF		LGT		HMC*	
	'98	'99	'98	'99	'98	'99	'98	'99	'98	'99
Assets	4061	6213	2089	2167	2358	2492	2694	2183	1510	2188
Debt	2592	2470	1905	1846	2065	1501	1756	1446	1249	1755
Equity	1469	3743	184	321	293	992	855	736	261	433
Revenues	3545	4285	1284	1860	1432	2259	1092	1438	244	1067
Operating Income	494	289	88	95	- 65	16	- 77	- 107	- 68	- 86
Net Income	151	304	8	52	- 141	- 59	- 155	- 162	- 110	- 113
Operating Income Margin (%)	13.9	6.7	6.9	5.1	- 4.5	- 2.6	- 7.0	- 7.4	-35.4	- 8.1
D/E Ratio (%)	176.4	66.0	1033.6	574.7	704.8	151.3	205.5	196.4	479.3	405.4

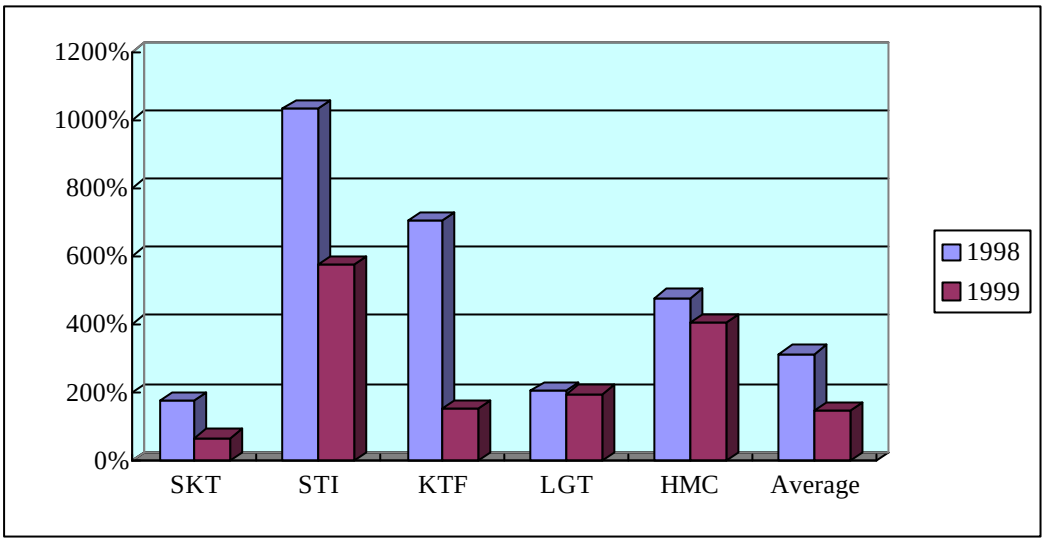
* HMC figures are on June 30, each year.

Source: Company Data

3.2.3.2 Profitability

First mover advantages are important in MI. The first in the market not only gets the best customers, but is also the quickest to recover the capital costs of setting up the network. As <Table 3-5> demonstrates, the first and second movers, SKT and STI, generate net profit, however, later movers, KTF, LGT and HMC, suffer losses. This is due to the huge up-front investment in building network and large amount of handset subsidies to attract new subscribers.

<Figure 3- 4> Financial Stability (D/E Ratio)



Source: Company Data

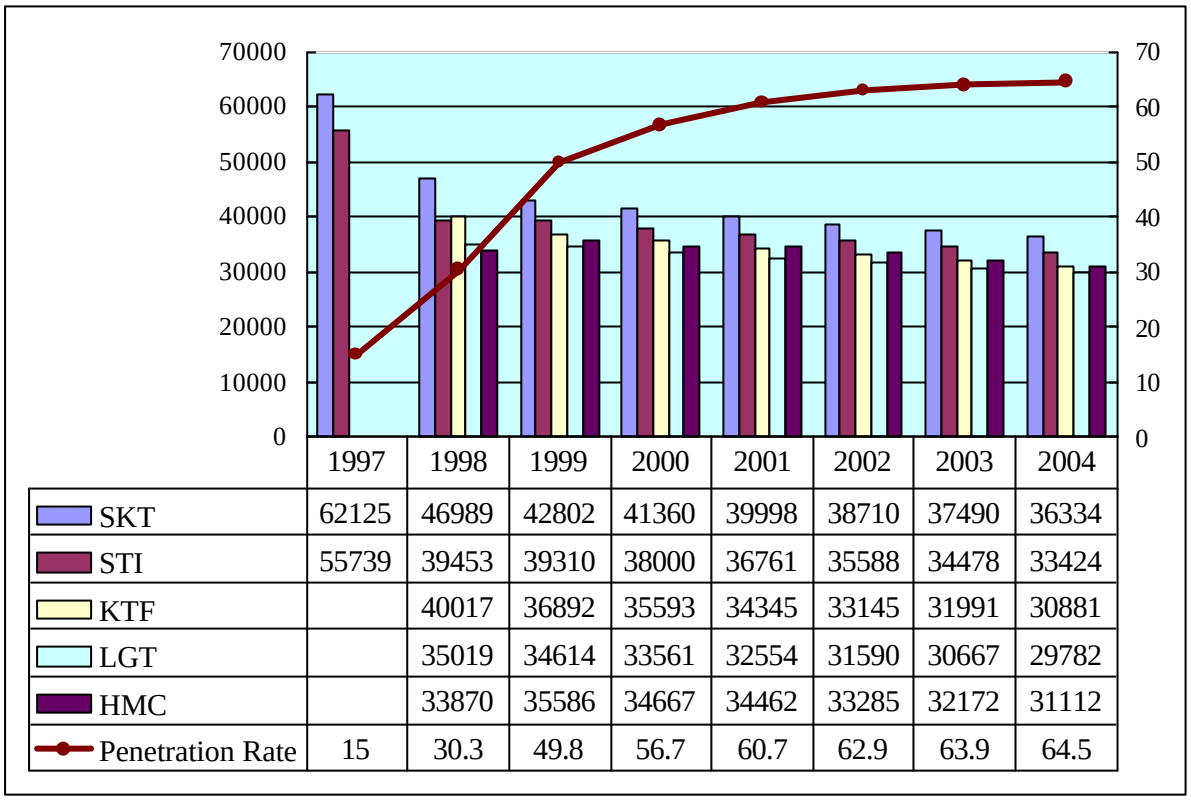
The average revenue per user (ARPU) is one of the most important business parameters for MOs. ARPU is a benchmark for the profitability of an operation. ARPU used to be very high in mobile communications, especially if compared with fixed line communications. The reason was that in the early phase of the industry the typical subscriber was a business user who had high usage and little price sensitivity. ARPU declines as the penetration rate increases and low usage subscribers are attracted with low tariffs. As <Figure 3-5> shows, there is a relatively close negative relationship between ARPU and penetration rate.

3.2.3.3 Handset Subsidies

Subsidizing handsets for new subscribers is essentially a means for lowering the subscriber's entry costs to the mobile phone market. However, handset subsidies seem to be a negative element for developing the market and MOs who give subsidies find themselves in a prisoner's dilemma: they do it simply because the competitor does it, but it is actually in no one's interest to do it. Upon the entrance of PCS providers in the market, five MOs started to lower initial subscription cost substantially in the form of subsidizing customers in their handset purchase.

<Figure 3-5> Average Revenue Per User and Penetration Rate (%)

(Money Amounts Shown in Won)



	1997	1998	1999	2000	2001	2002	2003	2004
SKT	62125	46989	42802	41360	39998	38710	37490	36334
STI	55739	39453	39310	38000	36761	35588	34478	33424
KTF		40017	36892	35593	34345	33145	31991	30881
LGT		35019	34614	33561	32554	31590	30667	29782
HMC		33870	35586	34667	34462	33285	32172	31112
Penetration Rate	15	30.3	49.8	56.7	60.7	62.9	63.9	64.5

Source: Seoul Securities Co. "Company Profile", October 1999 (for ARPU)

Handset subsidies set at around 200,000 won have been used as a major tool to reduce the initial subscription fee and attract new users but the cost has reduced the profitability of MOs. At the end of June 1999, total amount of subsidy payment reached 4933.1 billion won, and accounted for 34.5% of service revenues. LGT, especially, spent 691 billion won on handset subsidies while earning only 521 billion won in service revenue in 1998. (See <Table 3-6>.) As a result, outstanding debt to equity ratio of a carrier reached as high as 1,034% in 1998 and 575% in 1999.

On May 2000, MIC eventually announced that it would prohibit handset subsidies from June 2000 to improve industry financial stability and cool down the overheating mobile phone market. However, the only arena that was open for price competition was closed by MIC, and consequently the abolition of handset subsidies might distort market structure by restricting price competition. Without subsidy competition, all MOs' services are viewed as similar in

<Table 3-6> MOs Handset Subsidies and Service Revenues (in billion won)

	1996		1997		1998		June 1999		Total	
	Subsidy	Revenue	Subsidy	Revenue	Subsidy	Revenue	Subsidy	Revenue	Subsidy	Revenue
SKT	35.3	1908.8	468.6	2780.7	530.7	2971.1	518.5	1756.0	1553.1	9416.6
STI	63.4	55.2	206.5	474.9	394.0	771.9	225.7	573.8	889.6	1875.8
KTF			63.3	18.8	659.9	648.7	382.0	641.9	1105.2	1309.4
LGT			41.5	21.0	690.8	521.3	175.6	469.1	907.9	1011.4
HMC			61.2	12.2	220.0	408.1	196.1	386.4	477.3	806.7
Total	98.7	1964.0	841.1	3307.6	2495.4	5321.1	1497.9	3827.2	4933.1	14419.9

Source: MobileComi, November 1999

prices, and consequently customers are likely to search for differentiated carriers' service. Bundled services will be a more effective method for service differentiation.

3.2.4 Quality Performance

After the launch of PCS in Oct. 1997, the five MOs exerted energetic efforts to capture as many customers as possible. They have completed nation-wide service coverage in less than a year after the start-up of service by making huge up-front investment. As shown in <Table 3-7>, five MOs built more than 10 thousand BTSs (Base Transceiver Stations) over the country by the end of April 1999.

<Table 3-7> Mobile Network Investment (Money Amounts Shown in Billion Won)

		SKT	STI	KTF	LGT	HMC	Total
Investment	1998	1460.0	482.9	688.5	443.4	645.2	3720.0
	1999	805.5	505.5	512.8	593.0	780.9	3197.7
Number of BTS* (Apr. 1999)		2768 (371)	2576 (481)	1937 (305)	1728 (217)	1806 (331)	10815 (1705)
Number of Repeater (Mar. 1999)		4200	1420	3982	4678	3300	17580

* ( ) shows the Number of BTS in Seoul

Source: MIC (Investment); MobileComi, July 1999 (BTS and Repeater)

However, with MOs' outstanding debt from handset subsidy mouting, worry has been raised that MOs might be financially deficient in maintaining good quality service, and that excessive competition in subsidy prevented MOs from engaging in quality competition. In response to this contention, MIC evaluated traffic quality during two months from May 1, 1999 to June 30, 1999. As <Table 3-8> demonstrates, access completion rate ranges from 96.29% to 97.37% and call drop rate from 0.95% to 1.33%. Compared to those of UK, which range from 97% to 99% and from 2% to 7% respectively in early 1999 evaluation, the traffic quality of Korean MOs was quite satisfactory.

<Table 3-8> Korean MOs Traffic Quality (%)

	SKT	STI	KTF	LGT	HMC
Access Completion Rate	97.11	96.79	96.42	97.37	96.29
Call Drop Rate	1.06	1.08	1.27	0.95	1.33

Source: MobileComi, Oct. 1999

Excessive competition enabled companies to complete nationwide service coverage in less than a year. However, it also caused social inefficiency due to the duplicate investment of five MOs' nationwide network facilities. For instance, as shown in <Table 3-7>, 1705 BTSs were constructed in Seoul by the end of April 1999, however, 150 to 200 BTSs are enough to cover this area. It costs approximately 500 to 700 million won to build one BTS,[26] and thus this industry wastes 750 billion won to 1,050 billion won due to the overlapping investment. Therefore, industry restructuring is required to improve social efficiency by preventing duplicate investment.

3.3 IMT-2000

[26] MobileComi, July 1999

3.3.1 Overview

IMT-2000 is an initiative of the ITU to provide wireless access to the global telecommunication infrastructure through both satellite and terrestrial systems, serving fixed and mobile users in public and private networks. IMT-2000 will also make the dream of anywhere, anytime communications a reality. IMT-2000 breed of mobile communicator will be the ultimate personal accessory, combining the features of a telephone, a computer, a television, a library, a personal diary and even a credit card. These 3G networks must be capable of the following wireless data rates, such as 144 Kbps at mobile speeds, 384 Kbps at pedestrian speeds and 2 Mbps in fixed locations.[27]

One of the important IMT-2000 issues requiring resolution was negotiation to harmonize two of the more prominent proposed standards, W-CDMA and cdma2000. Harmonization will make mobile services more accessible thanks to economies of scale. But getting everybody to agree is proving to be difficult. Established operators, anxious to capitalize on the huge amounts of money they have invested in second-generation technologies, insist that the new system should be compatible with the old.

According to the government's schedule, the number of IMT-2000 carriers and their selection method will be announced on June 30, 2000; IMT-2000 service operators will be selected by the end of this year. While the government has yet to announce its plans for an adoption of an IMT-2000 standard and the number of operators it will allow in the market, it is expected that around three to five operators will be chosen.

3.3.2 Impact on MI

MOs are expected to stake everything on winning licenses, as losers are likely to be forced out of the market entirely. This is because of the following impact of IMT-2000 on MI.

[27] ITU, "IMT-2000 Standardization in ITU", June 1999

First, as mobile technologies were developed, a broad range of incompatible standards and frequencies have emerged. However, the idea that voice, data and video information can be accessed anytime and anywhere is quickly becoming a reality with IMT-2000. To that end, ITU has worked for establishing global standards and set aside the 2GHz frequency band for IMT-2000 global roaming.

Second, as rapid advances in technology carry our society into the 21st century, customers will certainly demand more and more functionality from their wireless services. Future wireless service must be provided that support not only traditional mobile voice communications, but a variety of voice and data services providing a wide range of applications. Services supporting multimedia capabilities, internet access, imaging, video conferencing, and so on, will likely be needed in any true next-generation wireless system. The maximum transmission speed of 2Mbps far exceeds the current GSM rates at 9.6Kbps or CDMA's 14.4Kbps. With faster speeds IMT-2000 has the potential to provide real-time multimedia applications over wireless transmission media, whereas most existing mobile systems are voice-centric, and have difficulty in handling demands of multimedia applications.

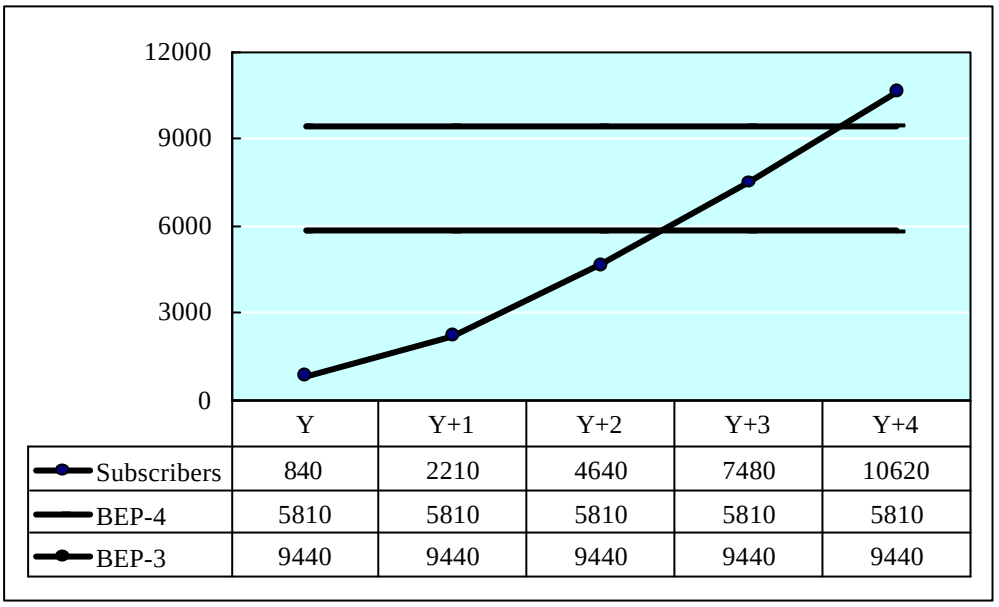
Because of the above influences on current MI, IMT-2000 will enable this industry to experience a rejuvenation of its life cycle. In addition, it will lead to lower costs and achieve economies of scale due to worldwide marketplace and off-the-shelf compatible equipment.

According to MIC expectation, 40 months after launch of IMT-2000 business, it will reach break-even-point (BEP) with 5810 thousand subscribers under the condition that three companies are licensed; 56 months will be required under the condition that four companies are licensed. (See <Figure 3-6>.) Moreover, each company will be required about 3.5 trillion won to 5 trillion won to build 3G networks.[28] Therefore MOs will seek partners to have more weight in the IMT-2000 licensing process and to bear the costs of building 3G networks.

3.4 Recommendations for Restructuring Korean MI

[28] The Dong-a Ilbo, April 27, 2000

<Figure 3-6> BEP on IMT-2000 Services in Korea (in thousands)



	Y	Y+1	Y+2	Y+3	Y+4
Subscribers	840	2210	4640	7480	10620
BEP-4	5810	5810	5810	5810	5810
BEP-3	9440	9440	9440	9440	9440

Source: MobileComi, January 2000

Based on the review of the changing global telecom market environment, and the results of Korean MI analysis described in the above sections, the following recommendations are made for restructuring Korean MI to enhance global competitiveness and to improve social efficiency and consumer welfare.

First, restructuring should be carried out on the basis of attaining economies of scale. All network industries have large fixed and sunk costs, and low incremental costs, and consequently, economies of scale is an inherent characteristic of this industry. As described above, in terms of entry barriers, this industry is quite attractive for the incumbents. In relation to competitors, however, cutthroat competition leads to handset subsidies and reduce profits. Moreover as this industry is in the process of changing from growth stage to maturity stage, intense price competition and low profits will cause a shakeout. With the maturity stage, cost efficiency through economies of scale will be one of the key success factors.

The three cases show clearly a trend toward forming bigger and more powerful global players. As SKT has become the giant in this industry through the merger with STI, the other three MOs need to achieve scale to compete with SKT and other global mega-carriers. In addition, scale will carry weight in the licensing process for IMT-2000 business.

Second, to create more customer value through bundled services, economies of scope should be considered in industry restructuring process. Packages offering fixed and mobile communications will have a large demand among business and consumer customers over the coming years. Some analysts foresee that the majority of telecom customers will subscribe to some form of converged service within ten years. Integrated services have clear benefits for providers. They increase share of wallet, help in differentiating market positioning, reduce churn, cut the cost of acquiring customers via cross-subsidized marketing and acquisition programs, and reduce the operating cost per customer (because billing is cheaper, the joint administration of accounts produces savings, customer call centers can be shared, and synergies can be derived from shared network elements).

Although MOs provide customized wireless phone and wireless data services, they lack wired phone services. As shown in the Vodafone AirTouch case, industry restructuring has to be conducted to fill this gap. Also this will be the way to attain direct customer access, which will become more important as the traffic moves from voice to data. Currently, LG Group, a parent company of LGT, has been amassing Hanaro Telecom shares to gain control of fixed-line network.

Third, IMT-2000 should be considered in the process of industry restructuring. As mentioned above, Korean MI may experience a rejuvenation of its life cycle through IMT-2000. The above two cases, Vodafone AirTouch and DDI, showed the importance of the IMT-2000 services. Thus, in deciding the number of licenses due at the end of this year, we have to consider the influences of IMT-2000 on industry restructuring.

Fourth, social inefficiency should be removed through industry restructuring. Even though the MI has accomplished a remarkable growth in total subscribers since 1997, overlapping investment of five MOs' nationwide network facilities has become the target of criticism due to its social inefficiency. Critics also worry about duplicate investment in constructing IMT-2000 network, which costs about 3.5 trillion won to 5 trillion won per company. Therefore industry restructuring has to be implemented to enhance social efficiency.

Finally, industry restructuring should be conducted under the condition of deregulation. As mentioned above, price competition was not severe in this industry. However, handset subsidy is the only area for MOs to compete fiercely. But the abolition of handset subsidy will distort market structure by restricting price competition. Although companies, which are unable to achieve cost efficiency, should be driven out from the market through price competition, price regulation and subsidy abolition might prevent competitive mechanism from working efficiently. Therefore, complete deregulation is necessary for industry restructuring, in order to enhance the competitiveness of Korean MI.

CHAPTER 4 CONCLUSION

As the world TI has experienced rapid changes, market-leading telecom operators with superior technological competence, financial capabilities and service development capabilities such as MCI WorldCom, Vodafone AirTouch and DDI are accelerating their moves through M&A to take advantageous position in the global telecommunications market.

After the launch of PCS in 1997, Korean MI achieved a remarkable growth in subscriber base and completed nationwide service coverage. However, as the market shifts from growth stage to maturity stage with the growth of subscribers, intense competition and low profits will create the incentive for industry restructuring.

By reviewing several restructuring cases in the world TI, this study found out the following motives of M&A: to achieve economies of scale, to attain economies of scope, to gain direct customer access, and to gain leverage related to IMT-2000 business. Through the analysis of the current situations of Korean MI and the impact of IMT-2000, it was found that there are several factors to promote industry restructuring such as industry life cycle, economies of scale and scope, high D/E ratio, overlapping investment and IMT-2000 licensing process.

On the basis of these findings, I summarize the desirable way for restructuring Korean MI.

First, Economies of Scale

Industry restructuring has to be carried out on the basis of attaining economies of scale. With large fixed costs and low incremental costs, scale efficiency will be one of the key success factors to compete with global mega-carriers.

Second, Economies of Scope

Industry restructuring has to be carried out to leverage economies of scope. Bundled services offering fixed and mobile communications will create more customer value, and bring clear benefits to companies by differentiating services and reducing operating cost.

Third, IMT-2000

IMT-2000 has to be considered in the process of industry restructuring. With global standard and high transmission rates, it will enable anywhere and anytime communications and enable Korean MI to experience a rejuvenation of its life cycle by creating new demand.

Fourth, Social Efficiency

Industry restructuring has to be carried out to enhance social efficiency. Critics argued that overlapping investment in building mobile network caused social inefficiency and worried that this would happen again in constructing IMT-2000 network.

Finally, Deregulation

Industry restructuring has to be carried out under the condition of deregulation. Under the conditions of price regulation, the abolition of handset subsidies might distort industry structure by preventing competitive mechanism from working efficiently.

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