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THE POLITICAL ECONOMY OF NETWORKED MOBILITY: THE HISTORICAL DEVELOPMENT OF THE KOREAN INFORMATION INFRASTRUCTURE, 1995–2005

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THE POLITICAL ECONOMY OF NETWORKED MOBILITY: THE HISTORICAL DEVELOPMENT OF THE KOREAN INFORMATION INFRASTRUCTURE, 1995–2005

by

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Dedication

To my parents, for their patience and love

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Abstract

This qualitative study describes and analyzes the contextual factors that have conditioned the Korean Information Infrastructure (KII) project implemented by the Korean government between 1995 and 2005. The theoretical framework undergirding this study is the political economy of networked mobility, which is given detail by the theory of globalization, state theory (especially, the developmental state theories concerning East Asia), and critical geographies. The theory of globalization aims at situating Korea's information and technology growth within the universal structure of networked global

capitalism, and revealing it as a desperate striving to enlist the local as an active part of the new global network; the developmental state theories that interpret the East Asian "economic miracle" seek to evaluate specific linkages of the state and capital for economic imperatives; and critical geographies allow this study to uncover the hidden layers of the spatial reconfigurations actively implemented by the state and large capital. Employing these three theoretical approaches, this study examines the major contextual factors conditioning the KII project in Korea: the global constraints conditioning its telecom policies (globalization theory), the dense state–capital linkages (developmental state theories), and the bureaucratic desire for control and the shift in capital accumulation to a knowledge-based mode of production (critical geographies). As methods for analysis, the data for this study are gathered from archival documents and also incorporate in-depth informant interviews with key actors from both the public and the private sector who were directly involved in the KII project. This study examines that, although the KII project was no longer implemented by an autocracy, the close relationships between the government and the *Chaebols* were influential in designing the national IT plans, and civil society's ability to be involved in or monitor the policymaking processes was limited. The present study concludes that the state plan of a "second-stage catching-up" economy through the KII project has easily overruled voices from below by regarding them as unnecessary noise. This study suggests that policy change in Korea should lead toward reformulating telecom policies along much more socially-interventionist and redistributive lines, and toward decentralizing or democratically controlling the overwhelming power of the *Chaebols*, Korean conglomerates.

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List of Abbreviations

ADSL	Asynchronous digital subscriber line
APEC	Asia–Pacific Economic Cooperation
APII	Asia–Pacific Information Infrastructure
ATM	Asynchronous transfer mode
BcN	Broadband convergence network
BIT	Bilateral investment treaty
BOK	Bank of Korea
CATV	Cable television
CCTV	Closed circuit television
CDMA	Code division multiple access
CEI	Committee for Educational Informatization
CK21	CyberKorea 21
C/S	Client-server
CT-2	Second-generation cordless telephony
DMB	Digital multimedia broadcasting
DRAM	Dynamic random access memory
DSC	Defense Security Command
DTV	Digital television
e-GTN	e-Government Telecommunication Network
EIS	Education Information System
EPB	Economic Planning Board
ETRI	Electronics and Telecommunications Research Institute
EU	European Union
FAIP	Framework Act on Informatization Promotion
FCC	US Federal Communications Commission
FDI	Foreign direct investment
FTTH	Fiber to the home
G7	Group of 7 (Canada, France, Germany, Italy, Japan, the US, and UK)
GATS	General Agreement for Trade in Services
GDP	Gross domestic product
GICC	Government-wide Integrated Computing Center
GII	Global Information Infrastructure

GNI	Gross national income
GPS	Global positioning systems
HSDPA	High-speed downlink packet access
ICT	Information and communication technology
IEEE	Institute of Electrical and Electronics Engineers
IMF	International Monetary Foundation
IP	Internet protocol
IPTV	Internet protocol television
ISDN	Integrated services digital network
ISP	Internet service provider
IPv6	Internet protocol version 6
IT	Information technology
ITU	International Telecommunication Union
JSC	Joint Struggle Committee for Human Rights in Information Society and Against the NEIS
KADO	Korea Agency for Digital Opportunity and Promotion
KAIT	Korea Association of Information and Telecommunication
KAM	Knowledge Assessment Methodology
KBS	
KCIA	Korea Central Intelligence Agency
KDI	Korea Development Institute
KERI	Korea Electrotechnology Research Institute
KII	Korean Information Infrastructure
KII-G	Korean Information Infrastructure-Government
KII-P	Korean Information Infrastructure-Public
KII-T	Korean Information Infrastructure-Testbed
KISDI	Korea Information Society Development Institute
KMTS	Korea Mobile Telecom Service
KOREN	Korea Advanced Research Network
KORUS FTA	Korea–US Free Trade Agreement
KT	Korea Telecom
KTF	KT Freetel
KTU	Korean Teachers and Educational Workers Union
LAN	Local area network
LCD	Liquid crystal display
LG	Lucky Goldstar
LMDS	Local multipoint distribution service

MIC	Ministry of Information and Communication
MCT	Ministry of Construction and Transportation
MEHR	Ministry of Education and Human Resources
MMDS	Multichannel multipoint distribution service
MoC	Ministry of Communications, old name of MIC
MOGAHA	Ministry of Government Administration and Home Affairs
MOTIE	Ministry of Trade, Industry, and Energy
MPLS	Multi-protocol label system
NAFTA	North American Free Trade Agreement
NBIS	National Basic Information System
NCA	National Computerization Agency, old title of NIA
NEIS	National Educational Information System
NGO	Non-governmental organization
NHRC	National Human Rights Commission
NIA	National Information Society Agency
NIEs	Newly Industrialized economies
NII	National Information Infrastructure
NIS	National Intelligence Service
NSL	National Security Law
OECD	Organization for Economic Co-operation and Development
OEM	Original equipment manufacturers
PC	Personal computer
PCS	Personal communications by satellite
PDA	Personal digital assistant
PFC	Priority foreign country
QoS	Quality of service
RFID	Radio frequency identification
SONET	Synchronous optical network
W-CDMA	Wideband code division multiple access
WEF	World Economic Forum
WiMAX	Worldwide interoperability for microwave access
xDSL	a number of standards in DSL (digital subscriber line), known collectively

Chapter I: Introduction

1.1. BACKGROUND

In South Korea, the rapid construction of national roads and railways under the military regimes of the 1970s and 80s was a typical case of state interventionism aimed at promoting industrial economies that were lagging behind the West. The highway and railway infrastructures were closely tied to the government's project of economic modernization to save on the costs of transporting goods and services and to speed up the mobility of the labor population. More recently, for the same reasons, national electronic backbone networks have become appealing to the government as the engine of economic efficiencies and growth. Beginning in the mid-1990s, the civilian governments' desire for strong ties to world IT economies in Korea was concretized in its implementation of a decade-long telecom policy plan, the Korean Information Infrastructure (KII) project (1995–2005), which aimed to establish a nationwide high-speed backbone network. Undeterred by the financial crisis of 1997, the main drive for unrestrained IT growth in Korea was to construct high-speed telecom mobility and connectivity across the country. The government-led project seems to have been quite successful in shifting the market

condition into a new economic system: for instance, Paul Wolfowitz, the ex-World Bank president and well-known neo-conservative, visited Seoul and praised Korea as the "world IT leader." In fact, the Korean informatization index (NCA, 2005) shows Korea on a sharp curve rising up into the first tier of information wealth within a short time span.

This qualitative study describes and analyzes the contextual factors that have conditioned the nationwide telecommunications superhighway project implemented by the Korean civilian governments between 1995 and 2005. The theoretical framework undergirding this study is the political economy of networked mobility, which explains power as "a form of control" in the production, distribution, and exchange of electronic mediated communication (e.g., Mosco, 1996). To grasp the essence of power embedded in the national project of infrastructural construction, the political economy approach insists that an analysis must be firmly rooted in the wider social and global context: specifically, it looks at the structural factors that establish such patterns as government regulation and intervention favoring capital, the concentration of ownership and market monopoly by both foreign and domestic large capital, capital accumulation based on the uneven development of geographies, and the swelling wave of privatization, commercialization, and deregulation. The theoretical framework of political economy encourages us to question and critically assess the essential components of how the world order of contemporary capitalism continues to expand its scope by networked mobility and further leads to severe geographical and social gentrification, commercialization, and the transformation of information and communication technology, as well as cultural

outputs, to mere market commodities, instead of beneficial improvements in the common welfare and the lives of citizens.

This study investigates the empirical case of the nationwide information infrastructure project in South Korea, based on the following theoretical approaches situated in the political economy of networked mobility: the theory of globalization, state theory (especially, the developmental state theories concerning East Asia), and critical geographies.

1. The theory of globalization aims at elaborating the structural metamorphosis of capitalism from the old system of imperialism to the dispersal of power throughout the world market under the new system of Empire. The theoretical approach used in this study situates Korea's information and technology growth within the universal structure of networked global capitalism, and reveals it as striving to enlist the local as an active part of the new global network.
2. Developmental state theories for interpreting the "economic miracle" in East Asia are intended to evaluate specific mechanisms of East Asian states' interventionism both for regulatory control and for economic imperatives. The state theories help us to understand how authoritarian states such as that in South Korea have been able to successfully catch up to high-tech industrialization.
3. Critical geographies allow this study to consider space as an expansive source of the state's bureaucratic power, as well as economic power, which has been sustained by reconstructing its infrastructural bases. The recognition in critical

> geography that space is inseparable from the social power intersecting it enables us to uncover the hidden layers of the spatial reconfigurations actively implemented by the state and large capital.

Employing these three theoretical approaches, this study examines the major contextual factors conditioning the KII project in Korea: the global constraints conditioning the East Asian states' telecom policies (globalization theory), the dense state–capital linkages in the East Asian states (developmental state theories), and the bureaucratic desire for control (critical geographies).

The data for this study are gathered from archival documents from various sources, including newspapers, white papers, public reports, and transcripts. To assure that the study's findings are well-supported and broadly based, it also incorporates in-depth informant interviews with key actors from both the public and private sectors who were directly involved in the KII project.

1.2. THE PROBLEM

The Korean government's information backbone network project was originally modeled after the US "Information Superhighway" project in 1993, which was further developed by Japan's "Pilot model" and the EU's "Euro-ISDN" in 1994. In order to establish a US-style nationwide information superhighway network, the Korean

government invested public funds of US $6.2 billion over eleven years, with the expenditure of US $16.5 billion from the private sector (see Chapter 4.2.1).[1] The Korean government currently celebrates the synergistic effects of the national information infrastructure — chiefly, the bureaucratic efficiencies brought about by the technological rationalization of interconnecting public institutions electronically and the growth of the new IT-related economic market. In other words, the current state of the KII project is viewed as a vehicle for promoting e-governance and IT business.

This study examines South Korea's structural mechanisms and politico-economic processes for installing the KII during the period from 1995 to 2005, and how the KII project has been largely driven by the threefold aim of enlisting South Korea as an Asian hub of global capitalism (boosting economic growth), supporting its domestic conglomerates (buttressing the so-called *Chaebols*, the Korean form of crony capitalism),[2] and normalizing social control through nationwide networked mobility (maximizing bureaucratic efficiency).[3] This study describes in detail the deep structure of the relationships between the state and large capital directly involved in implementing the KII project, investigating how they enter into alliances with each other, how they exclude the agendas of other stakeholders, and how they articulate their own interests as

1 In contrast to the Korean government's public investment in establishing the national backbone networks, the US information superhighway project depended entirely on private sector efforts.
2 A *Chaebol* in Korea means a family-owned business group with large subsidiaries occupying an oligopolistic position, despite a relatively low concentration of ownership and the absence of pure holding companies.
3 This study uses "social control" in the context of the government's database of information on individual citizens based on digital technology and electronic networks, rather than in the context of violence or the threat of violence against citizens using repressive powers of the state such as police, national guard, or military forces.

they relate to implementing the project. Moreover, the study investigates how the technical effect of the nationwide telecom backbone network has the tendency to facilitate the invisibility and neutrality of power and allows the government's reach to become ubiquitous and omnipresent, based on electronic and high-speed transmission capacity and networked mobility. The concern of this study, therefore, is to see how the Korean government's desire for technological rationalization through the KII project became the material grounds of the electronic backbone networks that currently are furthering capitalist accumulation in Korea.

The study's primary question is:

- What were the major driving forces in the Korean Information Infrastructure project during the period of 1995 to 2005?

The purpose of this question is to observe determinants that condition the social code of technology in a newly industrialized economy. This primary question leads to the following sub-questions:

1. What were the relevant policy decisions concerning the KII project, and how did global factors affect those decisions (Chapter 5)?
2. What kinds of symbiotic relationships between governmental and business entities have developed through the KII project (Chapter 6)?

3. How was the Korean government's desire for social control articulated and realized in establishing the KII plan (Chapter 7)?

1.3. RATIONALE AND SIGNIFICANCE OF THIS STUDY

Within political elites in Korea, the KII project is seen as a very recent successful story of state interventionism since the Korean economic crisis of 1997. Many scholars view the IT project in Korea as the "second" phase of the Asian economic miracle: the first phase involved Asia catching up to the West in the industrial economy, while the second phase involves Asia becoming the leader in IT fields. The present study challenges the optimistic view of the ostensibly successful IT project, and instead focuses on the hidden mechanisms for implementing the KII project, observing the external factor of global capital as a global constraint, the state–business linkages and the sacrifice of other stakeholders in order to create or maintain those links, and the institutional desire of control over society.

Second, interventionism in East Asian states usually has been explained by their dense linkages to the private sector in economic policies. In the case of the KII project, this study contributes to exposing the state's covert desire to expand its control over the citizen, in addition to the publicly-stated desire to promote the shift from an industrial economy into the new economy.

Third, this study considers the KII project as a complex event in which three entities — the state, local business, and global capital — collide at once in the process of the spatial rezoning of the nation. In this study, spatialization based on networked mobility is seen as a kind of stimulus for uniting the interests of the state and of large capital in a common project. The state-led KII project in Korea is thus a significant case in which to examine the new spatial patterns of state power and accumulation, based on the national infrastructure.

Finally, the developmental state theories which explained in glowing terms the East Asian economic miracle have been diminished by the financial crisis of the East Asian states in the late 1990s. Despite the decline in popularity of developmental state theories, this study rereads the old developmental arguments anew, and rethinks those arguments in the light of the state-led KII project in Korea.

Chapter II: The Political Economy of Networked Mobility

2.1. THE NEW CONDITIONS OF GLOBALIZATION: A GLOBAL NETWORKED MOBILITY

This section focuses on the new material conditions of globalization virtually constructed by the worldwide electronic network of capital.[4] The virtual geography of globalization based on mobility and connectivity signifies a power shift of capital, and forces local states to affiliate or integrate into a part of the new world system which Hardt and Negri (2000) have described as "Empire," the replacement for classical imperialism. According to their argument, the survival of local regions depends largely on their close links to the global electronic conduits of capital. Under the new conditions of virtual geographies, inequalities of development and underdevelopment are complicated by whether an entity is "plugged" or "unplugged" into the worldwide electronic web of global capitalism (Castells, 1996). In this theoretical section, the present study investigates the new global order of electronic Empire by tracking back the development of globalization theories — a series of critical theories extending from classical

4 The present study investigates mainly the worldwide electronic network as a conduit of capital. The other significant momentum of capital accumulation in the digital age — the privatizing mechanisms of "immaterial" or intellectual labor on a global scale — are beyond the scope of the present study. It is now clear, however, that the expropriation and privatization of the common cultural assets of humankind have become the ultimate goals of contemporary capitalism, which also accompanies the construction of a new virtual geography of electronic connectivity and mobility. For instance, Hardt and Negri (2004) describe

imperialism to the current discussion of Empire via dependency theories in Latin America, the world system theory, cultural complexity theory, and global-local nexus theory.

2.1.1. Looking back to the age of imperialism

The term globalization and related terms such as global system, global economy, and global culture have been used since the mid-80s in both popular and academic literature to describe the "temporal-spatial compression" of the physical world (Harvey 1989). New information and (tele-)communication technologies are viewed as linking distant localities into one globalizing world in a synchronous time zone that goes beyond real territories. The speed and mobility generated by electronic networks become indispensable for creating the physical conditions of globalization, tying together the world as a whole. Popular futurists have optimistically characterized a globalizing or united world: Fukuyama (1992) depicts globalization as the last triumph of capitalism and its market economy, and Friedman (2006) writes of a flattening and fiber-optic global world, while Gates (1999) refers to friction-free capitalism that creates new opportunities for all countries to participate in global competition. Meanwhile, critical scholars see globalization as the result of the industrialized countries' and multinationals' imperialist expansion without colonies (Magdoff, 2003). In this view, advanced technologies offer

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the expropriation of value in the age of digital capitalism as "the capture of value" that is produced by cooperative labor and that must be protected by powerful intellectual property laws.

support for absorbing the surplus generated in the so-called "third world," thus undermining its technological, political, economic, and cultural viability. Already in the mid-19th century, Marx predicted a global move toward unconstrained capitalist expansion:

> All that is solid melts into air [...]. The need of a constantly expanding market for its products chases the bourgeoisie over the whole surface of the globe. It must nestle everywhere, settle everywhere, establish connexions everywhere. [...] In one word, it creates a world after its own image. (Marx and Engels, [1848] 1998: 38–40)

> The more production comes to rest on exchange value […] the more important do the physical conditions of exchange — the means of communication and transport — become for the costs of circulation. Capital by its nature drives beyond every spatial barrier. Thus the creation of the physical conditions of exchange — of the means of communication and transport — the annihilation of space by time — becomes an extraordinary necessity for it. (Marx, [1857] 1973: 524)

Confronting the age of imperialism in the nineteenth and early twentieth century, a revolutionary Marxist like Lenin ([1916] 1969) sees the colonialist mechanism of dominance in terms of the rise of monopoly and the export of capital abroad. Luxemburg ([1913] 2003) posits the birth of imperialism in the capitalist need for surplus outlets in non-capitalist formations; Baran ([1957] 1968) sees imperialism as arising from an American capitalism dominated by monopolies: since these are incompatible with growth and technological innovation, he thinks that the only way to escape the monopolistic state of stagnation is by exporting capital, which helps to absorb surplus from underdeveloped countries like those in Latin America. These Marxist scholars' studies of imperialism contributed to establishing the theoretical framework that describes capitalism as always

needing to expand the lifespan of monopolies in the advanced countries at the cost of non-capitalist or underdeveloped ones.

In a similar way, from the late 1960s to the late 1970s, critical scholars who looked at Latin America developed so-called "dependency theories" which enabled us to see how large businesses reconfigure the new order of capitalism and reproduce the unequal relations between states. For instance, Andre Frank (1969) sees "underdevelopment" in Latin America as largely controlled by US monopolies. Frank attempts to explain a continued failure of "development" in Latin America, even in the era of decolonization, and views the capitalist system as divided into a centre and a periphery. Similarly, Amin (1974) describes a chain of "metropolis–satellite" or center–periphery structures using the concept of "accumulation on a world scale." Wallerstein (1979) extends Amin's dual system to the hierarchical division of the capitalist "world system" as a totality divided into three tiers of states, those at the core, at the semi-periphery, and at the periphery. Related to the economic status of the peripheral countries, Cardoso's (1973) "associated dependent development" and Evans' (1979) "dependent development" are further examinations of the limited scope of development in the Third World which suggest that "partial" development or growth can be accomplished under the general conditions of dependency. These dependency theories were devoted to explaining a value chain of accumulation on a global scale, unequal development among states, and the destructive effects of multinational capital to the Third World. They failed, however, to anticipate the East Asian form of state-

interventionist "development," in which states become relatively free of the structural constraints of dependency (see Chapter 2.2).

Scholars working in the political economy tradition view global expansion of capitalism as linked to the microelectronic revolution and networked flows of information, communication, and culture and to the flows of industrial and financial capital. Research in this tradition has been centrally concerned with the integrated contribution of digital information and communication to the operation of global monopolies and with trans-border data flows (Schiller, 1981, 1984; Hamelink, 1984). Examining the international traffic of media content such as film and TV programs, Guback (1984) presents an analysis of the film business with the state as its active supporter in the national and international arena. Employing the classical view of imperialism, Varis (1984) regards the dominant flows of the US television programs as similar to the export of commodities in general, rather than as "cultural" output which should be "interpreted" and "decoded" by the audience. A significant theme in research on the international political economy is how the global activities of transnational media and telecommunication industries are freer from the regulatory barriers of other countries than those of industries in the classical sense. This theme has led to such critical topics as: the monopolistic global media system and the cross-border flows of media outputs (e.g., Herman & McChesney, 1997); the homogenizing effects of media contents on indigenous cultures (e.g., Tomlinson's [1991] discussion of "cultural imperialism" in the critique of global capitalism); and the reorganization of global electronic communications on behalf of capital's demands (e.g., Castells, 1996; Golding, 1996; Mosco, 1996;

Schiller, 1999, 2001). These approaches, however, were based on a rather simple dichotomy of dominance and subordination in the global economy, which fails to take into consideration the complex and heterogeneous flows of technology, information, culture, and people across borders.

2.1.2. Whose hybridity or complexity?

Critiques of Marxist economic reductionism, which had a tendency to focus on a shift towards a single united world economy, have arisen first from the problematic that globalization can no longer be understood by simple center–periphery models or as a single one world-system. One kind of critique arises from a "loose" structure thesis, which emphasizes the relative independence of "socio-cultural" factors in the local setting when subjected to the globalizing force (e.g., Robertson, 1990). It is based on the theoretical presumption that there are fundamental "disjunctures" between economy, culture, and politics. Appadurai (1990) argues that we need to differentiate the manifold spheres of international interaction in terms of "ethnoscapes" (descriptions of the flows of peoples), "technoscapes" (of technology), "finanscapes" (of money), "mediascapes" (of media contents), and "ideoscapes" (of ideologies). Sreberny (2005) extends the analysis of globalization to the multi-dimensional spheres of global culture, including map-making and nation-building, the export of religion, the institutionalization of Western-

style education, administration as a "professional imperialism," colonial languages, the "pleasure periphery" produced to serve travel and tourism, and the transfer of technology.

These analytical divisions of "globalization" into multi-layered mini-globalizing processes have resulted in an awareness of the "non-linear, fractured nature of cultural globalization" (Ang, 1996: 154) — the so-called "hybridity" of global culture — in contrast to the replication of uniformity by economic globalization. Some empirical studies, for instance, focus on the independent consumption patterns of TV audiences, which are greatly affected by the "cultural proximity" created by such factors as local culture, language difference, and local market strength, and other cultural variables (Straubhaar, 1991). These studies were largely based on the successful story of multinational channels such as Televisa (Mexico) and TV Globo (Brazil) in Latin America as a counter to worldwide cultural standardization by global media outputs (Sinclair, 1999).[5] Defenders of cultural localism note the "loose" relation between structure as a globalizing power and the local as having relative autonomy — a dialectical relation that is conditioned by the "slightly higher" weight of the former on the latter (Straubhaar, 1997: 6).

The research particularly on Latin America in terms of cultural proximity reveals globalization as a web of "hybridity," "complexity," or "mélange" (Pieterse, [1995] 2005;

5 Similar to the pan-Spanish "Telenovela" culture, which is relatively independent from the monolithic cultural dominance of the Hollywood production system, Korea's cultural products — notably, its blockbuster movies, television programs, fashion, and popular music — have become favorites among Asians and even among Latin Americans. The so-called *Halryu* (韓流: "Korean wave") refers to the growing appeal of Korean popular culture in other Asian countries, and is often theoretically explained by "cultural proximity," a phenomenon first identified by empirical studies of the TV-watching patterns of Latin Americans.

García Canclini, 1997; Straubhaar & Hammond, 1998). These new approaches view uneven, asymmetric, and even "unpredictable" links in the global–local nexus as salient in the present phase of globalization. They aim to negate the dualistic and hierarchical framing of the world in terms of dominant and dominated, colonizer and colonized, and center and periphery, to engender more fertile possibilities that allow us to see globalization "from below" (the local), specifically, to ground critical globalization studies in praxis (e.g., Kellner, 2002; Robinson, 2005). Globalization as complex and hybrid enables us to see many deviations from a rigidly "prefigured" path of a globalizing force into one world-system (Straubhaar & Hammond, 1998), and to perceive socio-cultural complexities as supporting cultural sustainability and participatory democracy in the local or the periphery.

In contrast, rather than seeing the politics of "hope" or the "Third Way" in global complexity, some scholars approach complexity as the art of legitimating the scope of global capitalism. For instance, Urry (2005) divides the global system into two main forms, "global networks" and "global fluids" (pp. 245–249): while global networks are predictable, calculable, routinized, integrated, and standardized (as in global enterprises), global fluids are autopoietic, rhizomatic, and decentralized (as in world money, social movements, the Internet, the anti-globalization movement, international terrorism, and so forth); it is the latter that accounts for the aspects of global complexity and hybridity. It is significant that Urry describes globalization as "pools of order that heighten overall disorder" (249). His viewpoint is analogous to Hall's (1991) perspective on global economic and cultural power, which is always "wanting to recognize and absorb

[cultural] differences within the larger, overarching framework" (28). Hall argues that global power never attempts to obliterate differences or complexities: "it operates through them, it has to hold the whole framework of globalization in place and simultaneously police that system: it stage-manages independence within it […], without absolutely destroying what is specific and particular" (28–29). Hall describes the "de-centered" power of globalization as absorbing the differences of the local; similarly, Urry describes it as "mobile power" (249): it is based on "speed, lightness, distance, weightlessness," crossing over both global networks and global fluids. In fact, mobile power achieves new and intricate relations between global networks (the universalizing power) and global fluids (the complex localities). Globalization thus is "like putting together a jigsaw puzzle: it is a matter of inserting a multiplicity of localities into the overall picture of a new global system […]. The 'local' should be seen as a fluid and relational space, constituted only in and through its relation to the global" (Morley & Robins, 1995: 116–117).

These new approaches to the intertwined dynamics of the global–local nexus revive the more holistic and pessimistic vision of a "global state" or "market state" that modulates the local differences over its global network system, a system of "Empire." The present study examines the structure of Empire in order to situate the historical–geographical condition of Korea's informatization in relation to Empire's global networks.

2.1.3. The "smooth world" of electronic Empire

As promoted by the Reagan administration in the US and Margaret Thatcher in Britain from the early 1980s onwards, neoliberal public policy has engaged in commercialization (from state regulation to market regulation), liberalization (from monopoly regulation to competition), privatization (selling off state enterprises), and transnationalization (global and local expansion of transnational or multinational corporations), subsidized by the "constitutive" role of the state (e.g., Mosco, 1996; Murdock & Golding, 1999; McChesney, 2004). Neoliberalism aims to reconfigure global society through the operations of national and international business powers, thus going beyond the classical claims of the laissez-faire market operated by the "invisible hand." Harvey (2003, 2005, 2006) defines neoliberalism with the concept of "accumulation by dispossession": it designates the active role of the state which releases a set of public assets toward deregulation, privatization, financial liberalization, and the commercialization of cultural and historical assets that were once in the public domain. To optimize conditions for capital accumulation, market-friendly public policy is essential in the neoliberal state system, which typically causes cut-backs in welfare provision, health care, public education, core social services, and at the same time produces market incentives in the form of tax breaks, the provision of infrastructure at state expense, and the opening of local markets known as "structural adjustment" to global forces (Harvey, 2006: 23–26). The state constitutes the rules under which the market exists, and thus "deregulation" is only a name for shifting from overt government regulation to regulation by the market structure enabled by the state (Horwitz, 1989). The

state provides national and international incentives for preferred corporate behavior, which is promoted by an "intrinsic" logic of policymaking (Hills, 2002: 12).

Under the neoliberal order of chaos, global power has been transformed from a center–periphery system to a complex and dispersed system of global–local nexus, and worldwide capitalist power integrates local differences within a globalizing force by means of digital technology and its electronic networks. For example, Hardt and Negri suggest the holistic vision of a global society of control crossing over national boundaries. According to them, we have entered into the new age of "Empire" in which "rule has no limits" and "encompasses the spatial totality" of the globe (Hardt & Negri, 2000: xiv). The establishment of a global society of control "goes hand in hand with the realization of the world market and the real subsumption of global society under capital" (332). In the immanent and ubiquitous condition of global control by capital, it is meaningless to demarcate geographical zones as center and periphery, North and South, First World and Third World: "The geography of uneven development and the lines of division and hierarchy will no longer be found along stable national or international boundaries, but in fluid infra- and supranational borders" (335). This vision of a hybrid totality goes beyond the above-mentioned multi-layered global–local nexus thesis, and argues for a global web structure of control by capital over the "space of flows." Under these conditions of control, the sovereignty of nation-states has declined, and the network of Empire becomes a description of the physical conduit for contemporary global power. Fundamental sources of modern capitalist power are dependent upon both connectivity and mobility.

The present study is interested in the electronic infrastructural conditions for current global capitalism, and uses such descriptions as the "electronic global Empire" or "e-Empire" (Raley, 2004) or the "information Empire" (Poster, 2004). These terms are used to designate a new global power which has modulated its worldwide control through media and electronic networks. The complex pyramid of global power has been built on "access to the means of transportation and the resulting freedom of movement" (Bauman, 2000: 10).

The principal strategy in the exercise of power has become extraterritorial and unbounded. The rejection of any territorial confinement means that for the use of power, it rarely matters now "where the giver of the command is" (11), since power has become dispersed, de-centered, and even hybridized — what Hardt and Negri call the "smooth world" of Empire. From these ubiquitous traits of the power of capital, we need to observe the virtual geographies of the invisible web of global fluids, and how it enables the concrete redefining of the new global system. The fluid and liquid space is geared by a global conduit of electronic networks: transcontinental networks such as submarine cables, ship-to-shore wireless, broadcast radio and shortwave wireless, the telephone lines, and the worldwide business and Internet networks. A fabric of electronic networks has been created to help abstract intellectual properties such as financial capital, electronic business data, and entertainment content to move about quickly on a planetary scale. Contemporary capitalism is reshuffling local geographies so as to facilitate the national and global expansion of capital by increasing and channeling the mobility of people, money, goods, and information.

Table 1.1. The virtual topography of globalization

ICT layers in virtual globalization	*Physical layers in a globalizing space*
Digital information (bits and bytes)	Immaterial labor, information commodities
The circuit of electronic networks	National and international ICT backbone Infrastructures
Nodal points, exchangers, Communication hubs	Informational cities, global cities, command and control centers (Headquarters of transnationals)
Servers, databases	Technopoles, new industrial districts (milieus for innovation)
Technical standards	Supranational institutions for intellectual property rights

Table 1.1 describes the virtual phase of capitalism in the age of globalization. This table shows the technological and physical layers that enable the expansive mechanisms of power to operate through physical and virtual geographies, as well as through the uneven geography of segregations and disparities that lead to social disintegration and the furtherance of class divisions. New complex hierarchies are being reconfigured with the metropolitan and global cities as command centers and nodal points, "technopoles" as research and development (R&D) centers, and the worldwide telecommunication infrastructures as the conduit of capital and information. "A new geography of centrality and marginality" (Sassen, 2005) is being drawn not so much by national boundaries as by these virtual geometric representations of power. In sum, the unequal mechanisms among localities depend on whether they have plugged into, switched on, and connected themselves to the virtual geographies of mobility.

2.1.4. Summary

This section has briefly surveyed the genealogy of globalization theories, focusing especially on Marxist interpretations of capital accumulation on a global scale. In the first stage, critical scholars investigated the absorption of surplus by colonialist expansion to non-capitalist states, and, next, by the export of capital to underdeveloped countries. In the second stage of globalization studies, scholars considered the "underdevelopment" or "dependent development" of the Third World, especially Latin America, with a dualistic structure of center–periphery and North–South. These dependency theories and world system analyses of globalization supposed a rigid hierarchical structure of the globalizing force over the local. Scholars' recognition of hybridity and complexity in globalization has led some to view the flexible and multiple status of the local as relatively free from the dominion of global capital. Other scholars, however, have argued that these hybrid and complex traits should be regarded as the sign of global capital's ability to absorb such local differences. This argument is mostly dependent on seeing the global–local nexus as an intricate web structure.

Globalization as empire upgrades these global–local debates with the concept of a global society of control. Negri argues that the current digitized patterns of a globalizing force that the electronic networks make possible are able to absorb the differences and complexities across the world through "modulating networks of command" and "insinuation." Thus, Empire no longer designates the Pax Americana or the "Triad" of economic powers, but rather denotes the interconnected web of the world market. The worldwide web structure becomes "mobile power," the overarching regulatory control of

global capital. The new "hypermobile" power is able to "lay an abstract space over concrete territorial configurations" (Morley & Robins, 1995: 75) and construct a global space of control through weaving hyperspace electronically. The present study uses this theoretical approach, but will, in addition, consider the active role of the state as an agent of local and global capital. The next section thus reviews the state-led role of establishing industrial accumulation and the global networked mobility.

2.2. DEVELOPMENTAL STATE THEORIES OF EAST ASIAN GROWTH AND THEIR LIMITS

Confronting East Asia's economic "miracle" during 1970s and 1980s, a group of social scientists in the West turned away from neoclassical or market-centered view and dependency theories and developed alternative interpretations for the new phenomenon. The academic field known as "developmental state theories" rapidly grew to explain how the interventionist role of the state in the four "Asian Tigers" — Hong Kong, Singapore, South Korea, and Taiwan — allowed these countries to successfully catch up with the industrialization of the West. Although the Asian financial crisis of the late 1990s, which represented a harbinger of global instability, diminished scholarly interest in "developmental state theories," it is obvious that, even after this economic turmoil, a rigid tendency toward state interventionism in the economy has survived in East Asian states, and the interventionist state has partly succeeded in promoting the national information

economy— while simultaneously creating massive new labor market insecurities, the intensification of inequality, and exploitation (Burkett & Hart-Landsberg, 1998; Pirie, 2006).

This section first reviews the main arguments of developmental state theories, especially those dealing with state–capital relationships and state autonomy issues, then points out these theories' shortcomings in interpreting the contemporary conditions of the East Asian states, and finally maps out a research design for examining the role of the state in Korea's recent electronic superhighway plan.

2.2.1. The revival of the role of the state in the developmental state theories

The first state theories that were developed to explain the economic miracle in the East Asian states began with a critique of two theoretical camps: the neoclassical or market-centered approach and dependency theories (e.g., Haggard, 1990). On the one hand, the dependency theorists (see Chapter 2.1.1) are devoted to explaining a value chain of accumulation on a global scale (a chain of "metropolis–satellite" or "center–periphery" structures), unequal development among states, and the destructive effects of multinational capital to the Third World, but they failed to anticipate the East Asian form of state-interventionist development, in which states become relatively free of the structural constraints of dependency. On the other hand, the so-called "market-centered" approach — which has been rapidly disseminated by such international economic institutions such as the World Bank and the International Monetary Fund — closely ties

East Asia's economic growth to the rise of market idealism in post-socialist societies. The neoclassical arguments are based on the idea that East Asia's success is in line with market-based outcomes, but that nonmarket mechanisms such as extensive government interventions in markets have generally failed to improve economic performance and that government's role should be the minimal one of providing a safe environment for the market. From the neoliberal perspective, "governments are likely to do more harm than good, unless interventions are market friendly" (World Bank, 1993: 10). The market-centered view rarely confronts the fact that the East Asian states create and command the (new) market. A failure to understand the Asian quality of these states is parallel to the economistic approach evident in Marxist-Leninist exegeses which often regard the state as merely a reflection of the class structure and mode of production as a whole.[6] Developmental state theories, therefore, were also a theoretical rebuttal to the economistic tendencies of Marxism. Skocpol (1979), a prominent non-Marxist statist, challenged the economic reductionism in both the neoclassical view and the economistic approach of Marxism. She conceives of states as "administrative and coercive organizations — that are potentially autonomous from (though of course conditioned by) socioeconomic interests and structures" (p. 14). She views the state as an agent of social and political change. In Skocpol's analysis, the basis for the potential autonomy of state action originates from the maintenance of the social order and its involvement in an international network of states (30–31). Her state-centered perspective has become the

6 A view of the state as an "epiphenomenon" of the system of property relations, which is merely a mirror of class rule, represents the vulgar Marxist tradition of economistic reductionism.

most often cited epistemological basis for the developmental state model, especially about state autonomy, seeing the state as insulated from and even above society.

In short, the first developmental state model is a reaction to both dependency theories and the neoclassical perspective: in contrast to the former, it encouraged scholars to rethink "development" in the Third World, since it is apparent now that "partial" development or growth in the Third World can be accomplished even under the general conditions of global capitalism. In contrast to the latter, it brought the state back into the analysis of economic development in East Asia. State-centered studies consider the state as relatively autonomous and created by the need for a bureaucratic (rule-enforcing) apparatus. Taking this thesis of "state autonomy," developmental state theorists mostly focus on the "strong state" (Myrdal, 1968: 898), which is relatively independent from social and economic interest groups and which imposes obedience to state policy.

The role of a strong state in late industrialization was originally introduced by Gerschenkron (1962). In his three different categories of industrialization patterns, Russia in late nineteenth century is described as an "extremely backward" country, in which the state directly mobilized financial resources and created new heavy and chemical industries sheltered behind tariff walls to allow Russia to catch up to two different industrial models — that of Britain (advanced) and of Germany ("moderately backward").[7] Gerschenkron (1962: 7) argues that differences in the speed and character

7 From a Gerschenkronian perspective of catching-up, Shin and Chang (2003) consider South Korea to be an "extremely backward" country. They characterize the Korean system as a late-twentieth-century example of a late industrializer, based on the "close relationship between the state, the national banks and the *Chaebol*" (25).

of industrial development across countries were to a considerable extent the result of the application of different institutional instruments and patterns. An equivalent to Gerschenkron's schema for "extremely backward countries," the East Asian developmental state model was first suggested by Johnson (1982, 1987) to explain the institutional role of the state in organizing the economic activities of private firms. Johnson (1982: 20–21) first differentiates between the "developmental" orientation of the East Asian states, especially Japan, where state involvement enabled rapid recovery after World War II, and the "regulatory" one in the US. While the US-style regulatory state concerns itself with the rules of economic competition, the East Asian developmental states concern themselves with substantive matters such as what industries ought to exist and what industries are no longer needed. In the developmental mode of the Asian states Johnson sees "the commitment by political elites to 'market-conforming' methods of intervention in the economy" (1987: 141). Johnson regards the developmental regime in East Asia as "soft authoritarianism" since it is based on a coercive political–bureaucratic elite, autocratic power and political repression, and oppressive labor policy, through which the states drive the private sector toward the one goal of economic growth. In her analysis of the Korean case, Amsden (1989) goes a step further than the autonomous state model offered by Johnson by arguing that the state autonomy in Korea was almost absolute in planning late industrialization, disciplining private firms dependent on their performance, and controlling the opposition to growth from unions and civil rights movements. Wade (1990a: 24–29) adds the "governed market" (GM) theory which highlights the bureaucratic power of the Korean and Taiwanese governments that

"manage" or control their national markets, rather than following or conforming to its demands.[8] Shin (1998) describes how the governments in Korea have supervised the business entities and even disciplined them:

> The series of economic plans in South Korea has constituted the major source of industrial transformation and economic growth. […] The state […] selected several industries as strategic sectors and gave them protection from excessive competition among domestic as well as foreign enterprises. The state provided financial subsidies and supports and scrutinized their economic performance. It controlled the number of competing enterprises in the market by restricting entry and production capacity and [by] frequent state-led mergers of private firms. (8)

In summary, the models of the first developmental state school (e.g., Amsden, 1989; Haggard, Cooper & Collins, 1994; Wade, 1990a, 1990b; White & Wade, 1988) emphasize the autonomous power of the state in leading the industrial transformations of the East Asian economic "miracle." According to the investigations of these theorists, the strong developmental states created a set of strategic industrial policies in high-tech sectors aimed at creating the long-run wealth of their nations. The obvious features of the strong East Asian states made the first developmental state theorists believe firmly that the East Asian states acted in complete autonomy. A new group of statists responded critically to this concept of the state as a set of institutions commanding power and discipline over society and capital. Some developmental state theorists designated as

8 Wade (1990b: 234) summarizes the autonomous features of the state's selective industrial policies that control the market: (1) government initiatives as to what technologies should be adopted; (2) public influence over private resources to carry out these initiatives; (3) a larger before-the-fact plan or strategy.

"neo-statists" have shifted their focus to examining the densely interconnected linkages between the state and business.[9]

2.2.2. From total state autonomy to state–business linkages

Neo-statists pay close attention to the blurring demarcation between state and society, without ignoring the leading role of the states over business in East Asia. Evans (1995) is a leading scholar pioneering this new statist trend. With his concept of "embedded autonomy," Evans tries to reinterpret state autonomy in the following two directions: First, while these states are sufficiently autonomous and sovereign from specific social groups so as to formulate their own goals (the state's internal structure), their autonomy is also embedded in specific social links (state–society relationships). In Evans' analysis, South Korea as one of the typical developmental states is a case of establishing successfully cooperative links between political bureaucrats and industrial elites at the institutional level.

The developmental state is, Evans says, different from the "predatory state" such as Zaire in Africa. The predatory state usually exercises a strong top-down power without institutionalized negotiation with social groups, and thus "has little capability of transforming the economy and social structure over which it presides" (Evans, 1995: 45). Borrowing Mann's (1988: 5) categories of state power, we can say that the state elites in Zaire possesses "despotic power" (top-down predation by a strong state on society) but

9 Weiss and Hobson (1995: 9–10) designated a new emerging group of theorists focusing on state–

weak "infrastructural power" (capacity of the state to penetrate society and to implement political decisions throughout the realm).[10] To the first statist school, state autonomy was the capability of the state to wield "despotic" power with little interference from interest groups, and therefore the states have a high degree of flexibility in the formulation and implementation of policy.

The earlier statists rarely noted the "infrastructural" capacity of the state, which refers to its increasing ability to coordinate society's resources and allocate them to desired ends. In contrast, Evans' neo-statist perspective affirms Mann's thesis that despotic power is a source of state weakness while state strength is derived from a developed degree of infrastructural power. When Mann's concept is applied to the case of Korea, the political elites until the early 1990s were both "despotically and infrastructurally strong," at least in the state–business linkages. In other words, we can say that, without the state's "embedded autonomy," or "infrastructural power," vis-à-vis business, the developmental path in Korea could never have emerged, and it would have fallen into the predatory condition of despotic power. According to Weiss and Hobson (1995: 7), state strength increases with effective infrastructural power (the developmental state), whereas state weakness ensues from the exertion of despotic power (the predatory state). Therefore, whether a state is a predatory or a developmental one lies in the extent of the "embeddedness" of a state's autonomy.

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business links "neo-statists."

10 Mann (1988: 9) introduces one of the logistical techniques which have aided state "infrastructural" power: "rapidity of communication of messages and of transport of people and resources through improved roads, ships, telegraphy, etc." This point is significant for investigating Korea's developmental strategies for establishing the KII.

According to Evans (1995), Korea is a prototypical case of a developmental state which created dense linkages between bureaucratic elites and industrial capital. In such linkages, Evans notes, the state usually performs four different roles: formulating and enforcing rules (the role of "custodian"); playing out the generic role of regulator (the role of "demiurge"); and assisting emergent entrepreneurial groups (the role of "midwife"); and protecting local entrepreneurial groups from global changes (the role of "husbandry") (12–14). Weiss (1998) views state autonomy as more limited in its relationship to the private sector. Weiss' model of state–business relationships reflects the increased economic power of Korea's family-owned conglomerates, the *Chaebols*, a power almost equivalent to that of the state.[11] The state–business linkages are highly "selective" and mutually "dependent." Weiss' so-called "governed interdependence" (GI) theory notes that both state and dominant private sector are equally strong in their autonomy. GI refers to "a negotiated relationship, in which public and private participants maintain their autonomy, yet which is nevertheless governed by broader goals set and monitored by the state" (38). By introducing such relational terms as "mutual dependence" or "interdependence" between two public and private entities, Weiss' GI theory expresses a much weaker view of state power than Evans' "embedded autonomy" does, and focuses on the growth of highly concentrated business power. Nevertheless,

11 Weiss (1998: 61) sees the increased autonomy of Chaebols such as Samsung, Hyundai, and LG group in their relative independence of finance from the interventionist state and in the internationalized scope of their business operations. Her observation is closely related to the financial liberalization of the early 1990s, a liberalization that weakened the government's control over investment decisions and increased Chaebol-owned non-bank financial institutions' channeling of funding to group subsidiaries (e.g., Hahm, 2003: 12).

Weiss (1998: 49–53) takes into account the centrally "coordinated" and "governed" quality of state power over industry. In Korea, for instance, the coordinated capacities of the state are exemplified by highly qualified bureaucrats, the intelligence-gathering network for up-to-date knowledge about production conditions in priority sectors, and the Economic Planning Board (EPB) as a super-ministry insulated from the market.

In sum, whereas the earlier statists looked at the East Asian "miracle" by focusing on the disjuncture between the state and society and the dominance of the state over society, the neo-statists explore this economic success by focusing on the dense linkages between the state and the private sector. Even the neo-statists, however, point to the "state-induced deliberate shifting of the industrial structure towards higher technology, higher value-added products" (Weiss & Hobson, 1995: 150). In fact, despite the varying emphases on the state–industry linkages, it is clear that both the old and new statists agree about the state's dominant role in the East Asian economic miracle. From the beginning, developmental state theories were intended to describe a technique for "the rise of 'the rest'" (Amsden, 2001) in the world market, based on the historical experiences of the East Asia states as late industrializers.

2.2.3. Debunking developmental state theories as a recipe for growth

This section describes some theoretical shortcomings in developmental state theories. The critique will be beneficial in clarifying the material conditions of the state in Korea. First, the statists' arguments are essentially based on looking for a recipe for success and growth. Whether their approach is based on the autonomous power of the

state or on state–business linkages, both the old and the new statists focusing on the incredible performance of "growth" and "catching-up" in the East Asian economies. In order to detect the recipe for success, the statists concentrated excessively on how a state performed its role as coordinator and on what kind of industrial policy it used in collaborating with the private sector. This developmental logic could lead to the argument that dictatorship and exploitation should be endured in order to achieve developmental activities of effective planning and economic growth. We often ignore the fact that capitalist growth is accompanied by intense exploitation (see Hart-Landsberg, 1993). The state theorists' tribute to East Asian growth has led to ignoring the "tendency toward deformation" that occurs with rapid growth under conditions of extreme state intervention — a deformation which includes such phenomena as the unequal conditions between major cities and other areas of the same country, environmental destruction, repressive labor control, crony capitalism, and corruption. The statists fail to interrogate the problems of development in itself.

Secondly, the statists overlook the possibility that the developmental states in East Asia could descend into being predatory (or rent-seeking).[12] At the very least, it is clear that the symbiotic relationships between the state and big business in Korea have been damaging to civil rights, social welfare, and distributive justice. For the developmental state theorists, these symbiotic relationships — specifically, those between the

12 In a rent-seeking state, politicians and bureaucrats maximize their personal or political fortunes by extending rents — which in Korea were associated mostly with the privatization of vested properties, an overvalued exchange rate, high rates of protection, government procurement, and preferential credit — to the private sector (Lim, Haggard & Kim, 2003: 10–12).

authoritative state and the *Chaebols* — rarely become problems if the two actors serve to limit the extent of rent-seeking and corruption and pursue aggregate growth by means of the state's dense "embeddedness" in the powerful conglomerates.[13] The developmental state model shows how the crony linkages of corruption between government and business can develop into an engine for economic growth. It pays little attention, however, to the destructive linkages of corruption and rent-seeking between the actors, linkages between the political power of developmental dictatorships and the monopolistic power of privileged capital. The dominant blocs of the state and monopolistic capital benefit each other exclusively, denying the citizens' need for participatory democracy and distributive justice. In short, a bias toward the positive dynamics of state–business linkages is one of the weaknesses of the developmental state theories.

Thirdly, developmental state theories tend to reduce state–society relations into simple state–business linkages for economic growth.[14] Koo (1993) precisely identifies the missing piece of developmental state theories:

> [T]he East Asian literature confines its focus to the interplay of the "developmental state" and the market, more or less separate from the broader context of civil society. This narrow economistic approach results in a tendency to exaggerate the autonomy and strength of the East Asian state and to interpret economic growth in isolation from other political and social changes. An obvious

13 For instance, Kang (2002: 116–121) explains the limits on the corruption of the state by using the term "mutual hostages."

14 Evans (1997: 84–85) admits that, in the East Asian model, workers were excluded from the public–private networks, despite their key role in industrial transformation. His approach, however, is based on the "corporatist" vision of state–business–workers linkages promoting transformative growth. Evans can rarely free himself of the developmental project of growth, even though he considers the working class to be a missing part of the linkages.

> danger of such an approach is a reification of the concept of the state, as often found in many stylistic accounts of the East Asian developmental states. (7)

Koo further maintains that the state-centered approach overstresses the independent role of the state at the expense of societal forces, while it ignores how "the state is embedded in society" (5).[15] Koo is much more inclusive in his approach to society, going beyond the traditional orthodox Communist view of "state monopoly capitalism" as a simple reflection of class relations rooted in the mode of production. Migdal's (1988, 1994, 2001) "state-in-society" approach shares common ground with Koo; from the socio-centric perspective, states cannot be properly understood without looking at social contexts, at the various socioeconomic determinants of politics (Migdal, Kohli & Shue, 1994: 2–3). According to Migdal (1994: 9), patterns of domination within states are determined by key struggles spread throughout a society's multiple arenas of domination and opposition. In contrast, the developmental statists, despite their analysis of the dense state–business linkages, failed to look at the multitudinous layers of social contexts. The present study views the state not as a monolithic unity of command that simply represents uniform citizens, but as the "material condensation" or "institutional ensemble" balancing a relation of forces among classes (Poulantzas [1978] 2000: 35–46; Jessop, 1985: 336–

15 This "state-in-society" view is not new among Marxists: in his discussion of the origin of the state, Engels ([1892] 1990) describes how the state becomes autonomous over society, despite its origin from within society:

> The state is […] by no means a power forced on society from without. […] Rather, it is a product of society at a certain stage of development […]. [Eventually,] it became necessary to have a power seemingly standing above which would alleviate the conflict and keep it within the bounds of "order"; and this power, having arisen out of society but placing itself above it, and alienating itself more and more from it, is the state. (269)

339). The degree of state autonomy thus depends on the specific social and class conditions and the field of class struggles in a given society (see Jessop, 1982: 12–24; 1990: 24–47; Cho & Kim, 1998: 130–131; Lee, 2003: 27–31). The state-in-society approach, whether used by Marxist or non-Marxist state theorists, asks us to extend the state–business linkage approach to consider the state as situated within socioeconomic contexts and class tensions. Jessop (1982) gives us a clear-cut description of how to perform a theoretical analysis of a state: it must examine "not only [a state's] economic determinations but also those rooted in the distinctive organization of the state as well as in the social division of labor between officialdom and people" (30).

Finally, one of the theoretical problems in state-centered approaches is that they seek the engine for growth in a state's "endogenous" property, focusing on domestic state–business linkages and the leading role of a strong state in boosting the national market. This myopic view results in overlooking how external factors, such as the changing global economic system of capitalism, affect local government and economies. The survival of the developing countries depends largely on their close links to the global electronic conduits of capital. Without fully examining external constraints such as the new conditions of global geographies, we are unable to fully understand the changing developmental mode in the East Asian states. The statists thus fail to take into account the reconfiguration of transnational capital and the vulnerable conditions of the East Asian states and businesses.

2.2.4. Summary

While developmental state theories contributed to tracking state dominance in the economic transformation and growth in East Asia, they failed to perceive the deformations caused by the symbiosis between the state and big business. Further, these theories were unable to describe both the class and social conditions within which the state is situated, and ignored the external factor of global capitalism, which greatly constrains the autonomy of regional governments and economies. By perceiving the state as wholly situated within class and society, the state-in-society approach critically supplements the weak or missing links of developmental state theories, going beyond the theses of unfettered state autonomy (promoted by the old statists) and the close liaison between the state and business (promoted by the new statists). Moreover, both the old and the new statists tend to overestimate the state's role in sustaining capital accumulation, and fail to see that the major function of the state is to preserve the stable cohesion of various classes in a given society through repression and concession (Gramsci, 1971: 206–76; Poulantzas, [1965] 2008: 98–100).

The present study thus views the state's autonomy as largely based on two sources of power: one is the state's relative autonomy in establishing policies that influence industrial development; the other is the state's bureaucratic capacity to embed its control in society at large and in citizens individually, which is exactly what is designated by Mann's term "infrastructural power." The latter derives from the autonomous power of the state continually to develop new bureaucratic techniques to control society. As will be surveyed in the next section, the rezoning and policing of

space exemplifies the introduction by the bureaucratic elites of a more pervasive and omnipresent technology for social control. The state-in-society approach enables us to explain why the state tries incessantly to rearrange the forces of social classes and to insert its bureaucratic desire for control into policy plans such as those for Korea's national information superhighway.

2.3. CRITICAL GEOGRAPHIES: THE STATE–SPACE–CAPITAL LINKS

This section investigates so-called "spatialization" in critical geographies, which explains the process of re-zoning that stratifies and concentrates the power of capitalism over physical and virtual geographies (Mosco, 1996). The present study applies the theoretical perspective of critical geographies to analyzing the empirical case of the nationwide electronic superhighway project in the two directions of spatialization. One comes from the bureaucratic desire for control by developmental states over society, the institutional desire that is closely related to increasing the state's "infrastructural power" (Mann, 1988) over society. By using Foucauldian concepts such as disciplinary societies and governmentality, this study examines how the techniques of power in contemporary states are gradually transformed from a centralized and hierarchical model into a distributed and ubiquitous network model through virtual spatialization, the so-called de-territorialization of political power. Along with investigating the metamorphosis in techniques and technologies of state power, the other direction of spatialization comes from the need of large capital to metamorphose itself into the knowledge-based mode of

production. To East Asian states, spatial reconfiguration also signifies the economic capacities for the developing countries to achieve a "functional" position as one nodal point of Empire's global networks. The spatial reconfiguration of domestic territories by capital is the strategic plan to survive in the age of digital capitalism.

In short, this section examines how spatial rezoning facilitates the state and large capital to obtain their goals of control and accumulation, respectively. Before entering into the topic, let us begin first with the concept of space as the geographical medium through which socio-economic power is administered and controlled.

2.3.1. Space as social power and "flows"

Spatialization — such as spatial configuration by market need, segmentation of places, and spatial policing around class, gender, and race — produces complex spatial geometries of power (Dodge & Kitchin, 2001: 36). Harvey (1989: 226) notes that those who define the material practices, forms, and meanings of space, together with those of money and time, define certain basic rules of the social game. Harvey (1996), in his investigation of the historical transitions of capitalist geographies, describes the capitalist reshuffling in space with the concept of "flexible accumulation" by "time–space compression." Different from the place-adhesive recognition of space as something fixed, his viewpoint extends space as an expansive source of capitalist power, which has been sustained by reconstructing its geographical bases.

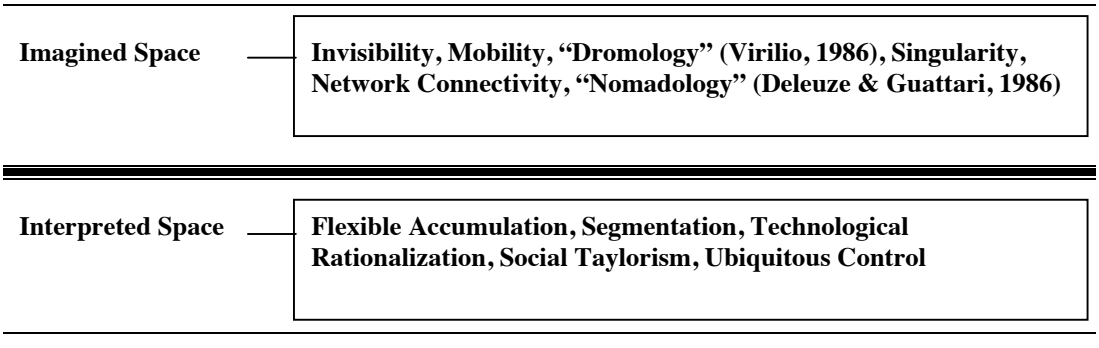
Space is not wrought out of thin air but rather is socially constructed and mediated through the interplay of human beings striving to control political, economic, cultural forces. Space, therefore, is inseparable from the social power intersecting it. Borrowing Soja's (1996) terminology, we are "first and always historical–social–spatial beings, actively participating individually and collectively in the construction/ production of histories, geographies, societies" (73). In Soja's concept of the "trialectics of being," the human body has been always located within the interplay between space and socio-historicality. A linkage to socio-historicality of space indicates that space should be understood as grounded in the social and historical struggle to control places. In this respect, space as social power is a connotative texture that underlies the physicality of places. If space signifies "a system of containers of social power" (Harvey, 1989: 237), any struggle to reconstitute power relations is a struggle to reorganize their spatial bases (238). In this respect, space is not the passive host for the reifying society but rather a malleable container that allows its reconfiguration (Fabijancic, 1995).

Many critical geographers have investigated the spatial reconfiguration of capitalism, such as global expansion of capital markets in order to ameliorate over-accumulation with a "spatial fix" (Harvey, 2001) — spatial reorganization and geographical expansion facilitated by innovation in physical infrastructure — as well as re-territorialization and de-territorialization for controlling increasingly and bewilderingly complex flows of capital. Flexible spatialization corresponds to "lay[ing] an abstract space over concrete territorial configurations" (Morley & Robins, 1995: 75). Lash and Urry (1994: 13–17) also observe that through the rapid circulation of subjects

and objects, time and space "empty out" and dissolve into the spatio-temporal ether. Space is directed especially to channeling the mobility of people, money, goods, and information. Thus space is becoming increasingly "process-oriented" (Castells, 1985: 11–15) and more "fluid" (Urry, 2000).

When the spatial conduit of electronic communications becomes the material infrastructure of contemporary power, "the space of flows" is more dominant in our economic, political, and symbolic life than "the space of places" (Castells, 1996: 412). Space as "flows" reproduces a hierarchical network of social classes in terms of disparities among regions, locales, cities, and nations. The "space of flows" approach could be a useful method for reading the inner mechanisms of power and also the uneven geography of segregations and disparities that leads to social disintegration such as class divisions (Hepworth & Robins, 1988).

Figure 2.1. Two different layers of spatiality



In Figure 2.1, the second spatial layer "interpreted" by the state and large capital designates the inner or real mechanism of spatial enforcement, in contrast to the cognitive effects of electronic space in the first layer of "imagined" space. In other words, whereas imagined space refers to the reconfiguration of physical space based on mobility and speed, interpreted space depicts the actual dynamics of the fluid and mobile space affecting the structural system of capitalism.

2.3.2. State/Space

Foucault ([1979] 1991) describes governmentality as the art of exercising power on things, in other words, the scientific management of population and the constitution of political economy. He views the power shift in eighteenth-century Europe "from a regime dominated by structures of sovereignty to one ruled by techniques of government" (101). This concept illuminates how Korea's power systems have developed the regulatory mechanism of a science of knowledge. Foucault's concept of governmentality presents a vision of the exercise of rule as far more than simply its direct discipline or violence. The management of population or statistics is used more toward shaping the "general" conditions of the population than of directly managing its individual bodies. This section examines the new phase of institutional governmentality over society in terms of spatial reconfiguration in the electronic age.

2.3.2.1. Free-floating control

In his "postscript on control societies," Deleuze ([1990] 1995) contrasts Foucault's concept of disciplines with the concept of controls. According to Deleuze, the "disciplinary societies" of the eighteenth and nineteenth centuries should be differentiated from the kind of society we have today. He describes today's societies as control societies, and sees them superseding the disciplinary societies Foucault talked about. Deleuze's division of societies into these two periods — one of discipline and the other of control — reflects digitization of information in modern society and its use for reproduction of power systems. He sees control societies as based on digital technology, while disciplinary societies are based on analog technology. Digital technology facilitates free-floating control and continuous flows of information between databases without spatial-temporal restraints, while analog information has the logic of "confinement" and "moldings" that are broken up into physical cells and molds such as factories and prisons, where monitoring is performed from a physical watchtower. Under digital conditions of control, Deleuze observes that masses become floating samples and data. Gandy (1993) notes that personal information is "produced through the monitoring of behavior, and not the behavior alone" (76). Just as workers' actions in a workplace are managed by the employers, and as consumers in everyday life are identified, classified, and evaluated by private corporations, through the so-called "panoptic sort," what new technologies enhance is the ability to digitize, collect, sort, and control the activities of citizens in the public space (Gandy, 1993). In this respect, digital technology becomes a new means for

modern power to escape from the confinement of barriers, fences, and borders into the free-floating control of flow, speed, and mobility.

2.3.2.2. Invisibility of power

In a move similar to Deleuze's distinction between disciplinary societies and control societies, Bauman (2000) divides capitalist modernity into two phases using the concepts of "solidity" (analog in Deleuze's term) and "liquidity" (digital). He observes that the pyramid of power has increasingly been built on "access to the means of transportation and the resulting freedom of movement" (10). Bauman notes that the principal strategy in the exercise of power has become exterritorial and unbounded. He regards the "melting of solids" in the current capitalist system as the "revenge of nomadism over the principle of territoriality and settlement" (13). This rejection of any territorial confinement means that for the use of power, it rarely matters now "where the giver of the command is" (11). Bauman's metaphor of "liquid" power is useful in conceiving a dispersive, de-centered, and even neutralized power. This wide dispersion of power techniques makes it easier to conceal the goals of control. As Foucault ([1976] 1990), says "power is tolerable only on condition that it mask a substantial part of itself" (86). Accordingly, power seeks to make "all things visible by becoming itself invisible" (Foucault, 1980: 71; also see Foucault, [1975] 1995: 187). The invisibility of power has been greatly increased by the dispersed and "value-neutral" techniques of high-tech panoptic devices such as radio frequency identification (RFID) chips, electronic bugs, geographic positioning systems (GPS), wireless tracking techniques, and other fine-

grained data-mining software. These devices have been accompanied by new hegemonic values that persuade people to embrace a "digital sublime" and thereby gain consensual acceptance of them throughout society.

2.3.2.3. Modulation and assemblage of differences

If power has difficulties in integrating the liquid, free-floating, and dispersed practices of surveillance into its library of databases, power's regulatory mechanisms are likely to be incomplete (Poster, 1990). Thus modulation of power on a large scale is impossible without interconnected networks. Raley (2004) notes that interconnected networks make up "modulating networks of command" (125). Although Raley's research focused on the current shift of the global capitalist system, in other words, on "societies of 'imperial' control" (e.g., Galloway, 2001), the concept of "modulating networks of command" is quite useful for analyzing the new techniques of control. Raley explains the modulating system of power as "a loose assemblage of relations characterized by […] flexibility, functionality, mobility, programmability, and automation" (132). The technology permitting such an assemblage is the electronic network, which "abstracts human bodies from their territorial settings and separates them into a series of discrete flows" (Haggerty & Ericson, 2000: 605). The loose but integrated communication network is the "instrumental facilitator" of power (Raley, 2004: 135). Raley concludes that the new mechanism of power "need" not necessarily operate through domination, subjection, and imposition, because it now operates through insinuation, which is a modal switch of power and consists of hosts accepting rather than rejecting or being forced to

accept" (135). When the spatial conduit of electronic communications becomes the material infrastructure of contemporary power, modulation and assemblage become the technical standards of common protocols or codes that link the free-floating data of individuals, groups, and classes.

2.3.3. Capital/Space

As we reviewed previously, the importance of networked mobility for transnational capital at the global level (see Chapter 2.1.3) means that it is the fact that South Korea's government and business sectors are urgently struggling to incorporate the country into the electronic mode of capitalism so that it can achieve a functional position as one nodal point. For instance, in the Second World War, during the Japanese occupation of Korea, Japanese military imperialism forced Koreans to build a national road and railway network across the Korean Peninsula to make the imperialists accessible to the vast markets of Manchuria (see Chapter 4.1.1). The current colonialist project, however, will not need the violence of physical mobilization to subordinate the local under its global order. To obtain membership in global society, Korea must construct information infrastructures across the entire country and plug itself into the electronic networks of economic globalization. Survival in the age of digital capitalism depends on local abilities to function as a part of the broader web structure of the global market.

The electronic telecommunication network has become the material infrastructure of contemporary capitalism, allowing the products of immaterial labor to be disseminated beyond local boundaries. Terms such as "cybernetic capitalism" (Robins & Webster,

1999), “digital capitalism” (Schiller, 1999), and “fast capitalism” (Agger, 2004) denote the deepening reliance on the virtual dynamics of capitalism shaped by technological innovation. These terms suggest a new stage of capitalism in which the flows of capital, labor, commodities, information, and images achieve a global reach and in which they can be produced and consumed almost instantaneously.

Virilio (1997: 119–145) describes how the incessant desire of large capital has been promoted by speed and mobility. Fundamental sources of modern capitalist power are dependent upon both electronic connectivity and mobility. The nationwide and worldwide infrastructural technologies thus have made it possible for media giants to establish powerful distribution and production networks (McChesney, 1999). For instance, Hills (2002) examines the burgeoning phase of the historical struggle for achieving domination of international telecommunications between the US and Britain from the mid-nineteenth century to the Second World War, and notes the major role of the communication infrastructure as a colonialist power resource and conduit — the transcontinental network such as submarine telegraph cables, ship-to-shore wireless, broadcast radio and shortwave wireless, and telephone lines. Regarding regional patterns of spatialization, Schiller and Mosco (2001) note the economic function of telecom network lines in the regional integration across the North American continent that culminated in the North American Free Trade Agreement (NAFTA). These networks account for the geographical reconfiguration of Mexico and Canada by means of the continent-wide network lines of US-based telecom businesses. The virtual networks are an expanding source of capitalist power that enables optical flows of intellectual

properties embodied in financial capital, electronic business data, and entertainment content.

2.3.4. Summary

In sum, space is an active expression of both state power and capital power, and socio-economic power today is articulated in "flows" whose purpose is the flexible control of space. The materialist perspective on space deserves further exploration as a tool for analyzing the social domain in which communication technology is applied. The nationwide electronic highway project is most usefully viewed both as a new experiment in power enforcement and as one of the spatial designs of power in the wired world of flows. The change in the exercise of power from places to flows in space explains why mobile technology, which was enacted on the basis of placelessness, has been subordinated into modern power structures. To use Foucault's ([1975] 1995) words, a "power of writing" or "documentary techniques" on bodies has been constituted as another component of the power mechanism of discipline (189–192). A "panoptic" vision of power allows us to understand networked mobility as an updated documentary technique for managing citizens' bodies through the space of "flows." Further, power structures as "flows" change the "writing" performance into invisibility so as to reduce antipathy of individuals as social classes to structural control. Networked mobility by electronic spatialization facilitates the invisibility and neutrality of power and allows a "micro-power" to become ubiquitous and omnipresent, "making all things visible by becoming itself invisible" (Foucault, 1980). While networked mobility gives us physical

freedom from spatial restraints, it may be grounded in the ubiquitous power to manage a social system. Electronic spatialization thus strengthens the dominant motive of control as well as the efficient regulation and segmentation of bodies as social classes. In my current research, a critical angle on friendly symbiosis of space as "flows" and state power is crucial to analyzing the systematic management of social class in a local domain, along with spatial reshuffling for the purpose of flexible accumulation of capital.

Chapter III: Method

The purpose of this research is to describe and analyze the contextual factors that conditioned the Korean Information Infrastructure (KII) project implemented by the Korean government from 1995 to 2005. The primary question of this study is to observe driving forces that conditioned the KII project in the Newly Industrialized Economies (NIEs). This primary question leads to the following sub-questions:

1. What were the relevant policy decisions concerning the KII project, and how did global factors affect those decisions (Chapter 4)?
2. What kinds of symbiotic relationships between governmental and business entities have developed through the KII project (Chapter 5)?
3. How was the Korean government's desire for social control articulated and realized in establishing the KII plan (Chapter 6)?

By examining these research questions through a qualitative research design, the current study enables to reveal the complex mechanisms of domination and accumulation in the state-led IT plan. A quantitative research method is insufficient for describing the social struggle, conflict, and compromise among dominant stakeholders involved in constructing the national infrastructure project. Therefore, for the research fields concerning human behavior and interaction (Strauss & Corbin, 1990: 19) and

stakeholders' structurally determined role in capitalist society, qualitative research is more useful. Qualitative research allows the investigator to explore the research theme in a comprehensive manner, by means of archival data, as well as by means of interviews and observation. The qualitative approach traditionally involves beginning with open-ended questions and then creating research findings by gathering data (Creswell, 1994: 4–10). The goal of qualitative approach is the perception of the deep structure that lies beneath the surface of an object or event. It is the procedure of abstraction. When each concrete event or theme has been examined, it is possible for a researcher to produce the abstract framework from the concrete data. Then, the researcher forms the concepts that describe the concreteness of those objects. This double movement, from the concrete to the abstract and from the abstract to the concrete, is closely related to the research method of observing a structural logic behind facts or events in society. Based on this double procedure, the present study aims to perform a "structural" analysis or "interpretation in context" of the empirical case. According to Sayer (1992: 86–96), structural analysis is based on distinguishing not only incidental from essential characteristics, but also external/ contingent from internal/ necessary relations. The method suggested by Sayer can help this study to distinguish the necessary and internal relationships from the contingent and external relationships among the competing factors determining the KII project.

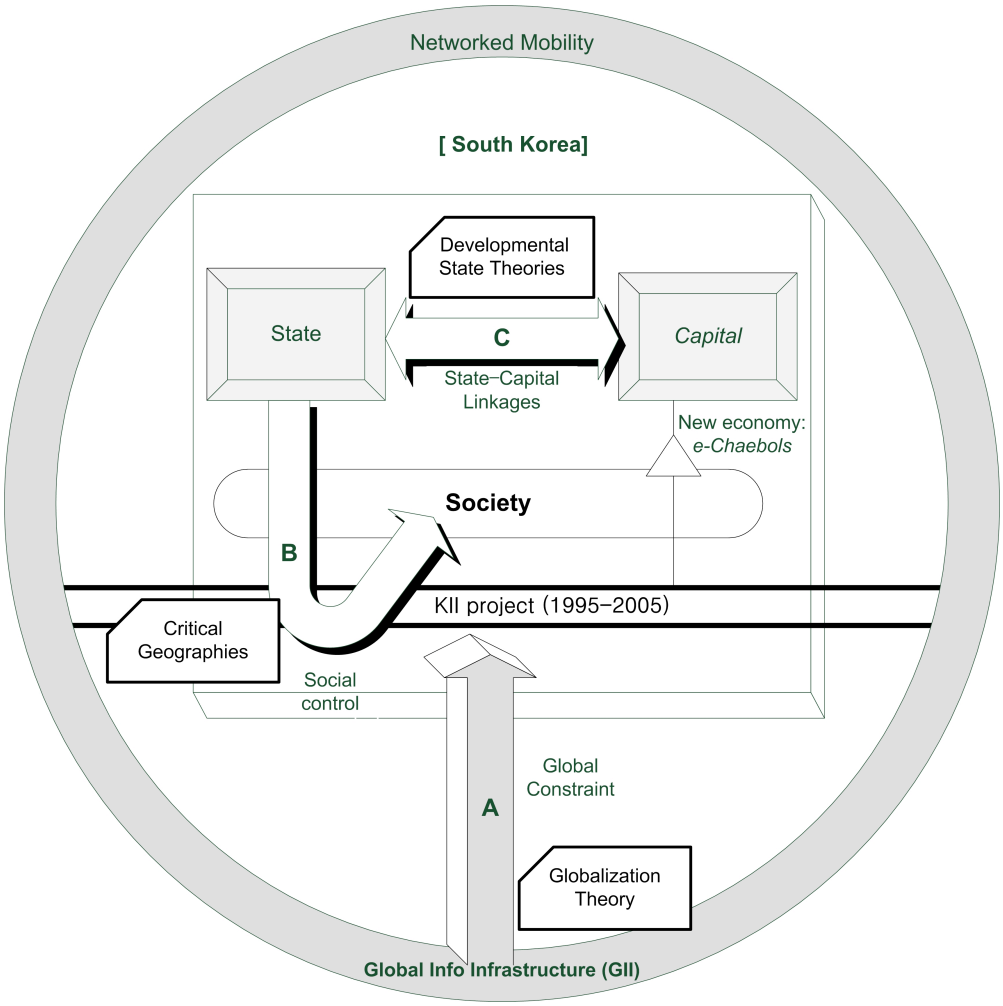
Methodologically, this study examines longitudinally the changing relationships between the public and private sectors during the implementation of the KII project. It is based on documents and in-depth informant interviews: the primary data are archival data

from various sources, including newspapers, white papers, technical reports, and other published articles and books. The secondary data come from in-depth informant interviews that will be used for enriching the interpretation of findings by mapping out the different positions of major stakeholders who were directly and indirectly involved in the KII project.

3.1. OVERVIEW OF THE RESEARCH DESIGN

This study mainly examines the following core policy initiatives and laws dealing with the KII project: Since its passage in August 1995, the Framework Act on Informatization Promotion (FAIP, Act No. 4969) has guided the Korean government's basic telecom policy, and especially the KII project. The present study also examines the Basic Plan on Informatization Promotion (BPIP) and three more policy initiatives, all of which have been implemented for promoting the KII project. These four policy initiatives include policy directives on how to realize the KII project within a given time span: The first policy initiative (BPIP) was implemented from 1996 to 2000; the BPIP was further developed in the second policy initiative, Cyber Korea 21 (CK21), implemented during 1999–2002, the third policy initiative, e-Korea Vision 2006 (e-KV06), implemented during 2002–2006, and Broadband IT Korea Vision 2007 (BK07), the most recent version of the government's policy initiative which is implemented during the period of 2003–07.

Figure 3.1. Overview of the research design



* e-*Chaebols*: Korean conglomerates, such as Samsung, LG, KT, and SK, incumbents in new IT sector, as well as in the traditional manufacturing sector.

Based on the previous literature review of globalization, dense state–business linkages, and social control through space, the study offers a model of the forces that influenced the implementation of the KII project from 1995 to 2005. Figure 3.1

graphically represents the factors that were analyzed in order to answer the overarching question of the study which investigates the major driving forces in the KII project.

The diagram depicts the following structural conditions:

First, as background to the investigation of the driving forces conditioning the KII project, Chapter 4 surveys the history of state-led infrastructural plans in modern Korea and situates the KII project within past governments' infrastructure projects such as highway, railway, and communication networks. This chapter aims to observe how, in the dynamics of capital accumulation, the private sector needs constant spatial reconfiguration through the building of infrastructures; thus, the past state-led infrastructural plans are historically closely linked to the birth of the KII project. This historical overview is created using policy documents, statistical data on the IT indicators about Korea published by the Organization for Economic Cooperation and Development (OECD) and the World Bank, and data on telecommunication from the Korean Ministry of Information and Communication (MIC) and the National Computerization Agency (NCA — renamed the National Information Society Agency [NIA] since 2007).

Second, point A in the diagram shows the influence of the new material conditions of network-based global capitalism and the external constraints it imposes on the Korean policymaking processes related to the KII project — Chapter 5 discussed the first research question. This study defines a constraint as an external force that influences the Korean government's policy action. These external constraints include political pressures, trade penalties, bilateral/multilateral trade agreements, indirect economic

pressure exerted by the international trade organizations, legal precedents, and lobbyists' activities, which largely reflect the unequal power relations among nations.

- In the KII project, external constraints include the global pressure for the openness of the telecom market that is exerted through the international trade organizations, which largely represent foreign investors, foreign telecom service providers, and patent owners. These are investigated using data about the 1997 World Trade Organization Agreement on Telecommunications and its influences on the Korean telecom market since the early 1990s.
- This study aims at reading the dominant pattern of capitalism in the early 1990s as an attempt to transform each country's economic structure into a digital mode of production. Another external constraint on the Korean project is the flurry of early 1990s' information superhighway policy experiments in advanced countries such as the US, Japan, and the EU, which the Korean government used as benchmarks for its own project. How these policy experiments in other countries figured into Korea's planning was investigated using from each government's official policy reports describing these projects and Korean documents referring to them.
- To observe how external constraints influenced Korea's domestic policymaking, this study examines the government's policy response to both global pressure to open the telecom market and to the international trend of constructing the KII. The inner response of the Korean government can be investigated using data about the Korean

government's policy plan implementing the KII project, which can be found in a series of white papers published by the MIC and the NIA.

- This chapter also investigates government-sponsored R&D investment in and support for strategic telecom technologies such as the asynchronous transfer mode (ATM) switching system. This study aims to examine how the Korean government failed to escape from the market dominance by the transnational telecom manufacturers. This chapter uses white papers published by the NIA describing the development of ATM technology and interviews with informants who developed or closely were related to the national strategic equipment and networking technology.

Third, C represents how the state has constructed a new relationship with the *Chaebols* through the KII project, far from the authoritarian and interventionist state in the past military regimes directing over the *Chaebols* — Chapter 6 investigates the second research question. In other words, C shows how the state, the rapidly growing telecom duopolies, and the *Chaebols* in Korea have become deeply interpenetrated, by means of state financial support, the organizational collaboration between these entities, and a hegemonic consensus.[16] This study limits the observed scope of the linkages to the government-led investment in the private sector and the organizational network of collaboration. The denser the network of state–*Chaebol* alliances or linkages becomes, the more citizens are excluded from policy decision-making processes. To examine both

16 The collaborative links between the state and capital in Korea are well summarized in Weiss (1998: 57), Weiss and Hobson (1995: 170), and Evans (1995).

the dense state–*Chaebol* linkages under the civilian governments, this study focuses on the following indicators:

- The inner structures of the policy consultation bodies created for the information superhighway project will be investigated to reveal the pattern of linkages among industry representatives and public officials and to examine the efficiency of their dense linkages. This chapter uses data from in-depth interviews with sixteen informants (see Chapter 3.4, discussing sampling selection) from the MIC, the NIA, and the telecom companies of Korea Telecom (KT) and Dacom, and using official documents on the KII project published by the MIC and the NCA that contain organizational charts and describe the major stakeholders' relationships and the changes in their policy network based on the shifts in specific policy goals. This chapter also uses the official documents about the four policy initiatives (the BPIP, CK21, eKV06, and BK07) in order to investigate the policy rhetoric.

Third, B includes the infrastructural desire of government elites to control the citizens through spatial rezoning such as through the use of a dispersed digital network — Chapter 7 discussed the third research question. Along with the ever-expanding state intervention in the economy, the state's desire for control is closely related to a shift of the state power from coercive discipline to a digital grid of control at the institutional level. This study defines social control as control of individual citizens by government on behalf of society as a whole. As previously mentioned in Chapter 1, the use of this term

will be limited to the context of the government's control of information on individual citizens based on digital technology and electronic networks, rather than the context of physical force. B-1 represents how the nationwide electronic network has embedded in it the positive techniques of institutional power. Since the launching of the KII project in 1995, there have been a series of controversial laws and policy initiatives enacted which have enabled government elites to perform electronic network-based censoring or control of citizens. To examine the institutional desire for control through spatialization, this study focuses on the following indicators:

- For reading the new techniques of social control based on the electronic infrastructure, this study examines the policy conversation about the nationwide introduction of the National Education Information System (NEIS) of 2003. The NEIS is a nationwide database system aimed at managing more than 200 pieces of personal information about each of the eight million students in the primary and secondary schools through a central server computer operated by the Ministry of Education and Human Resources (MEHR). This policy initiative could not have been conceived without the material existence of the KII. This chapter investigates the confrontation over the NEIS between the proponents (the government and the MEHR) and the anti-NEIS groups (parents, teachers, and the civil rights groups), by using the Korean newspaper digital archive service operated by the Korean Integrated News Database System of the Korea Press Foundation.

- The study also investigates the government's attempts at social control by examining the privacy-sensitive provisions of such legislation as the Framework Act for the Establishment of Public Order in Telecommunications of 2001 and the Act for the Promotion of Information and Telecommunication Network Use of 2005, which created the Enforced Real-Name System for the purpose of forcing citizens to use their real names and resident ID numbers whenever posting messages on the Internet.
- The study supplements the investigation of the NEIS and other relevant laws with archival data from press conference reports, documents on public hearings, written reports of events, and policy analysis reports, all of which have been published by the JinboNet and the Citizens' Action Network, organizations defending citizens' cyber-rights in Korea.

As suggested in the research design, the following sections describe the detailed data collection procedures needed to successfully investigate these factors.

3.2. SETTING

The site for this study is South Korea, a prototype of the East Asian developmental state model. South Korea is transforming itself into the first tier of next-generation IT businesses. For instance, the number of mobile phone users in Korea is rapidly growing — as of June 2007, there were over 42 million registered users in Korea, a population of 48 million — and the high-speed data communications of mobile phones

and the Internet utilize seamless multimedia services throughout the country. South Korea is an optimal site to critically read the new "challenge of Asian IT activity" (Boyd-Barrett, 2006).

Seoul, the biggest metropolitan area in Korea, is the seat of public institutions directly related to the national IT project such as the MIC and the NIA, as well as the headquarters of the telecom companies such as KT and Dacom. The researcher has chosen these public and private institutions as the site for gathering documents and conducting informant interviews. Seoul is a knowledge-intensive city where the researcher has easy access to the relevant data.

This study investigates Korea's nationwide high-speed backbone network plan over a decade-long period divided into three evolving phases, based on the shifting of specific policy goals:

1) The first phase (1995–1997) aimed at improving network connectivity among public institutions: the government upgraded the intelligence and police network lines to interconnect 4,000 public institutions with the optical network.
   - Interconnected some metropolitan cities with the optical broadband network (with the transmission capacities of 155Mbps to 2.5Gbps).
   - Launched the Asynchronous Transfer Mode (ATM) switching system.
   - Established the Korea Public Sector Network for the Internet (PUBNet-I).
2) The second phase (1998–2000) aimed at creating a business model from the KII network:

- Established the nationwide service of ATM network.
- Installed the nationwide optical infrastructure network (155Mbps to 5Gbps).
- Established the ATM-based Internet network (PUBNet-II).

3) The third phase (2001–2005) was an expansion of the second phase.

- Upgraded the nationwide service of ATM Network from 622Mbps to 40Gbps.
- Introduced MPLS networking technology into the ATM exchange network.

3.3. DOCUMENTATION AND ARCHIVAL RECORDS

This study gathered the primary data from the documents and archival records. Documents play an explicit role in the data collection in doing this case study (Yin, 2003: 87). This study collected the documentary information — such as agendas, announcements, and other written reports of events, closely related to the special committee's activities for the KII project. Secondly, government reports and white papers — such as *Past and Present of Korea's High-speed Backbone Network* and *Past and present of Korea's IT policy* (MIC & NIA, from 206 and 2005 in Korean), *Informatization White Papers* (NCA, from 2002 to 2007 in Korean), and *White Paper Internet Korea* (NCA, 2005) — were used as the guidebook for understanding the general vision and effect of the KII project and the Korean government's push to transform the industrial structure into the new economy. Thirdly, the secondary documents from the news agencies — such as newspaper clippings and other articles appearing in the mass

media, and online administrative resource pages — was beneficial to understand the dark side of the IT development (specifically, the analysis of the NEIS case) in society at that time.

This study also used archival records — such as organizational records (organization charts and budgets over eleven-year project) and survey data (such as census records or data showing the quantitative IT index), in order to describe the longitudinal trends in the policymaking process closely related to installing the KII.

The researcher gathered the copies of documents and records from the Library of the National Parliament and of internal government reports on policies from public institutional archives.

3.4. INTERVIEWS: ACCESS AND SAMPLE SELECTION

In order to explore stakeholders' different points of view and interests related to the backbone network construction project, the researcher performed in-depth informant interviews with key actors from the regulatory bodies and the telecom business who were involved in the KII project. The researcher obtained permission for in-depth informant interviews with officials of two government agencies, the MIC and the NCA, and executives from KT and Dacom in May 2007. The interviews were conducted in Seoul during the period from May to June, 2007. After these interviews, informants were contacted by e-mail and by telephone during the period from August to December 2007 for any follow-up questions that arose.

The primary sample of four informants was drawn from those directly involved in the KII project, and, by using snowballing sampling, I asked the primary informants to refer me to other officials whom I could interview. In order to make sure that my contacts are not limited to the members of a single social network, I chose "starter" informants with multiple starting points (Baxter & Babbie, 2004: 313). Sampling of interviewees includes the following:

- Three past and present government officials from the MIC;
- Six representatives from the NIA;
- Five executives from the telecom industry (KT and Dacom);
- One executive from the Electronics and Telecommunications Research Institute (ETRI) who developed the national equipment and networking technology (especially, the ATM Switching System); and
- One activist from Cultural Action the online civil rights movement group.

These different informants offer a variety of insights due to their unique perspectives on various aspects of the decision-making processes (Lindlof, 1995: 171). Focusing on these significant informants helps to investigate the concrete components of the object under investigation (Pauly, 1991). The four informants primarily selected for this study and other 12 informants who are nominated through referral were the actors involved in the process of the KII project and were therefore sufficient to support the findings.

The in-depth interviews are intended mainly to explore the unique perspective of each informant on the nationwide information superhighway project under the material conditions of networked mobility. The researcher employed a semi-structured interviewing technique by combining an open-ended informal questionnaire (see appendix page) with a fairly open format of conversation, in order to sketch the dynamic processes of conflict and alliance among actors involved in this decade-long project.

Chapter IV: From a Physical Infrastructure to a Virtual Infrastructure in Modern Korea

> [s]peed in transport and communication has practical political and economic uses: it not merely confirms the authority of the ruling elite but make it possible for them to exert more effective control over distant territories, tributaries, and markets. From the eighteenth century on, power and speed became the chief criteria of technological progress, along with quantitative productivity. […] [t]he power complex today is preoccupied only with acceleration; and cannot concede that it may be necessary, for the preservation of life, to reduce the tempo, to alter the direction, or to bring a profit-making but dangerous process to a halt. (Mumford, 1970: graphic section I-4)

ABSTRACT

This chapter traces the historical and geographical processes of installing the physical and IT infrastructures throughout the country from the colonialist era (1910–45) through the post-Korean War period (1953–62) and the military dictatorships (1963–92) to the civilian governments (1993–present). This chapter aims to situate the KII project not only within the succession of past administrations' infrastructure plans, but also within the response of Korean government and business to the new digital mode of capitalism.

4.1. GEOGRAPHICAL RECONFIGURATION AND NATIONAL INFRASTRUCTURE

As the background for investigating the major driving forces that conditioned the birth of the Korean Information Infrastructure (KII) project in the early 90s, this chapter describes South Korea's historical and geographical processes of installing physical and IT infrastructures throughout the country from the colonialist era (1910–45) through the post-Korean War period (1953–62) and the military dictatorships (1963–92) to the civilian governments (1993–present). The addition in spatial mobility from the configuration of the physical infrastructure (such as power lines, railroads, highways, and telephone lines) to that of the virtual infrastructure (such as electronic optical backbone networks and mobile telephony antennas) from the early 1990s onward represents a new stage of economic mechanisms in Korea. This chapter focuses on how in each era the government's plans to install a national infrastructure have been closely tied to its economic goals: 1) The Japanese colonial government mobilized Koreans to build the physical infrastructure across the peninsula in order to reach the enormous Chinese market during the early 20th century; 2) the military regimes renovated the national physical infrastructure in order to subsidize the domestic heavy and chemical industries under the banner of industrial modernization; and 3) the civilian governments sought to construct the national IT infrastructure (KII) in order to foster new actors of the digital age and enlist Korea as an Asian hub of global capitalism. This chapter notes that, to Korea, the spatial re-zoning based on virtual geographies was a driving force both to promote an information economy and to achieve a "functional" position as one nodal

point in the global networks. The state chose the development of a virtual infrastructure (KII) as the strategic plan for survival in the digital mode of global capitalism.

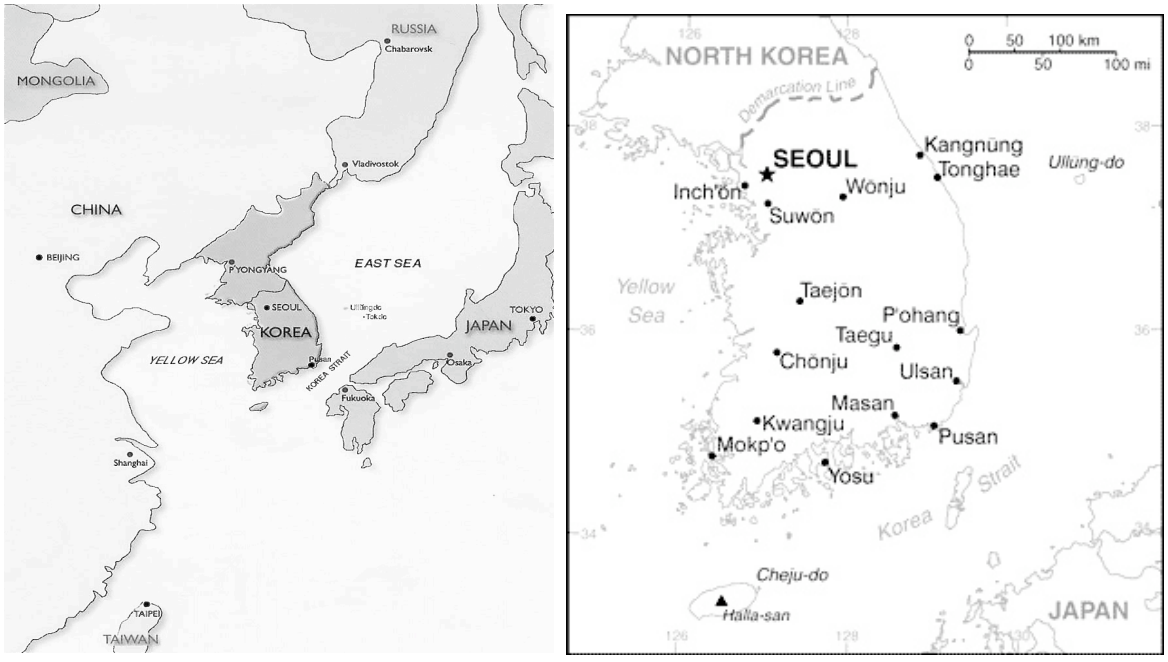
4.1.1. Overview of South Korea

A brief overview of South Korea will be useful before discussing the historical development of the national infrastructure in South Korea. The Republic of Korea (commonly known as South Korea) is on a peninsula that lies between China to the west, Japan to the east, and the Democratic People's Republic of Korea to the north (also known as North Korea). North Korea is a nation of 23.5 million people in a mostly mountainous area, with a land mass of 120,420 sq. kilometers, or 74,826 sq. miles (CIA, 2008). North Korea shares a border on the north with China and, for a few miles on the northeast, with Russia (Jeong, 2004). South Korea's only land border is with North Korea, along the 38th parallel. On the left, Figure 4.1 left shows the geographical position of South Korea, while on the right it shows a detailed map of South Korea including major cities such as Incheon (or Inch'ón, the population of 2.6 million), Busan (or Pusan, 3.5 million), and Gwangju (or Kwangju, 1.4 million).

In 2007, South Korea's population was 48.46 million with a land mass of 99,678 sq. kilometers, or 61,937 sq. miles. The capital city, Seoul, is the biggest metropolitan city having a population of 10.1 million. Out of the total South Korean population, the economically active population is 24.2 million, the gross domestic product (GDP) was $969.9 billion, and the per capita gross national income (GNI) was $20,045, as of 2007

(according to Korea.net, the official website of the Republic of Korea). The Korean economy relies on the export of industrial products such as semiconductors, automobiles, ships, consumer electronics, mobile telecommunication equipment, steel, and chemicals. Politically, South Korea is a republic which elects a president to a single 5-year term by direct popular vote. Since the launch of a republican system of government in 1948, South Korea has benchmarked the Anglo-Saxon political traditions emphasizing the balance and division of powers among the executive, the legislature (the unicameral National Assembly), and the judiciary.

Figure 4.1. Location of Korean peninsula (left), South Korean map (right)



Source: Ministry of Foreign Affairs and Trade (2001) and *The World Factbook*, the US Central Intelligence Agency (CIA, 2008, July 24), https://www.cia.gov/library/publications/the-world-factbook/geos/ks.html

Historically, an independent Korean state or collection of states has existed almost continuously for several millennia. From its initial unification under the Silla dynasty in 676 CE through the Goryeo (918–1392) and Chosun dynasties (1392–1910), Korea existed as a single independent country.

The next section surveys the development of the national infrastructure from the late-19th century when the Korean state confronted the Western nations' technology and "civilized" power.

4.1.2. Geographical rescaling under the Japanese colonial rule

In Korea, the development of communication in the modern sense can be traced back to the end of 19th century. At that time, the issue was centered on the ideal of *Dongdoseogi*,[17] which was directed at maintaining East Asian values while adopting Western technology. Embracing Western technology, especially a communication infrastructure, was considered to be a path to modernization. In an endeavor to escape the pre-modern age of the Chosun Dynasty, on November 18, 1884, young reform-oriented politicians launched the *Woo Jung Chong Guk* (the Directorate General of Postal Service) for the first time, and released the first Korean stamp, the so-called *Moon-wi,* which was used for mail delivered between Seoul and Incheon. This postal service, however,

17 At the end of the 19th century, East Asia responded to the inflow of Western power equipped with modern science and technology with the philosophy of *Dondosoegi* (東道西器, a Korean version of a

survived for only three weeks, because the reformists' coup d'état (the *Gap Sin Jung Byun*) on December 8 of the same year failed to unseat the royal family (Korea Post, 2006). Nevertheless, the royal family could not stem the advancing tide of Western technology. In 1885, the Chosun dynasty established a central telegraph office and began the first telegraph service in Korea between Seoul and Incheon. The telegraph service was extended to link Seoul to Eujoo (a Korean city bordering Manchuria) and then to Busan (currently the second largest city and the biggest port city of South Korea) with the technical assistance of American and British engineers, respectively. In the same year, railroad service linking Seoul and Incheon was also launched, and in 1896 intra-city and intercity telephone service began[18] (Kim, 2002; IEEE Region 10, 2006).

Despite the Chosun Dynasty's pragmatism in voluntarily importing Western technology, following the *Dongdoseogi* philosophy, after the outbreak of the Russo-Japanese War in 1905, Japanese troops seized Korean telegraph and telephone networks by occupying Korea's central telegram office. With the Japan-Korea annexation treaty in 1910, Korea entered into the period of Japanese forcible occupation (1910–1945), and between 1910 and 1919 the Japanese colonial government expanded the existing telecommunication networks to nearly the entire peninsula; it also created its own telegram bureau as well as the Chosun Postal Shipping Co., which monopolized the

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Chinese term). This ideology, popular among the intellectuals, held that East Asians should embrace Western technology but temper it with East Asia's superior spirituality (Oh, 2004).

18 According to the IEEE Region 10 report (2006), the first telecommunication in Korea was recorded as being on March 20 of 1902, but Kim (2002) refutes the date with the archival evidence of the *Baekbum Diary* (1947), a well-known manuscript written by Goo Kim, who was first Minister of State while the Korean government was in exile in Shanghai during the period of Japanese imperial rule. The diary states

wartime postal service between the Japanese mainland and colonial territories (KADO, 2007). In 1927, the colonial government launched a national radio broadcasting station in Korea to justify their imperialist warfare in Asia under the aegis of a "Greater East Asia Co-Prosperity Sphere," a slogan suggesting that Japan would lead a geographical bloc of Asian nations set free from Western powers (Yang, 2006).

The Japanese colonial government made substantial investment in the construction of Korean infrastructure, with more than 67% of total government expenditure from 1911 to 1938 going to transportation and communication sectors such as roads, railways, and the postal system (Kim, 2006). The colonial government mobilized Koreans to build a national road and railway network across the Korean peninsula, but rather than connecting Korean cities based on regional needs, it reconfigured the national geographies according Japan's imperialist desire: S. Minobe, one of the Japanese imperialists who governed the Bank of Chosun, describes vividly the role of railways in creating the market value for colonialism, and of the Korean peninsula as a gateway to further riches:

> Its easy access to the most promising markets in the world, China, Manchuria, and Siberia, is in itself a great economic asset. A railway line now connects this once "Hermit Kingdom" [Korea] with the heart of Europe, passing through the whole of northern Asia, the economic possibility of which no one can fathom, while by another line the peninsula is connected with China and its numerous cities offering immense tradal [sic] prospects. (Bank of Chosen [sic], 1920: 5)

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that on August 26, 1896, the telephone line linking Seoul and Incheon was used by the last emperor of the Chosun Dynasty. The KADO report (2007) agrees with Kim as to the date.

To fulfill this function, the Japanese colonialist government constructed a military infrastructure crossing the peninsula vertically by focusing on the South-to-North axis (from Busan–Seoul–Pyongyang–Shinhwju onward to Manchuria and China) in order to transport munitions, soldiers, commodities, and natural resources.

Korea regained its independence following Japan's surrender in 1945. After World War II, a Republic of Korea was set up in the southern half of the Korean Peninsula while a Communist government was installed in the north (the Democratic People's Republic of Korea [DPRK]). The first elections in Korea were carried out on May 10, 1948, in the areas south of the 38th parallel and Syngman Rhee was elected as the first President of the Republic of Korea. Meanwhile, north of the 38th parallel, a communist regime was set up under the leadership of Il-sung Kim (CIA, 2008, July 24). During the Korean War (1950-53), US and UN forces fought alongside South Korean soldiers to defend South Korea from DPRK attacks supported by China and the Soviet Union. After massive casualties on both sides, an armistice was signed in 1953, dividing the peninsula along a demilitarized zone at about the 38th parallel.

The Korean War destroyed almost two-thirds of the nation's productive capacity. Throughout the 1950s and the early 1960s, a massive inflow of foreign aid, mainly from the US and the UN, was a significant source for sustaining the postwar national economy and reconstructing national infrastructures such as energy facilities (19% of US aid and development loans went to this sector of the economy), manufacturing (26%), telecommunications (3%), and transportation (28%) (Mason, et al., 1980). Despite a

reconstruction program massively funded by foreign aid,[19] Korea's economy and major information and transportation infrastructures were still devastated and in chaos. Furthermore, the split of the Korean peninsula into two countries completely bisected the national backbone infrastructures that had previously allowed flows of transportation and communication to cross the entire peninsula.

In sum, the Japanese colonialists forcibly reshaped the peninsula as a base for imperialist troops — through the expropriation of land for military use, the seizure of Korea's transportation and communications facilities, and the exploitation of concessions in agriculture, forestry, mining, and fisheries (National Assembly, 2006). Although the peninsula was liberated from the Japanese occupation in 1945, shortly thereafter the Korean War substantially damaged the nation's transport and communication facilities such as railroads, highways, and ports and harbors. With the help of foreign aid, up until the early 1960s the reconstruction of the infrastructure proceeded, but very slowly.

4.1.3. Physical infrastructure as the means of industrial modernization

From the time of General Cheong-hee Park's coup d'état, which precipitated more than three decades of military rule,[20] the major concerns of the ruling regimes were

19 During 1953–1960, financial assistance amounted to US $120 million provided by the UN Korea Reconstruction Agency and about US $1.7 billion provided by the US government (Kim & Roemer, 1979).
20 Park was a Japanese-trained major general when, on May 16, 1961, he overthrew the administration of President Po Sun Yun and Prime Minister Chang Myon (the cabinet system having been introduced for the

economic independence from foreign debt and a total disciplinary control of society; this has been described as "developmental dictatorship," focused on the dual aims of economic development and political control. The Park administration (1963–79), the first in a line of military dictatorships, was ambitious to escape Korea's third world status and to promote industrial modernization, especially by constructing transportation and information infrastructures across the nation.

The Park regime built the major backbone transportation infrastructure — the national highway and railway system — to promote his export-oriented industrialization policy: several major backbone highway and railway lines were built, such as the 24-kilometer (15-mile) Kyong-In expressway linking Seoul and the satellite city of Incheon in 1968, the 425.5-kilometer (264-mile) Kyong-Bu highway line between Seoul and Busan in 1970,[21] and the railway line transporting commuters from Seoul and Incheon in 1971. Overall, in 1966 the total length of roads in Korea was 28,144 km (17,488 miles) with a 5% concrete pavement rate, while in 1971 total road length was 40,635 km (25,249 miles) with a concrete pavement rate of 14.2% (Kim, 2005). The transport infrastructures were closely tied to the regime's project of economic modernization, to facilitate speedy flows of transporting goods and services and to maximize workers' mobility between Seoul and its satellite cities.

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first and last time in Korean history during the years 1960–62) and seized power, although Park did not formally assume the presidency until 1963 (Kristof, 1995, November 24).

21 The Kyong-Bu Highway was a riskier enterprise, at least from the perspective of the late 1960s. This project to connect the capital, Seoul (on the northwest coast), with Busan (in the southeast), was an attempt to drive economic activity rather than a response to demand. Moreover, the project encouraged the involvement of Chaebols in the construction industry (Mody, 1997).

In Korea, the earliest computerization policy was directed primarily at gathering and storing information about citizens so it would be immediately available both to the national and the local authorities (see Chapter 7.3, discussing the combinative effect of the national ID system, which already existed for identifying each Korean, and the resident computer databases, which enabled to centralize all the information, potential for abuse); mandated by Park's order of administrative computerization in January of 1975, this computer database system facilitated the government's control by sorting out the residents' profiles at the national level (NCA, 2005a). The purpose of the Basic Plan for Administrative Computerization, which the government implemented between 1978 and 1987,[22] was to introduce personal computers into each governmental agency and to transform public and residential archival documents into electronic databases (MOGA, 1979). The Park regime used the computer system as no more than a technical tool to supplement the bureaucratic control of the citizens' data. The computer system enabled to accumulate 140 different pieces of personal profiling information — which include detailed personal data such as permanent and current address, military record, criminal records, political activities, photographs, family relations, and all ten fingerprints (see Chapter 7.3).

It was in the 1980s that the following military regime, that of Doo-hwan Chun, first conceived of information and technology as a new tool of bureaucratic efficiencies

22 The Basic Plan for Administrative Computerization was created in 1978 and revised in 1979 by the Ministry of Government Administration (MOGA), for the purpose of introducing computer hardware and the electric database of public documents in government agencies. In February of 1998, as a result of the merger with the Ministry of Home Affairs, MOGA became the Ministry of Government Administration and Home Affairs (MOGAHA).

that could rationalize the organizational structures of the public sector through the use of a backbone network. To implement the National Basic Information System (NBIS), a national computerization project, the regime passed the Act on Promotion of Computer Network Expansion and Usage[23] in 1986. Then, in January of 1989, the NBIS Steering Committee — the inter-ministry agency to resolve potentially controversial issues affecting several governmental departments — designed the Basic Plan for the NBIS (No. 93100-452). The government planned to construct five major information networks: the National Administrative Information System, the Financial Information System, the Education and Research Information System, the National Defense Information System, and the National Security Information System. The Chun regime desired not only to upgrade the administrative systems through the NBIS but also to promote an electronic network as a national infrastructure to enhance economic efficiencies, especially, the financial flows. Nevertheless, the first state-led investment plan for building the electronic network system failed to reach its goals for reasons such as a decrease of government funding in the final phase of the NBIS, a failure to boost IT demand from private sector, and the lack of a nationwide broadband backbone network.

The NBIS project prompted a rapid increase in computer use and in inter-ministry electronic networks going beyond telegraph and telephone service. Despite its stated goals of using IT development to increase bureaucratic efficiencies, in the early 1990s,

23 In Korea, the legislation governing the communication services until the early 1980s was the Telecommunications Act of 1961. In 1983, to separate the two functions of policy formulation and business operations, the Act was divided into the Telecommunications Basic Act and the Telecommunications Business Act. In 1986, the two Acts were integrated into the Act on Promotion of Computer Network Expansion and Usage, in order to facilitate the NBIS project (Jeong & King, 1996).

the government contributed a very small amount of investment to the IT sector, only 3.8% of the total GDP. The overall IT index of Korea at that time was also far behind that of the advanced countries, and even behind that of Taiwan and Singapore (MIC, 2005).

To sum up, the Japanese colonialists considered the Korean peninsula to be the base camp from which to launch their thrust into Manchuria and China. The postwar governments were desperate to rebuild destroyed facilities with the help of foreign aid and grants. The military regimes strove to modernize the national economy through constructing a nationwide transport infrastructure, thus saving on the costs of transporting goods and services and increasing the mobility of the labor population. In their turn, the civilian governments have built the nationwide electronic backbone networks as an engine of economic efficiencies and growth in the digital mode of capitalism. Through the state's strong interventionist and export-oriented policies based on the labor-intensive industries, the Korean "economic miracle" was accomplished during the 1970s and 1980s. During this period, the driving force behind the state-led development of physical infrastructure was the military elites' desire to improve transportation and communication efficiencies in order to catch up the advanced economies. Further, the NBIS was the first policy plan under a military regime in which the electronic network was designed to enable economic efficiencies as well as bureaucratic ones, although failed to achieve either of those goal. Since the civilian governments (1993–present) took power, their focus has been actively directed at establishing a virtual infrastructure as the material

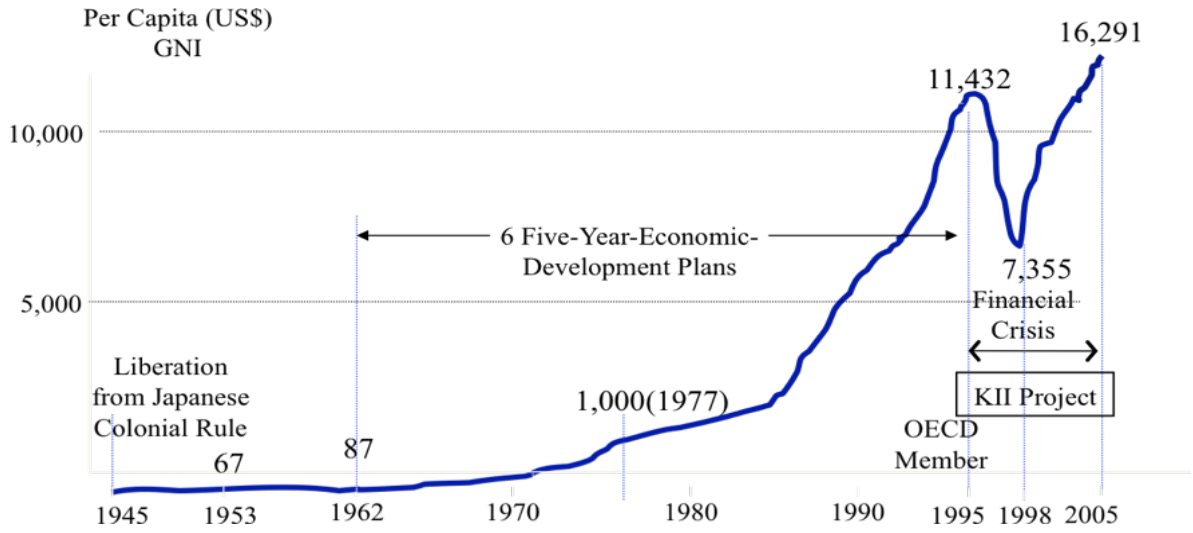
basis for the economic growth that would permit faster flows of capital and information at the national level.

4.2. THE BIRTH OF THE NATIONWIDE ELECTRONIC BACKBONE NETWORK

The major concerns under the military regimes that ruled Korea from the 1960s to the early 1990s were based entirely on economic development policies promoting heavy and chemical industry and the construction industry. Using interventionist, government-driven economic policies, the country was escaping the underdevelopment typical among the developing countries. Korea's per capita gross national income (GNI) was less than US $100 from 1945 up to the early 1960s, but had increased to US $7,000 by 1991, when the sixth Five-Year EDP was completed, to US $11,400 by 1995, and to US $16,000 by 2005 — the latter two being the years when the KII project was launched and completed, respectively.

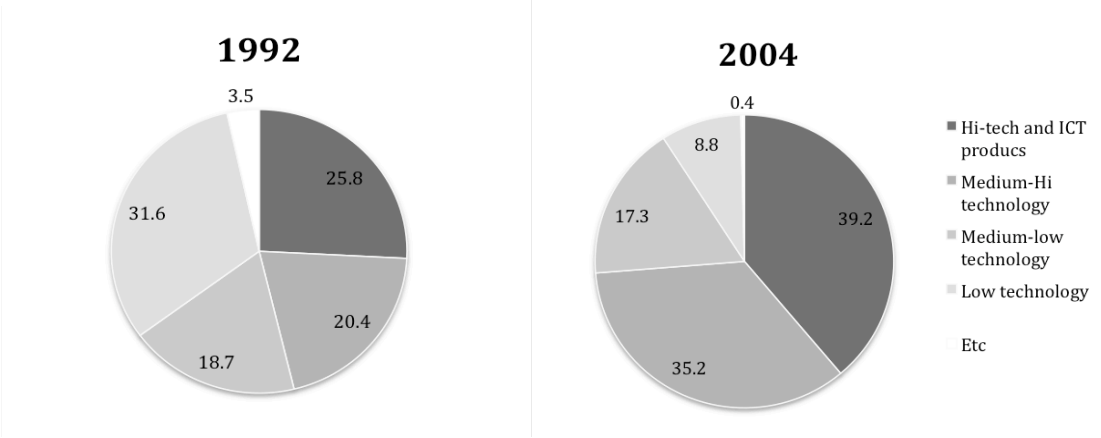
Figure 4.2 shows how two major economic forces — industrial modernization and digital economy, respectively — co-occurred with an increase in the national income during the first period from 1962 to 1991 and the second period between 1993 and 2005, even though the 1997 financial crisis put a downward spike in the sharp rise of the growth curve. Since the launching of the civilian government in the early 1990s, the Korean economy has been losing its privileged export status based on low-wage labor in textiles and heavy industry due to the emerging digital economy and the limited world market and more competition in low-tech products.

Figure 4.2. National income growth, 1945–2005



Source: Kim (2007)

Figure 4.3. Composition of Korea's exports



Note: (1) High-tech & ICT products include aircraft, spacecraft, computers, office products, semiconductors, electronic valves, radio, TV, communication equipment, and optical instrument; (2) medium-high technology covers electrical machinery, chemical products, motor vehicle, home appliance, and machinery equipment; (3) medium-low technology covers shipbuilding and repairing, coke and petroleum, rubber and plastic products, and basic and fabricated metal products; and (4) Low technology covers textile, apparel, footwear, food, beverages, tobacco, wood, and paper products.
Source: data from OECD (2007: 49)

As shown in the Figure 4.3, up through the early 1990s, low and medium-low technology products accounted for 56% of Korea's exports — However, by 2004 low and medium-low technology products had shrunk to just over 26% of Korea's exports while high-tech and ICT products accounted for more than 39%. The stagnation of the Korean export-oriented economy based on heavy industry reflects the changing patterns of international trade, which evidence an increasing share of high- and medium-technology products (OECD–World Bank Institute, 2000).

The World Trade Organization, the World Intellectual Property Organization, and the information superhighway plans in the advanced countries all prompted Korean officials to rethink the economic growth plans. The KII as a state-led electronic infrastructure plan was an active response by the civilian government to the challenges of the new environment as it sought to expand Korea's economic growth from the traditional factory systems cultivated during the military regimes into the new digital sphere. After Young-sam Kim took office as the first democratically-elected civilian president, the civilian government retained its desire to upgrade the transportation infrastructure: As the highway system built under the Park regime was no longer able to support the heavy traffic it spawned, the civilian government built a high-speed rail link between the two biggest metropolitan cities. Despite the financial crisis of 1997, the main drive for unrestrained economic growth was to mobilize the citizens towards high-speed physical mobility and connectivity throughout the country (e.g. Kim, 2006; Jin, 2005). For instance, with heavy involvement from France's Train à Grande Vitesse (TGV), Alstom, and the French transportation engineering firm Systra, in 2004, Korail, the state-

owned national railway monopoly, built a high-speed eXpress railway line from Seoul to Busan at a total cost of US $16.3 billion. Its transport speed of 300 kilometers (186 miles) per hour amounts to a speed more than one hundred times faster than that of the first railway in Korea.[24] Connectivity was also important in terms of communication systems.

Under the Kim administration, the Ministry of Communications (MoC) was asked to draw up an IT policy program for building a "New Korea" in 1993. The Korea Information Society Development Institute (KISDI), one of the government-funded IT-related think tanks, released a policy report entitled "A New IT Policy Direction for the 21st Century," which suggested developing the IT sector as a survival strategy for the nation. This "new IT policy" supplied ideas later incorporated in the Korean Information Infrastructure (KII) project. The same year, the Kim administration issued its "Five-Year Plan for a New Economy" (No. 93100-380: MoC, 1993, July 2), a plan intended to integrate Korea into global capitalism. In this plan, the government officially designated IT as crucial to economic growth. To develop a national IT-intensive economy, the plan included government support for the asynchronous transfer mode (ATM) switching system to create local autonomy for the telecom equipment industry and provided a basic plan for the construction of a nationwide backbone network (MoC, 1993: 25–27). Based on this plan, the government roughed out the "Basic Plan for the KII" (No. 93100–452, 1993, August 21), and the government finally announced the "Master Plan for the KII" (MoC, 1994, March), which was to be implemented in three phases.

24 See the following site describing South Korea's high-speed railway: http://www.railway-technology.com/projects/koreatgv/

To emphasize its new role of directing IT policy at the national level, the Ministry of Communications (MoC) was renamed the Ministry of Information and Communication (MIC) in 1994, at which time it also absorbed the IT-related administrative functions of the Ministry of Commerce, Industry, and Energy, the Ministry of Science and Technology, and the Korean Overseas Information Service. The master plan for the KII was legally supplemented with the 1995 "Framework Act on Informatization Promotion" (FAIP, Act No. 4969). The Korean government's basic information policy was oriented toward setting up economic "efficiencies" in the national and global market (see Chapter III, Article 18–25 of the FAIP, entitled "Laying Foundation for Information and Communications Industry"). By encouraging the *Chaebols* to launch into the new IT sector, the FAIP was used to provide sources of profit for them to increase their market share with the formal support of the Korean government,[25] primarily through building the backbone of a national high-speed broadband network (see Chapter IV, Article 26–32 of the FAIP, entitled "Advanced Infrastructure of Information and Communications").[26] The FAIP thus meant that the government would directly intervene at the policy level in the nascent market of IT industries and encourage them to restructure themselves toward IT competitiveness in both the local and the global knowledge market. The ostensible purpose of the FAIP is to prescribe government support and investment for making public IT investment seen as necessary to the success of the KII plan. The Act was intended to provide a stable, secure

25 Chapter III, Article 18–25 of the FAIP, designate how to promote private investment through the support of the government's various policy measures.

source of public funding from government investment and loans, the telecom incumbents' financial contributions, dividends from shares of the state-owned Korean Telecom (KT), and the frequency allotment charges (see Chapter V, Article 33–35 of the FAIP, entitled "Public Funding of Informatization Promotion").[27]

4.2.1. The state-led development of the KII project

The KII Planning Board was organized in August of 1994 to assign the main roles such as designing the master plan, gathering public funds, and implementing network-related technology to each government agency. The Board consisted of six divisions, which included officials selected from the following: the MIC; the Ministry of Finance and Economy; the Ministry of Commerce, Industry and Energy; the National Computerization Agency (now the National Information Society Agency) and the Electronics and Telecommunications Research Institute (ETRI);[28] and the telecom companies Korean Telecom, Dacom, and Korean Mobile Telecom (now SK Telecom).

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26 Chapter IV, Article 26–32 of the FAIP, for the first time suggests the concrete vision of the Korean Information Infrastructure.

27 Chapter V, Article 33–35 of the FAIP, designates the method and sources of public funding. This aimed to ensure that the policy failures of the final phase of the National Basic Information System (NBIS) plan, a nationwide computerization project from 1991 to 1996, would not be repeated. Under the military regime the NBIS was the first state-led investment plan to integrate economic production and an electronic network, but it failed to reach its goal because of a decrease of government funding in the final phase and a failure to boost IT demand from private sector.

28 Established in 1976, the ETRI is a non-profit, government-funded research organization that has been at the forefront of developing global technological standards. The ETRI has successfully developed information technologies such as TDX-Exchange, High Density Semiconductor Microchips, Mini-Super Computer (TiCOM), ATM switching technology, and Digital Mobile Telecommunication System (CDMA).

The Planning Board[29] directed the main KII-related project from its inception until 1995, when its affairs were transferred into the Informatization and Planning Office[30] at the MIC (NCA, 2005: 64). A bidding process among the private telecom vendors for the KII project never occurred; rather the Korean government granted exclusive rights in the construction of the KII-G backbone network to two facility-based telecom service providers: Korean Telecom (KT) was given a 70% share and Dacom a 30% share.

The KII project was subdivided into three separate networks: the KII-Government (KII-G), KII-Public (KII-P), and KII-Testbed (KII-T or KOREN — the Korea advanced Research Network). KII-G is a nationwide backbone network which interconnects more than 30,000 public administration and agencies and 10,000 schools using ATM switches, which had been developed in 1996 and began to be installed from 2001 onward, on high-speed fiber optic cables (155Mbps–410Gbps) in 144 metropolitan and small cities nationwide (NCA, 2004: 27). KII-P, constructed by the private sector, is a home and business network for nationwide broadband access and high-volume data transmission (1.5–2Mbps) encompassing more than 1,400 localities. KII-T, also called KOREN, is a testbed network for the purpose of developing telecom devices and network facilities; KOREN also serves as a research network linking Korea with such Asian-Pacific networks as the Asian-Pacific Information Infrastructure and the Trans-Eurasia Information Network. A total of US $22.7 billion was invested to construct the KII

29 Chapter IV, Article 27 of the FAIP, entitled "Designation of Exclusive Institution," requires to establish the board anew responsible for the KII tasks.
30 The Informatization and Planning Office no longer exists; its functions were divided among several Divisions in the MIC.

network: The government invested US $6.2 billion in the major backbone networks (the KII-G), as public seed money to encourage the private sector's active participation, and the private sector expended US $16.5 billion for the "last miles" of the network (this figure includes the private sector investment in the KII-P, the commercial network, as well as in the KII-G, up through 2005, the year of the KII's completion).

To avoid redundant investment in installing the KII, the government mandated that KT install the fiber-optic networks along the highways and Dacom along the railways (NCA, 2006: 63). The construction of the KII-G ensured that public agencies and educational institutions would subscribe to broadband service from the telecom service providers. Based on the stable rate of subscription from the KII-G, the private telecom sector was able to expand its broadband service into homes and businesses. By June 2003, the number of subscribers had reached 14 million households, and there was a nearly complete penetration level even in rural and suburban areas (NCA, 2003: 29–30). Both KII-P and KII-G broadband services promoted rapid private sector growth in IT production: for instance, IT-related revenue in 2004 was US $20.7 billion in e-commerce and US$ 78.7 billion in online securities trading (NCA, 2004), while total revenue in the infrastructure-related network industry was US $4.7 million (Monthly Report of Korea Association of Information and Telecommunication; KAIT, 2004, December).

While the KII-G and the KII-P serve as governmental and commercial networks, respectively, the KII-T serves as the optimal high speed R&D and testbed network for research institutes and universities for the testing of new telecom network technologies and applications developed by research centers such as the ETRI.

Table 4.1. Korean Information Infrastructure (KII) project

		KII-Testbed →	**KII-Government →**	**KII-Public**
Role of each infrastructure		Development & testing of technology	Application of technology	Diffusion of technology
Main user		Research institutions	Government	Home and business
Investor		Government and private sector	Government	Private sector
Main target		Testbed	Backbone	Access
Proce-dures	Budget	Gov't and KT	Gov't (reimbursement of budget from private sector)	Separately operated and implemented by telecom service providers
	Management	NCA (NIA)	NCA (NIA)	
	Network builder	KT	KT (70%), Dacom (30%)	
Phase 1 (1995–1997)		2.5Gbps between Seoul and Taejon	Built 80 call zones linking 14,955 public institutions (45Mbps), US$ 157 million publicly funded	Fiber optic lines to high density buildings
Phase 2 (1998-2000)		2.5Gbps connecting 5 metropolitan cities	Connecting all 144 call zones including 28,686 public institutions and schools with ATM switches (155Mbps), US$ 238 million publicly funded	30% of total household with ADSL and CATV
Phase 3 (2001-2005)		40Gbps optical Net	Linking 32,000 public institutions with ATM-MPLS high quality IP service (1Gbps), US$ 338 million publicly funded	Over 20Mbps service to homes

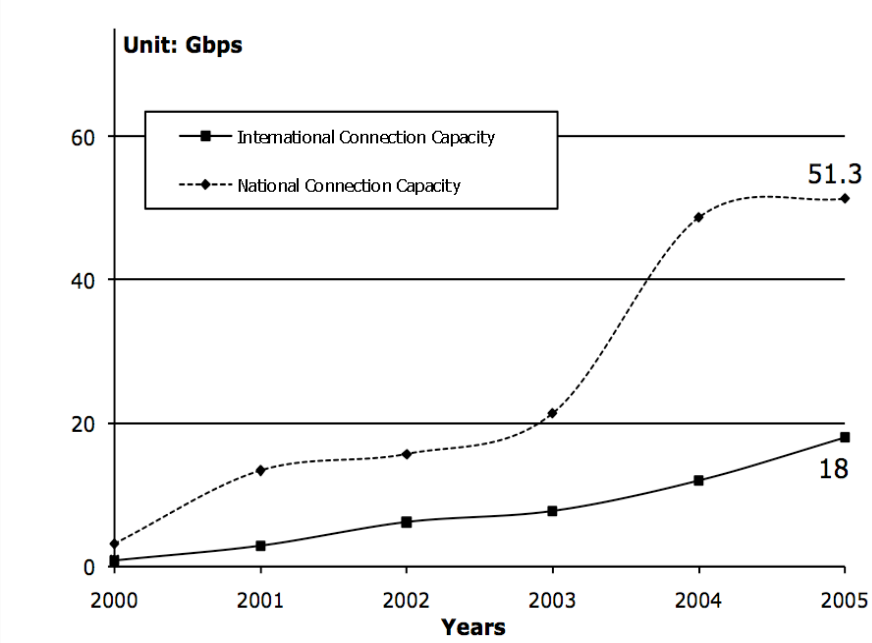
Source: compiled from NCA (2006), MIC (2004, December)

To set the technological standards in the global market, the Korean government supported the ATM network switching technology implemented by the ETRI and applied it to the backbone networks from the second phase of the project onward. While the three KII network structures were separately operated by the stakeholders such as research institutions and universities, the government, and private sector, they become closely

linked to each other by the evolving processes of broadband technology from KII-T to KII-P by way of KII-G (see Table 4.1): the KII-T contributed to the "creation" of new telecom network technology, the KII-G served as the "application" of technology tested by the KII-T, and the KII-P promoted the "diffusion" of network technology to business and home.

Unlike the other two infrastructures, the KII-G was developed in three phases, based on the shifting of specific policy goals. The first phase of building a backbone network (1995–1997) aimed at improving network connectivity among government agencies: the government first upgraded the intelligence and police network lines, which are part of the KII-G, and the optical networks interlinking these 4,000 agencies, and constructed the main backbone network connecting 80 call zones. Some metropolitan cities were interconnected to the optical broadband network with transmission capacities of 155Mbps to 2.5Gbps. In the second phase of backbone network completion (1998–2000), the nationwide optical infrastructure network (155Mbps to 5Gbps) connecting 144 call zones with ATM-based switching technology was established. The third phase (2001–2005) was an expansion or advancement of the second phase. As of September 2005, 32,000 public institutions were able to access the nationwide broadband service, and the ATM switching network was upgraded from 622Mbps to 40Gbps (NCA, 2006: 68-107). As shown in Figure 4.4, total broadband connection capacity in Korea has been improved to 51.3Gbps at the national level and 18Gbps at the international level, respectively.

Figure 4.4. Traffic capacity of the Korean broadband network



Note: "International connection capacity" is defined as the data-processing bandwidth in the domestic online nodal points that are linked to the foreign countries' network lines.
Source: data from NCA (2006)

In effect, the KII project became the material basis for creating the nation-wide interconnection of government agencies and public institutions through the optical networks. As an executive principal researcher of the National Information Society Agency (NIA) noted, the KII project, especially, the KII-G, has contributed to "saving the cost of data usage by the government agencies and enhancing the civil service through the Internet-based system" (Hur, 2007, May 28). The successful story of the KII was due to "the efficient management of public investment led by the government" (Kim, 2007, June 26).

4.2.2. Evolution of the backbone networks after the KII project

The government offered incentives to the telecom service providers at the beginning of the KII-G project by putting up the initial public funding and also by partly subsidizing the subscription costs of the broadband services to non-governmental and educational institutions. This government assistance made it possible for the two dominant telecom service providers, KT and Dacom, to lower the subscription price for network use, thus creating a rising number of subscribers from public, non-profit, and educational institutions until the end of the project in 2005. As a new administration — that of Moo-hyun Noh (2003–2008) — took power and the KII project came to an end, the government began to focus on how to keep the service price low after the network's completion. The government's plan was to introduce two emerging facility-based telecom providers, Hanaro Telecom and SK Networks, into the public information infrastructure market.

The government aimed to bring more market competition in price and service among the four providers and to take the initiative in negotiating subscription prices. Moreover, with the completion of the nationwide backbone network, the government began to shift its policy from the facility-based supply system to the service-based system, which it hoped would be improved by means of competition among service providers. As part of this shift in focus, in September 2005, the government divided the KII-G network into two network architectures: the e-Government Telecom Network (eGTN), which interconnects the 16,000 government agencies and local governments and

institutions, and the National Information Service (NIS),[31] which provides the service to 15,000 non-governmental and educational institutions. This allowed NIS service users to negotiate subscription prices through a group contract with the telecom service providers independently.[32]

The division of the KII-G network into the eGTN and the NIS was intended to secure and renovate the core of the eGTN as the governmental network. Separation of the governmental network from the NIS was reaffirmed by the establishment of the Government-wide Integrated Computing Center (GICC) in October of 2005. By utilizing the Computing Center, the MIC planned to share information resources, secure interoperability, and optimize the governmental network by efficient management and operation. The GICC is the most significant project among the Noh administration's "31 E-Government Roadmap Tasks"; it divides the information systems of the 48 government agencies into two separate computing centers: Center 1 is located in a government building in Daejeon which houses 24 government agencies including the MIC, the MOGAHA, and the Korea Customs Service. Center 2 is located in another building which houses another 24 government agencies, including the Ministry of Construction and Transportation, and the National Tax Service. The initiative to upgrade the e-government telecommunication network is intended to establish a total IT infrastructure

31 The NIS program in Korea is quite similar to the Federal Technology Service (FTS), which is a division of the US General Services Administration (GSA). The FTS provides a digital fiber-optic network with voice, video, e-mail and high-speed data communications for the US government through a contract with the major telecom equipment providers such as AT&T, Sprint, and Worldcom which sets a standard fee for these services.

exclusively for government agencies.

The KII-P, the private sector network, has also been evolving: in 2004 it became the Broadband convergence Network (BcN), [33] which merges communication, broadcasting, and Internet, and will provide 50-100Mbps level broadband services to 20 million wireless and fixed-line subscribers by 2010. To this end, the service providers, with the technical support of the KII-T, have developed a multistage plan for the BcN, and also created a BcN transmission network which ensures Quality of Service (QoS),[34] security, Internet Protocol version 6 (IPv6),[35] and open service, while upgrading the wireless and fixed-line subscriber network and allowing the use of seamless BcN service (NIA, 2007).

In sum, the 11-year state-led KII project has been evolved into the eGTN, the NIS, and the BcN, which have been instigated by creating competition within the private sector. In the process of building national information infrastructure, the government, especially the MIC, took a leading role in setting out a coherent and comprehensive communication policy plan. Under the increasingly *laissez-faire* wave of the national IT

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32 The four facility-based telecom service providers, KT, Dacom, Hanaro Telecom, and SK Networks, jointly operate the eGTN system, and all of the service providers except KT are involved in the NIS system (December 2006, Public Infrastructure Division, NIA: unpublished paper).

33 In January of 2004 the government passed the Act on Internet Address Resources in order to provide essential infrastructure for the implementation of the BcN, and to resolve the issue of insufficient Internet addresses.

34 QoS refers to the ability to provide better service to certain flows. This works by either raising the priority of a flow or limiting the priority of another flow. QoS is important if network capacity is limited, especially for real-time streaming multimedia applications such as Frame Relay, ATM, Ethernet, 802.1 networks, SONET, and IP-routed networks such as voice over Internet Protocol (VoIP) and IPTV.

35 IPv6 is the "next generation" protocol designed by the Internet Engineering Task Force of the Internet Society (ISOC) to replace the current version of Internet Protocol, IPv4. Currently, there is a growing shortage of IPv4 addresses, which are needed by all new machines added to the Internet. IPv6 fixes a number of problems in IPv4, such as the limited number of available IPv4 addresses (NIA & MIC, 2006).

market, Korean society would hardly see the state-led "robust" IT policy plans such as the KII project, because the state no longer has the power to intervene in the market in the same way that it once did. A fact was signaled by the dissolution of the MIC early in 2008 (*Korea IT Times*, 2008, April 8) and the distribution of its remaining functions among other agencies.[36]

Having surveyed the historical background of the KII project, the next chapter turns to an analysis of the global factors that conditioned the creation of the national backbone network.

36 Since the launch of the present Myung-bak Lee administration in March of 2008, the MIC's major functions were absorbed into the Ministry of Commerce, Industry and Energy, and finally shut down.

Chapter V: Locating Korea's Telecommunications Policy within the Digital Mode of Global Capitalism

ABSTRACT

This chapter investigates the dynamics of the global–local nexus in South Korea's information and telecom infrastructure development. The goal of the study is to examine the external factors that led South Korea's government to design the Korean Information Infrastructure (KII) project. The present study focuses on the global–local dynamics of structural adjustment to global constraints (This study defines a constraint as an external force that influences the Korean government's policy action) seen in the Korean government's construction of the KII, which was designed and implemented during the period of the civilian governments (1993–present). In this study, structural adjustment in Korea is regarded not merely as an aspect of globalization, linking localities into global processes, but also as the active expression of local autonomy. Based on these research findings, theoretically, this chapter examines the strong trends of localization in the processes of economic globalization (global networked mobility), trends seen most clearly in the active role of the Korean state as an agent of local and global capital. As regards globalization theory, this chapter confirms a theoretical thesis that even the

denationalizing force at the global level also feeds the localizing mechanisms of the economic sphere in a nation, as well as socio-cultural spheres. Since the late 1980s, global constraints imposed on the Korean government had forced it to deploy new policy plans for domestic structural adjustment; these are explicit in the World Trade Organization (WTO) Agreement on Basic Telecommunications — which includes regulatory measures such as requirements of non-discrimination, regulatory transparency, and openness to international markets — and implicit in the information superhighway experiments of the US and Japan in the early 1990s. This chapter also explores the inner mechanisms of national sovereignty in terms of the government's KII project, which functioned as a safety valve in order to minimize the external pressures in advance and to create new conditions for economic growth, with the consistent support of the private sector. The present study, therefore, examines the KII project as a unique state-led IT plan brought forth by a compromise between international pressure for market liberalization and domestic pressure for economic reforms.

5.1. INTRODUCTION

During the 1970s and 1980s, South Korea was largely successful in transforming itself from one of the world's poorest agrarian societies into a state of late-industrialization. At the beginning of 1990s, once again, the Korean government was forced to decide whether to remain as a member of the second-tier countries under the digital mode of capitalism or find a way to make a leap forward. The government chose a shift of the nation from a labor-intensive economy to a "knowledge-based" economy and *segyehwa* (globalization), as the foremost goals of state affairs (e.g., President Young-sam Kim's New Year speech, Office of the President, 1995; President Dae-Jung Kim's inaugural speech, 1998, 25 February; also see Chapter 5.3.2).

To succeed in the second phase of "catching up" — the digital phase — the government noted how advanced countries such the US, Japan, and the EU achieved economic reconfiguration by means of high-speed telecommunication networks and benchmarked their changes based on the new economy (e.g., MoC, 1993, July 2; 1994, March). Moreover, increased international pressures for market openness in bilateral and multilateral negotiation settings such as those with the World Trade Organization (WTO) regulations and the International Monetary Foundation (IMF) — through its bailout program after the 1997 crisis — affected Korea's telecom companies by forcing the country to open its markets, and eventually led the Korean government to deploy new policy plans of "structural adjustment." The Korean Information Infrastructure (KII) plan was a result of these direct and indirect global pressures. The KII project was a strategy

to enable a nation-state to survive in the digital mode of global capitalism. The main goal was to interconnect the public agencies through a fiber-optic electronic network, and eventually to gear up IT productivity and efficiency in private sector through this network.[37]

The present study accentuates the intertwining of global constraints and the Korean government's restructuring of the national economy through the KII policy experiment, which has essentially created the nationwide backbone network of the government agencies and public institutions. To explore the dynamics of the global-local nexus in Korea, this study examines the influence of the new material conditions of network-based global capitalism and the national telecommunications reforms imposed by the WTO regulation. This chapter seeks to answer the following question: What international forces affected Korea's information superhighway project of 1995 to 2005? Specifically, what external factors brought about the implementation of the nationwide information infrastructure project, and how did the project adapt to these factors?

The present study sees the contextual factors surrounding the KII project through a localized prism. For instance, the WTO's influence on the Korean telecom market since the early 90s, culminating in the 1997 WTO Agreement on Basic Telecommunications, is one of the external constraints that forced Korea to open its telecom market, and indirectly conditioned the state-led KII policy planning. This study details the dynamics of WTO regulations at the local level, such as influencing the government-driven R&D

37 For instance, time series analyses of US data over thirty years found a positive relation between investment in telecommunications infrastructure and economic growth (Cronin, et al., 1991).

plan to develop the asynchronous transfer mode (ATM) switching system for promoting the national telecom equipment industry. Further, this study also interprets the flurry of "wired" capitalism in the early 90s as seeking to transform the capitalist economy into network-based systems. The Korean government saw the geographical reconfiguration in advanced countries, such as information superhighway policy experiments in the US, Japan, and the EU, as benchmarks for its own IT project. This study regards the influence of global standards as the "hegemonic" effect of the advanced economies on post-industrialization at the local level.

This study posits these two globalizing patterns — externally-imposed regulation and external examples — within the localized reform programs of the Korean government, and then situates the state-led policy drive to undertake the KII project as part of the structural adjustment in the national telecom market. The local response to global pressures resulted in domesticating the global force in the local market. The study concludes that the KII project over eleven years was actively conducted on the basis of a model similar to that of the state-planned "catching up" of late-industrialization in the 1980s, which is very different from the governmental model in the advanced countries, where the government's role is largely that of an assistant of or mediator for the private sector. The irony, then, is that Korea's state-led information infrastructure plan has been dramatically more successful than the private sector-led plans of more advanced nations such as the US and Japan (see Figure 5.1).

As to the scope of the research, this chapter focuses largely on the state-driven policy plan for installing the backbone networks to facilitate administrative affairs, such

as the KII-Government (KII-G), rather than on the KII-Testbed (KII-T) and the KII-Public (KII-P), which are separately operated and were developed by the government-funded research institutes and by the private telecom sector, respectively. To understand the significance of the KII in the Korean economy, it is necessary to look at the current state of informatization in Korea and how it attained a status that exceeds that of most advanced nations in a brief period.

5.2. A "NEWLY ADVANCED ECONOMY"?

In the forefront of the global IT competition, the Korean government recognized the importance of information and telecom infrastructure as the conduit of capital, service, and information (e.g., Chapter 4 of the FAIP). It saw that extensive and high-quality infrastructure reduces the effect of distance between regions, with the result of integrating the national market and connecting it to the global market (FAIP). Due to the active involvement of the government in building the IT infrastructure since the mid-1990s, Korea's economic efficiency in infrastructure is ranked 16th out of 131 countries on the basis of the global competitiveness index released by the World Economic Forum (2007). As shown in Table 5.1, Korea invested heavily in virtual infrastructure throughout the 1990s, an average investment of 0.8% of GDP in the first half of the decade that more than doubled to 1.85% in the second half. Korea's investment rate in virtual infrastructure was almost double that of Hong Kong and more than five times that of Japan in the second half of the 90s. Another distinguishing feature of Korean investment is that a high percentage of funding came from the government in the form of

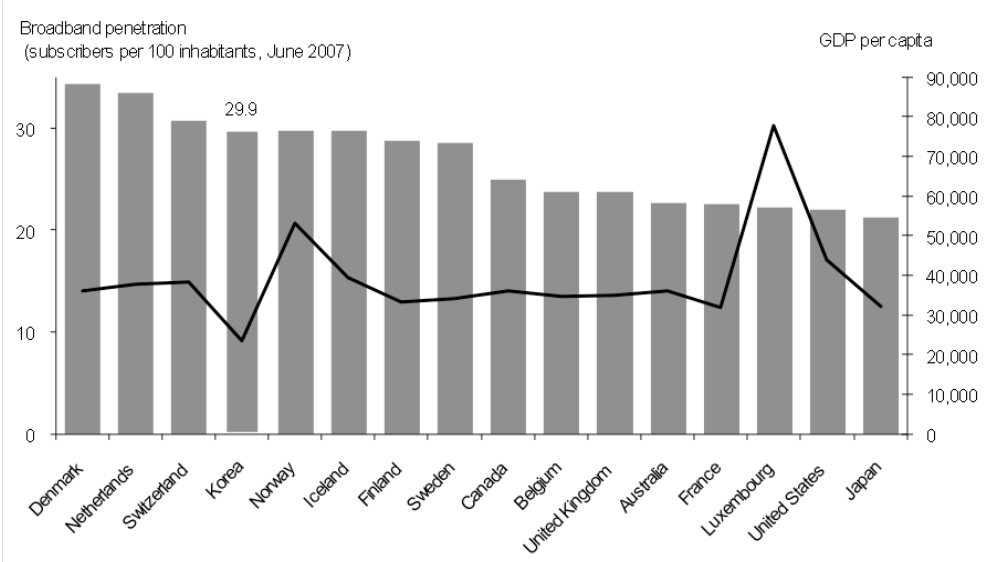
public sponsorship. In many OECD countries, the public share in investment was zero in the late 1990s, while for Malaysia, Singapore, and the United Kingdom, the public share was 5% or less, whereas in Korea, 25%–48% of investment came from the public sector.

Table 5.1. Korean investment in information infrastructure, 1991–1999

	Investment/ GDP (%)		Public Investment (% of total)	
	Average 1991–95	Average 1996–99	Average 1991–95	Average 1996–99
Hong Kong	0.58	0.98	0	0
Japan	0.14	0.34	0	0
Korea	0.80	1.85	48	25
Malaysia	1.12	1.04	6	5
Singapore	0.35	0.57	38	4
UK	0.23	0.35	2	2
US	0.58	0.52	0	0

Source: OECD-World Bank Institute (2000: 82)

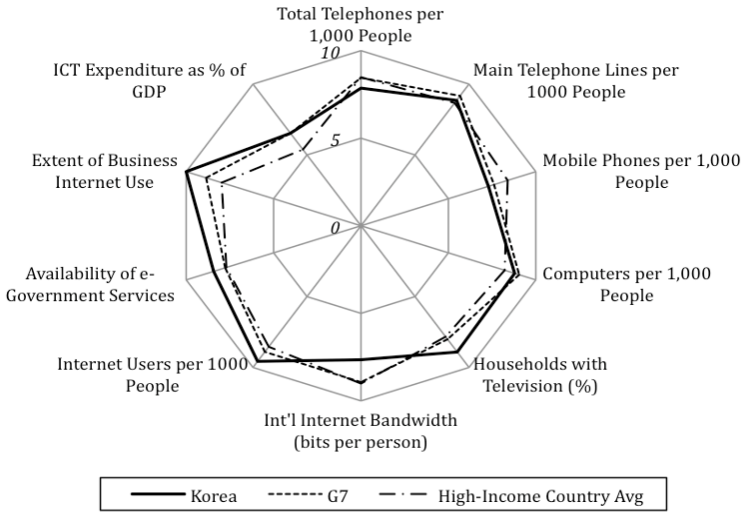
Figure 5.1. OECD broadband penetration and GDP per capita



Note: Broadband networks include all DSL lines, cable modem lines, fiber-optic lines, and fixed wireless technologies such as satellite, MMDS, LMDS, WiMAX, and other fixed-wireless transport technologies.
Source: data from OECD (2007, June)

Despite its relatively low rank in GDP per capita among the Organization for Economic Co-operation and Development (OECD) countries, Korea was ranked fourth, with 30 broadband lines per 100 households as of June 2007, far ahead of the US and Japan (see Figure 5.1; in 2004 Korea was ranked number one). Further, according to the information and communication indicator index of the World Bank (2008, June), in which variables are normalized or rescaled onto an interval between 0 and 10 using the Knowledge Assessment Methodology (KAM), in the IT sector Korea comes very close to filling the "circle" within a spider chart reaching toward the maximum value of 10 which implies that it is better positioned in terms of the knowledge economy, comparable to the normalized values of the G7 countries and the average of the high-income countries.

Figure 5.2. Information and communication indicator in Korea, 2005–06



* Comparison group: 140 countries, type: weighted, and data: 2005–06
* High-income countries: 39 countries, including South Korea, which earned more than US $11,116 in 2006 Gross National Income (GNI) per capita

Source: Author's graphic based on data from the World Bank (2008) using the Knowledge Assessment Methodology (KAM). http://www.worldbank.org/wbi/kam

Among other indicators, the KII directly contributed to increasing values in the IT areas such as e-government services, Internet users and bandwidth, e-commerce, and Internet banking, as shown in the Figure 5.2 and Table 5.2. For instance, by reaching more than 14 million broadband Internet household out of a total population of 45 million, the nationwide construction of the high-speed broadband network was physically completed.[38]

Table 5.2. Current status of informatization in Korea

Category		1998	1999	2000	2001	2002	2003	2004	2005	2006	July 2007
Broadband Internet subscriber (10,000 households)		1.4	37.4	401	781	1,041	1,118	1,192	1,219	1,404	1,444
Internet user (10,000 persons)		310	1,080	1,904	2,438	2,627	2,922	3,158	3,301	3,412	3,443
Internet usage rate (%)		-	-	44.7	56.6	59.4	65.5	70.2	72.8	74.8	75.5
Mobile phone subscriber (10,000 persons)		-	2,344	2,682	2,905	3,234	3,359	3,659	3,834	4,020	4,232
e-Commerce	Transaction volume (KRW trillion)	-	-	58	119	178	235	314	358	414	-
	Transaction rate (%)	-	-	4.5	9.1	12.8	15.1	19.3	19.8	21.2	-
Internet Banking subscriber (10,000 persons)		-	-	409	1,131	1,771	2,275	2,427	2,674	3,591	4,011

Source: NIA (2007)

With the extension of fiber optic cables into individual houses, isolated areas, and small islands, the major bottleneck in completing broadband networks usually referred to as

38 The US Federal Communications Commission (FCC) defines broadband as an Internet connection capable of traffic capacity of 200Kbps, as of 2005; however, the FCC has recently redefined "basic broadband" as the range from 786Kbps to 1.5Mbps (*C/net News.com*, 2008, March 19). Otherwise, most Korean subscribers (84% of households) already have broadband service of 20Mbps (NCA, 2005: 75).

"the last mile"[39] was finally overcome. The high-standard index of information infrastructure is largely due to the Korean government's leading role in guiding the IT development.[40]

The KII-driven IT growth in Korea is favorably appraised by US journalism as one of the most successful government-led projects of modern times. For instance, *The New York Times* (Belson & Richtel, 2003, May 3) described Korean society as the realization of "America's broadband dream," *Fortune* (Lewis, 2004, September 20) even glorified South Korea as "leapfrogging the US to become the planet's pacesetter in high-speed Internet." A scholars' conference even formulated a new terminology describing Korea as moving from the status of a "newly industrialized economy" to that of "a newly advanced economy," which employs growth strategies in a less exploitative and more market- and technology-driven manner that transcends the catching-up growth model (Mahlich & Pascha, 2007: 2). Thus the Korean government has succeeded in getting high praise from the outside world, and has persuaded those countries that pervasive broadband, actively subsidized by government, will increase industrial efficiency, create e-businesses and jobs, improve global competitiveness, and increase family incomes.

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39 In contrast to "last mile" issues in building broadband networks, Strover (2000) suggests that from the subscriber's perspective, "first mile" issues are of equal concern. Broadband connectivity, she argues, should have capabilities that extend users into the networked nation, rather than being merely a stretch of wire originating from vendor-related concerns. In Korea, the government's approach to broadband has focused on both a "war of speed" (the expansion of traffic capacity) and "last mile" issues, rather than the "first mile" issues delineated by Strover. This is because speed and "last mile" issues can be easily quantified in order to exhibit, nationally and internationally, the success of the bandwidth increase and of overcoming the "digital divide" in providing access to the Internet.

40 In contrast to the rapid expansion of broadband Internet in Korea, the US has suffered from high prices and underdeveloped technology in broadband network due to the monopolistic structure of the local

Academic scholars have also focused mainly on the factors that have contributed to Korea's becoming the most wired nation in the world — a vigorous and effective government-led policy,[41] the introduction of competition into the telecom market, the cultural attitudes of the Korean people,[42] a dense and urbanized population,[43] the cooperative relationships among the public, private, and R&D sectors, and so on (see Picot & Wernick, 2007; Shin & Park, 2007; Yang & Olfman, 2006; Frieden, 2005; Lee & Chan-Olmsted, 2004; Townsend, 2004, May 31; ITU, March 2003; Han, 2003; Lee, et al., 2003; Jeong & Kim, 2004; Kim & Ahn, 2003; Jeong & King, 1996). Although the global constraints were highly significant during the greatest phase of telecommunications liberalization in the early 90s, most research focused on the

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telephone and cable companies seeking to protect old ISDN technology and delay the IT infrastructure investment of the fiber-optic lines (Bearn, 2004, May 31).

41 Sawhney (1993) noted that the US telecom infrastructure was created in a very decentralized manner, quite unlike the state-sponsored "centric" model in other countries. Writing about the public telephone system, he urged that US telecom policy refrain from "copying the success formula of the state-driven policy model" (515) and instead encourage a "bottom-up" or "polycentric" strategy to interconnect the infrastructural network. Sawhney is certainly right that the policy model of each country should be formulated on the basis of its own political, geographical, and cultural situation; nevertheless, the failure of the market to achieve widespread broadband Internet access in the US, as well as the consequent debate about "Net neutrality" (cf. PBS, 2007, October 18), make it clear that the US policy approach of a "polycentric model" which limits federal policy interventions and leaves users at the mercy of telecom conglomerates has delayed US citizens' having equal access to broadband Internet.

42 Many scholars describe Korean society, like most Asian societies, as a collectivistic culture, in contrast to America's individualistic culture. They cite the nationwide diffusion of the physical and virtual hypermedia spaces, such as the culture of the "PC-Bang" (Internet café), online computer game rooms, and "Cyworld," a popular web-community site, as examples of the Korean users' "demand-pull" through which the government's rapid "supply-push" of information infrastructure was completed. Interestingly, American IT-related business journals have given rosy news coverage about Koreans' hyper-social culture greatly affecting how people connect in virtual space and transforming the nation into the "most connected and Net-addicted country on Earth" (e.g., Taylor, 2006, June; Herz, 2002, August, http://www.wired.com/wired/archive/10.08/korea_pr.html).

43 Most Koreans live in apartments or multi-dwelling units. The geographical density of the population helps the facility-based telecom service providers to terminate their fiber-optic lines in a central telecommunications exchange or main distribution frame (MDF). The apartment builder is usually responsible for the "last mile" to each household.

"broadband heaven" created by the KII project and ignored the global-local nexus that had forced Korean government to restructure the national economy in response to the changing mode of global capitalism. Those IT policy studies that did mention the global constraints on the KII project tended to consider them a minor factor among various contextual elements such as the active public investment, the Korean-specific collectivistic culture, and the close public–private partnership (see Lee, et al., 2007; Lau, et al., 2005; Lee & Jung, 1998; and a series of IT-related policy reports released in 2005 and 2006 by the National Information Society Agency [NIA] and the Ministry of Information and Communication [MIC]). Some studies have examined how the external challenge in the mid-90s led to the Korean telecom restructuring and have chronicled the history of the US- and WTO-driven regulations and regulatory reforms in the Korean telecom market (see Tcha, et al., 2000; Hyun & Lent, 1999; Hong, 1998; Cho, et al., 1996; Kim, 1993; Kim & Ro, 1993), but these studies did not focus on the KII project itself. The present study, therefore, investigates the factors that led to "the broadband nation" by scrutinizing the historical contexts surrounding the KII project.

5.3. GLOBAL PRESSURE OR NATIONAL SOVEREIGNTY?

What factors impelled the Korean government to design the KII project at the beginning of the 1990s? In this section we examine both the global pressures to liberalization and the desire of the Korean government for economic growth. This study examines the three

external factors that led to the KII project — the US-led information superhighway initiative and its global extension by the Global Information Infrastructure (GII), the Korea–US bilateral negotiations and the WTO regulatory system, and the multinational telecom corporations — as well as the three inner mechanisms reacting to these external factors — the interventionist role of the Korean government, the telecom reform plans as a structural adjustment between 1990 and 1995, and the government's desire for technological independence from foreign telecom companies. The state-led KII project arises from the dynamics of the interaction between global pressures and Korea's internal drives to escape technological dependency.

5.3.1. "Learning effects" from advanced countries

In the early and mid-90s, one of the most important international influences on Korea was the advanced countries' rapid reconfigurations of their national infrastructures based on electronic networks. For instance, a "Commentary for the KII Master Plan" (KAIT,[44] 1995, March) described external threats to Korean society as being largely derived from the rise of multilateral trade systems such as the WTO, regional economic blocs such as the NAFTA and the EU, and the IT infrastructure plans implemented by the US, Japan, and the EU. South Korea's national telecom policy, then, was at best an "unfiltered, imitative hybrid of policy measures borrowed from the advanced countries" (Kim & Ro,

44 Since 1992, the KAIT (Korea Association of Information and Telecommunication) has supported the MIC's IT policy from the private sector's perspective.

1993: 485), such as the US, Japan, and the UK.[45] The global economic changes driven by the advanced countries had a "learning effect" upon the Korean government such that it copied their policy programs.

In the US, the Clinton administration's Information Infrastructure Task Force (IITF, 1993, September) issued a report entitled "National Information Infrastructure (NII): An Agenda for Action," which was to be implemented by private sector leadership with the federal government's guidance. In a similar move, the Japanese government's Ministry of Posts and Telecommunications (now the Ministry of Internal Affairs and Communications) issued the policy report, "Reforms towards the Intellectually Creative Society of the 21st Century" (Telecommunications Council, 1994, May). Through the investment of JP ¥50 trillion, the Japanese government planned to develop a "high-performance info-communications infrastructure" by 2010, so as to build an "intellectually creative society," which was directed toward the economic shift from "conventional industry to new info-communications Industry" (Section 1). Through this infrastructure plan, Japan expected to create a JP ¥123 trillion multimedia market and 2.4 million new jobs (Igarashi, 2004).[46] Singapore's government in 1993 announced the "IT 2000 Vision" (Choo, 1997), which set forth an "Intelligent Island" program aimed at

45 For example, the artificial duopoly system imitated the UK's deregulation plan, the classification of the carriers by facility-based ownership came from Japan's policy model, and the idea of competition and various measures to protect the market from anticompetitive behavior were derived from US policy.
46 Based on this backbone infrastructure, since 2001 Japan has developed the "e-Japan Strategy" and "u-Japan Promotion Program" for integrating wired/wireless, mobile, and multimedia communications over the Internet Protocol (IP) based architecture, similar to Korea's BcN project.

completing a national information infrastructure within 15 years.[47] In 1994 the British government issued a report entitled "Creating the Superhighways of the Future: Developing Broadband Communications in Britain," and in European countries such as Norway, Sweden, Denmark, and Finland, national infrastructure programs interconnecting the government agencies, educational institutions, and firms also became pervasive (Siochru, 2004).

These policy experiments of information superhighway emerging in the US, the EU, Japan, and Singapore influenced Korea at that time. Both the 1993 Basic Plan and the 1994 Master Plan for the KII specify "the new economy as the major motive for constructing the backbone networks," (MoC, 1994: 29) and urge "Korean society to pursue the new international trends toward network-based capitalism" (30). In a network-based economy, an infrastructure plan was essential to establishing an international market share (Jeong & King, 1996). Among the IT plans of the developed countries, the American NII initiative greatly influenced the launching of the KII project. The government officials whom I interviewed specifically mentioned the US government's lead in creating the network-based economy. For instance, one of the key actors in implementing the KII project, noted that both the NII initiative submitted by the US Vice President Al Gore and the liberalization of the national telecom market brought about by the bilateral negotiation between the US and Korea motivated the Korean administration to plan the construction of the information infrastructure in the early 90s (Lee, 2007, June

47 In 2006, the Singaporean government's "IT2000 Vision" evolved into "Singapore One Network for Everyone," which was directed to promote the network-based economy and join in the OECD membership

7). Other interviewees of the NIA regarded the KII as "a voluntarily prepared government project benchmarking the US and Japan initiatives for the optical network" (Hur, 2007, June 7) or "a Korean-style NII project" (Lee, 2007, May 28).

During the presidential campaign of 1992, Bill Clinton first presented the economic value of the electronic backbone network for the US economic growth:

> In the new economy, infrastructure means information as well as transportation. More than half the US workforce is employed in information-intensive industries, yet we have no national strategy to create a national information network. Just as the interstate highway system in the 1950s spurred two decades of economic growth, we need a door-to-door fiber optics system by the year 2015 to link every home, every lab, every classroom, and every business in America. (Clinton, 1992, April 16)

In their 1993 "Agenda for Action" report, Vice President Gore and Secretary of Commerce Ron Brown offered a blueprint for the NII based upon a public-private partnership. The NII initiative sought to establish a "seamless web of communications networks, computers, databases, and consumer electronics that will put vast amounts of information at users' fingertips" (1993: 3). The NII initiative expressed the Clinton-Gore administration's desire to restore America's technological and economic leadership through investing in the nationwide information infrastructure and through promoting a more deregulatory climate in the national and international telecom market. Following up on the NII initiative, Gore expanded the administration's policy plan into a global scale by introducing the Global Information Infrastructure (GII) initiative at the first World

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(Low, 2003).

Telecommunication Development Conference in March of 1994. The Conference, held in Buenos Aires, Argentina, signaled a new order of the world economy in which everything would be connected by a grid of electronic networks. At this meeting, Gore called upon every nation to establish an ambitious agenda to build the GII, under the following basic principles: the encouragement of private sector investment, more competition, easy access to the network, a flexible regulatory environment, and universal service. World leaders incorporated these five principles into the International Telecommunications Union (ITU, 1994, March 21)'s "Buenos Aires Declaration on Global Telecommunication Development for the 21st Century." In May of that year, Japan also proposed the Asian Information Infrastructure (AII) initiative as part of the GII at the ITU meeting in order to facilitate the regional bloc of the electronic network among the Asian countries (Igarashi, 2004: 17). In February of 1995, the Group of Seven Nations' (G-7) Ministerial Conference on the Information Society in Brussels reaffirmed the main goals of the GII initiative led by the US administration (EFF, 2003).

The GII principles and the G-7 affirmation share the WTO's regulatory principles on basic telecommunications, which focused on the openness of local telecom markets. For examples, based on Gore's suggested GII principles, G-7 leaders proposed international principles of market liberalization such as promotion of interconnectivity and interoperability, developing global markets for networks, services, and applications, and protecting intellectual property rights (G-7 Chair, 1995). Despite differences in the scale and size of the local telecom market in developing countries, international pressures for network-based market liberalization such as GII initiatives and the WTO agreements

led by the US administration also forced the Korean government both open its telecom market and embrace the new world order of digital capitalism (Chapter 5.3.2 discusses the WTO pact's global regulatory force as it relates to the development of the KII project). The government was urged to contribute to the US-led GII initiatives and the WTO agreements enacted in 1997 at the global level, and simultaneously to meet the benchmarks of Gore's NII project at the local level. In response to the US-led NII and GII initiatives, at the 1994 APEC Summit in Bogor, Indonesia, Asian countries, including South Korea, agreed on introducing the Asia Pacific Information Infrastructure (APII) for the purpose of promoting the free flow of information throughout the region (Kim, 2003). As regards the WTO agreements, the Korean government actively responded to these global pressures by opening the domestic telecom market and by launching the KII project, as shown in the following section 5.3.2.

At the start of his presidency in 1993, the first civilian President, Young-sam Kim, popularized the discourse of "globalization" (*Shegyehwa*). His motto of a "New Korea" (*Sin Hanguk*) aimed to persuade people to voluntarily adopt "a market liberalization policy that was required by the 'globalization' of capital in order to become a member of the OECD" (Kang, 2000: 451). To become a member country of the OECD by 1996, the Korean government sought to be rapidly incorporated into the multilateral trade organizations such as the WTO system and the World Intellectual Property Organization (WIPO), in conjunction with a new liberal economic policy whose slogan was "small but strong government." Thus in 1995, in his New Year's Message to the Nation, President Young-sam Kim offered the following advice to his people:

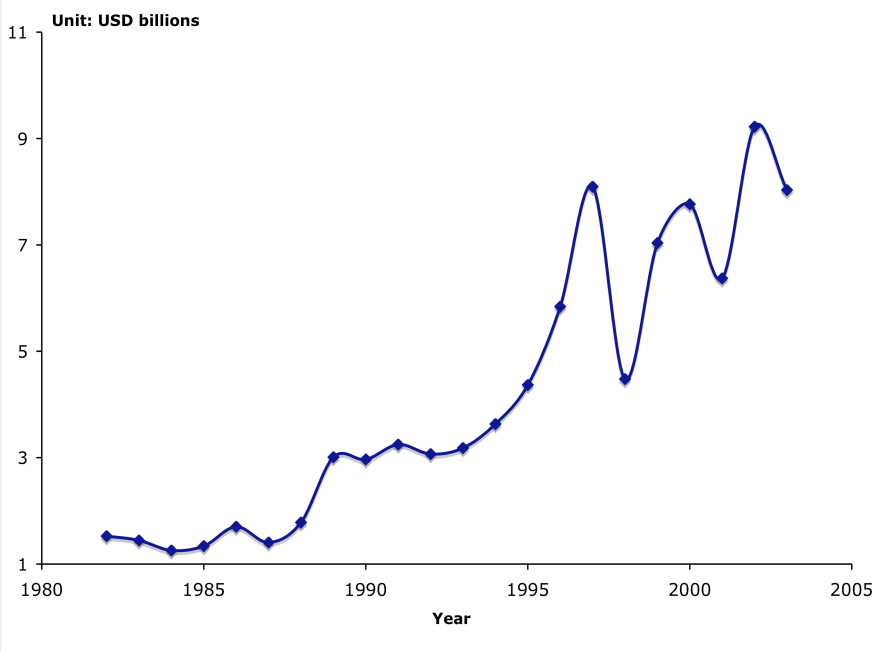
> On the threshold of 21st century, the contemporary world confronts a new order. Along with a new year, the WTO system will be launched. This signifies an era of dog-eat-dog competition between nations and regions. A new era is coming when we must confront the unstable future of this new world. We should embrace the tide of globalization, reorganize our government to be "small but strong," and begin again from scratch. *Shegyehwa* is the only way we can interact with the outside world and move towards its center. (Office of the President, 1995, my translation)

President Kim's message about how Korean society could become a winner under globalization's law of the jungle was accompanied the government's active interventionist policy of redefining its developmental strategies by IT plans. Kim's rhetoric, which merged "particular interests" of private sector with the "general interest" of the nation-state, Kim succeeded in persuading Koreans that these policies were necessary for their very survival in the endless competition of a globalized world. One of the survival strategies in the age of globalization was a shift in the government's policy interest from industrialization to informatization. The government actually proposed its own vision of a cooperative Asia–Pacific Information Infrastructure (APII) at the Asia–Pacific Economic Cooperation (APEC) summit meeting held in Indonesia in 1994 (Embassy of the Republic of Korea in the USA, 2005, November 14), and it also issued the Master Plan for the KII (MoC, 1994, March) the same year. Electronic networks became appealing to the government (e.g., see the public reports released by the MoC [1993, August 21; 1993, July 2; 1994, March]) because of the economic possibilities available if domestic capital were able to efficiently plug into the global and regional infrastructure networks. The government responded vigorously to the new mode of global

capitalism by building the national broadband backbone network.

As Figure 5.3 shows, since Kim's presidency, the government has raised investment in the IT sector in order to shift the nation from a labor-intensive industry to a knowledge-based one. In the early 90s, the amount of the government's telecom-related investment rapidly increased, except for the fluctuation during the 1997 IMF financial crisis.

Figure 5.3. Annual government telecom investment in Korea



Source: Data from ITU (2005)

Korea's energetic state-led telecom investment was the response to a series of global influences such as the early 90s US-led flurry of construction of information infrastructure in various countries. Further, as discussed in the next section, it was a

response to external constraints from the late 1980s up to the mid-90s such as the US's designation of South Korea as a Priority Foreign Country (PFC), which resulted in trade sanctions, the Uruguay Round of Multilateral Trade negotiations, and the WTO negotiations on basic telecommunications. During this period, the government began not merely to install the nationwide information infrastructure which would electronically interconnect government agencies and educational institutions but also launched a national mobile telephony market which allowed *Chaebols*, Korea's family-owned monopolies, to take advantage of the "trickle-down" effect from the state-led IT boom.

The logic of the Global Information Infrastructure (GII) initiative was directed toward expanding access to foreign markets for America's high-tech companies and enabling global telecom conglomerates to attain "hegemonic" power, transforming the mode of capitalism. Behind the GII's rhetoric of one world interconnected by electronic networks lay the US-led WTO regulatory system establishing telecom liberalization as a universal policy — specifically, as regards Korea, in terms of removing any trade restrictions to its domestic telecom market. The next section investigates the global influences of the WTO regulatory system on Korea's domestic IT policy.

5.3.2. The global regulatory system as an impetus of the KII project

Since the late 80s, under the new network-based economic order of globalization, global regulatory institutions such as the Uruguay Round and the WTO have gradually become the new "global quasi-governments" (Hardt & Negri, 2004: 175). Korea was forced to

prepare itself for a global challenge from the regulatory system of these quasi-governmental centers by integrating its local networks into the global electronic matrix. Most of my interviewees felt that the WTO regulatory system was a minor factor in the birth of the KII project; instead, they felt that the early 90s' upsurge of information infrastructure projects in the advanced countries was a strong motivator for the KII. In other words, they perceived a direct cause and effect relationship between two policy events — the American NII project and the KII project — and minimized the influence of any pressure to liberalize the national telecom market. However, although the US-led NII and GII initiatives laid the ideological and material foundations for the KII project, the US government's trade sanctions and the WTO-based multilateral trade negotiations meant that, in order to join the global telecom market, Korea would have to open its national telecom market, and it was this which drove the Korean government to accelerate building the national information infrastructure so as to shield itself from completely opening its telecom market.

The KII arose out of the structural adjustment programs of 1990, 1994, and 1995, which the government launched in order to enhance the competitiveness of the national telecom market. Even though within the WTO framework the government was forced to completely open the domestic telecom market to international competition, it granted two domestic incumbents, KT and Dacom, the right to build the nationwide information infrastructure and thus protected the business rights for the KII-G project from foreign investors (the government had less control over the KII-P, since, as a commercial network, it was open to foreign investors). The KII project, thus, was the Korean

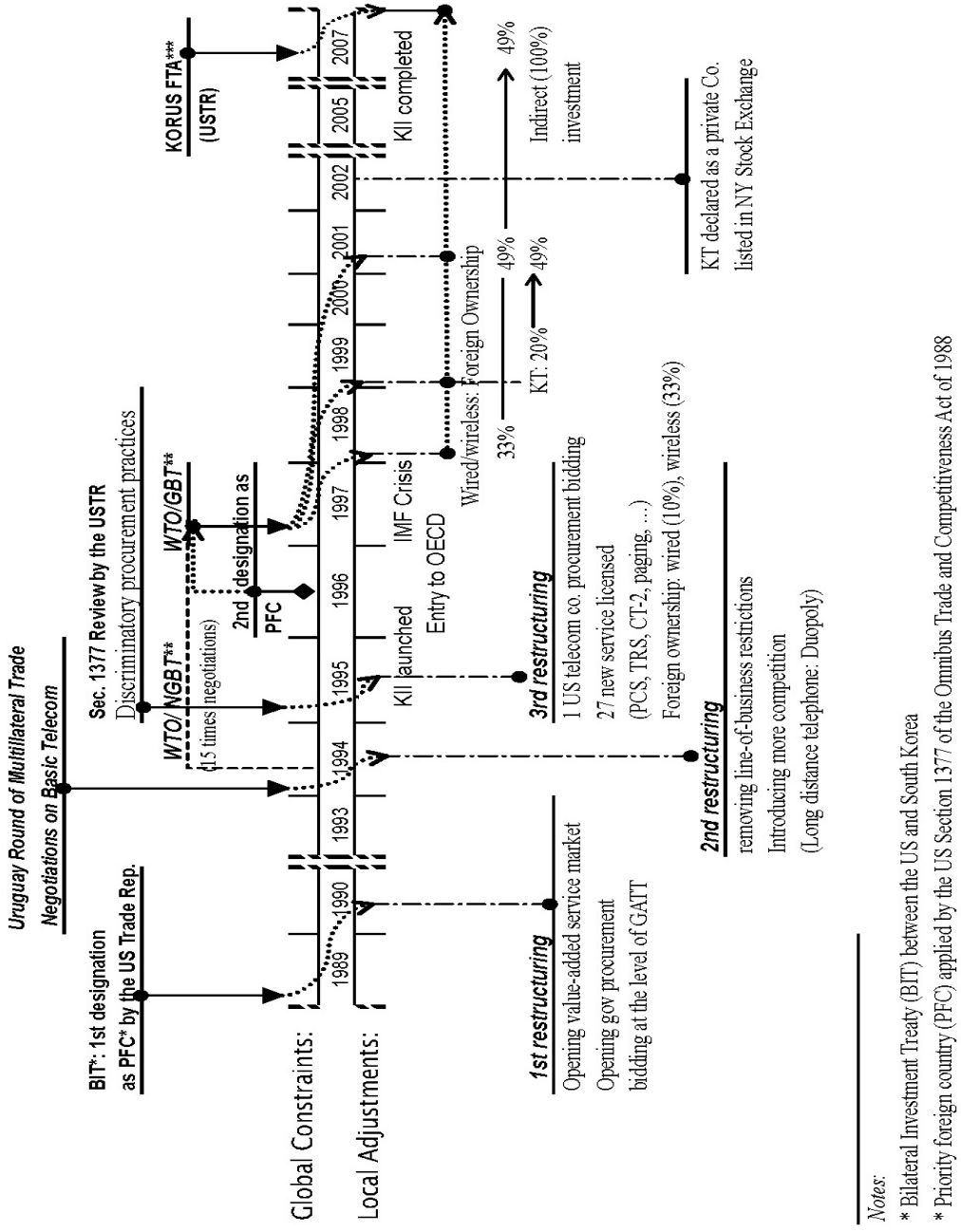
government's most significant response to a series of global pressures such as the multilateral and bilateral negotiations (Figure 5.4 describes the moments of the global events and in turn the local adjustments since the late 1980s).

The first threat to the Korean telecom industry came with the trade sanctions imposed by the US Trade Representative (USTR) (Hyun & Lent, 1999).[48] The USTR designated Korea as a priority foreign country (PFC) in 1989, based on Section 1377 of the US Omnibus Trade and Competitiveness Act of 1988. That means the USTR would treat Korean telecom market as being in violation of a trade agreement under the Act, for which retaliation with trade sanctions is mandatory. The conflict centered on the anticompetitive practices of Korean telecom equipment and services; after ten rounds of bilateral negotiations between the US and Korea from 1989 to 1992, the Korean government agreed to lift investment restrictions on US value-added network business beginning in 1994 and to open government procurement bidding at the level of the General Agreement on Tariffs and Trade (Hyun & Lent, 1999). During negotiation with the USTR, the Korean government in July of 1990 announced the first telecom reform plan. The government introduced Data Communications (Dacom)[49] as a second service provider into the international voice telephony market previously served by KT as the incumbent and common carrier, and initiated competition in the radio paging market,

48 The USTR emerged as part of an informal "Washington Consensus," which also embraces the US State Department, the US Treasury, the World Bank, the IMF, the OECD, and the WTO. All of these institutions favor the ideas of liberalization, deregulation, and privatization (Amsden, 2007: 128).

49 Dacom was created by public-private investment in 1982. By acquiring the licenses of international and long-distance telephony services during the national telecom reform programs from 1990 to 1995, and also by becoming the selective operator of the KII project, Dacom rapidly emerged as the second largest facility-based telecom service provider in Korea, after KT.

Figure 5.4. The Korean telecom market: global constraints and local adjustment



Source: adopted from Frank (2007), Kim (2003, June), Hyun & Lent (1999), Lee & Jung (1998, November), and Cho, et al. (1996)

which would be operated by SK Telecom and eleven local service providers. This reform aimed to enhance the competitiveness of the domestic telecom carriers by creating a limited competitive market. Further, as a result of negotiations with the USTR, the government agreed to abolish major regulations for the value-added service market and partially lifted market entry barriers to the foreign investors.[50]

Since the early 1990s, another global pressure toward telecom liberalization stemmed from multilateral negotiations such as the Uruguay Round and the WTO Agreement on Basic Telecommunication Services. The Uruguay Round of multilateral trade negotiations for the first time recognized services, especially, telecom services, as an important item on the agenda of liberalization based on cross-border trade (Blouin, 2000). Through the Uruguay Round negotiations, the General Agreement for Trade in Services (GATS) in 1994 was created in order to promote the borderless flow of data in a new age of digital capitalism. At the end of the Uruguay Round in May of the same year, to realize the GATS framework on telecom services by means of a more systematic regulatory power, the Negotiation Group on Basic Telecommunications (NGBT) was created under the auspices of the WTO; this was extended in 1996 as the GBT. Through

50 The 1990 reform package divided the traditional common carrier model into three service classes — two kinds of NSPs (GSPs and SSPs), and VSPs — based on the ownership of telecom network facilities. Network Service Providers (NSPs) are telecommunication service providers who own their own network facilities. NSPs were divided into two classes, General Service Providers (GSPs), which supply nationwide wire-line services, and Specific Service Providers (SSPs), which supply telecom services in geographically limited areas or provide selected types of services such as wireless services. Value-added Service Providers (VSPs) offer database and data processing services through NSPs. The government partially opened the SSP market, which allowed foreign ownership up to 33%, or up to10% in the case of government-owned corporations, and opened up the VSP market to full-blown competition (Cho, et al., 1996). The second telecom reform plan of 1994 integrated the subdivision of GSPs and SSPs into one division, NSPs. The third reform of 1995 divided the national telecom service classification into NSPs, VSPs, and Special

the long WTO/GBT negotiations up to 1997, 72 member states finally agreed to open their basic telecom market to foreign competition from February 1998 onward. The WTO/GBT agreements included specific commitments regarding market-access and national treatment of foreign telecom service providers as set out in the WTO agreement's regulatory codes, termed the Reference Paper (RP). The RP aimed to further the actual market access of foreign investors and to weaken the incumbents' control of local telecom networks (Blouin, 2000).[51] The WTO agreements ultimately brought basic telecommunications under an "internationally accepted enforcement mechanism" (Drake & Noam, 1997: 808). The WTO became a convenient forum through which the US-led foreign telecom carriers, who looked to foreign markets to create new business opportunities, legitimized a removal of major barriers to their entry into local telecom markets through a consensus about free trade (Cowhey & Klimenko, 2000).

To obtain membership in the OECD, the Korean government during the early and mid-1990s had to accept a wave of competition and liberalization of the telecom market, mainly forced by the WTO negotiations (Cho, et al., 1996). In June 1994, the government announced a second reform program to introduce more competition into national market. The reform plans included lifting the line-of-business restriction on wire-line and wireless service providers, creating one category of network service

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Telecommunications Service Providers (STPs), who provide services such as voice resale, Internet phone, international call-back, and so on.

51 The Reference Paper (RP) of the WTO pact sets forth the basic regulatory rules for so-called fair competition in local telecom policies. The RP includes issues of interconnection, requiring the incumbent to provide competitors or new entrants non-discriminatory equitable network access to public networks; the prevention of anticompetitive practices in telecom such as cross-subsidization and the withholding of

providers; introducing Dacom into the long-distance telephony market of KT monopoly; creating a duopolistic competition system in the mobile phone market between SK Telecom and Shinsegi Telecom; and allowing up to 33.3% of foreign ownership in the wireless service market. Nevertheless, the government was still hesitant to introduce full-blown liberalization in national telecom market, and thus it authorized the duopolistic competition in long-distance telephony and the foreign ownership ceiling of only 10% for telephone service.

In 1995, Korea's "discriminatory procurement practices" were once again cited by the USTR, and the government was forced to allow one major US telecom company to bid in the 1995 procurement cycle (Hyun & Lent, 1999). Confronting the rise of both US pressures to liberalize and a WTO-led new world order, the Korean government finally set forth a third reform plan in order to further open the telecom market. Unlike the two previous reform programs, the third reform plan was unanticipated and was carried out in a covert manner (Cho, et al., 1996). The third reform's timing — in 1995, three years ahead of the full-scale market opening required by the WTO pact — suggested the government's desire to minimize the impact of full-blown competition. The third telecom reform plan licensed 27 new service providers across seven service areas, including new types of telecom services such as PCS, TRS, CT-2, and wireless data communications (Hong, 1998), and also aimed to provide licensing rights for new profitable IT services both for potential entrants represented by the *Chaebols* and for national incumbents such

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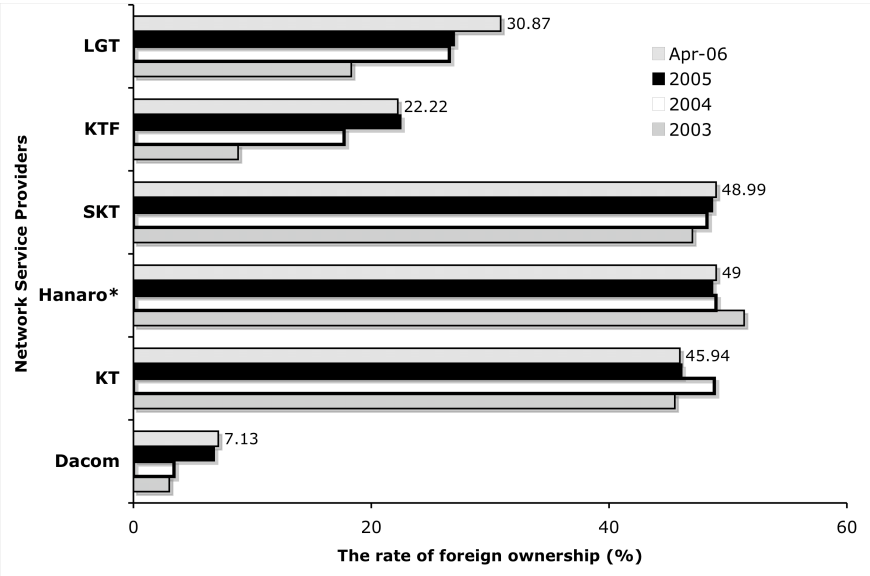
technical specifications on network access; universal service obligations; and the independence or impartiality of signatories' regulatory bodies (see Blouin, 2000; Fredebeul-Krein & Freytag, 1999; 1997).

as KT and Dacom. Further, the third reform plan induced the private sector to join in the KII project by offering the domestic incumbents special service licenses for services such as PCS, as well as by sponsoring the incumbents through seed money to build the nationwide fiber-optic lines (Cho, et al., 1996).

In 1996, the USTR once again designated Korea as a PFC. The Korean government reacted strongly against the USTR, pointing out that Korea's trade deficit in the telecom equipment sector had increased since 1993, and in fact had reached a deficit of US $403 million by 1995 (Hyun & Lent, 1999). The US finally withdrew the PFC case without an agreement and instead settled on a compromise within the boundary of the WTO/GBT agreements. Since 1997, pursuant to the WTO pact, the Korean government once again lifted the foreign ownership ceiling to 49% in both wired and wireless services, and allowed the Korean company Hanaro to enter the local telephone service market, in which KT had been previously the dominant service provider (Tcha, et al., 2000). The Korean economic crisis of 1997 accelerated the government's liberalization of the national telecom market. The International Monetary Fund (IMF), through its bailout program after the 1997 crisis, urged the government to eliminate foreign ownership restraints in all areas. Pressured by the IMF bailout program and the WTO/GBT agreements, the government raised KT's foreign ownership ceiling to 33% in 1999 and to 49% in 2002 and completed KT's privatization by 2002 (Jin, 2006). Figure 5.5 shows the degree to which the WTO/GBT agreements have forced the government to increase the foreign ownership ceiling in the national telecom sector. Since the enactment of the WTO

pact in 1998, foreign ownership has gradually increased and, during the period from 2003 to 2006 it reached the government's ceiling of 49%.

Figure 5.5. Foreign ownership in Korea's major network service providers, 2003–06



* The largest foreign shareholder of Hanaro Telecom is AIG-Newbridge-TVG consortium, which owns 39% of the entire stock and thus has a controlling interest.
Source: data from KERI (2007), MIC (2005, December), and Yahoo Finance (2006)

In the mid-90s, therefore, knowing that the WTO pact would come into effect in 1998, the Korean government could foresee the difficulty of launching state-led IT policies once foreign investors dominated the national telecom market.[52] It could be predicted that foreign capital flooding into the telecom sector of a developing country

52 Up to the mid-90s, Korean society in general, as well as the government, was quite negative and even fearful about the entry of foreign investors into the domestic market. For instance, one Korean economist described the situation thusly: "[D]ominance of the Korean financial market by foreign institutions was abhorred, as it would diminish authority over various instruments of monetary control, weaken many customary, informal practices associated with industrial policy, and might also alter the public-good nature of the financial system" (Lee, 1993: 7).

would create a cascade of negative effects, such as an outflow of locally created profits, the pursuit of short-term profits, apathy to new IT-facility re-investments derived from capital outflow, the destabilization of capital composition by international speculative capital, the destabilization of labor conditions, and potential national security problems arising from foreign ownership of basic infrastructure, as well as foreign capital's inertia to state-led IT projects such as the KII.[53] The KII project, therefore, which needed the collaboration of the private sector, was an urgent task that the government had to complete before full-blown liberalization arrived. Pressure from the US and the WTO thus was an indirect but powerful influence on the KII project.

5.3.3. Escape from dependency through R&D: The broken dream

In the mid-80s, Korea's telephony system had relied exclusively on costly telecom switches from foreign manufacturers. The three major "old" network equipment manufacturers — Alcatel (France), Lucent Technologies (USA), and Nortel (Canada) — then controlled almost half of the world telecom equipment market share.[54] To secure its

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53 These predictions have come to pass: for instance, Hanaro Telecom, the second-largest broadband Internet and local call service provider, handed over its management control to a group of foreign investors led by the American International Group (AIG) and Newbridge Capital (Kim, 2003, July 3). As of December 2007, Hananro's largest stakeholders, the AIG-led consortium, have made a backdoor deal with SK Telecom, the largest wireless service provider, to sell out all Hanaro stock. And the rise of foreign ownership in the national incumbents has indeed made it difficult for the government to persuade the telecom sector to cooperate in state-led IT projects; for example, Hanaro relinquished its participation in "Wibro," part of a government-driven IT initiative, IT839.

54 Korea divides the infrastructure industry into three categories: hardware, software, and network service. Hardware is divided into two subcategories: terminal equipment (e.g., cell phones, PDAs, and laptops) and network equipment. Network equipment includes exchange/switch technology (infrastructural, private), pair cable transmission systems (xDSL), coaxial cable transmission systems (e.g., cable modem termination systems [CMTS]), optical transmission systems, signal converters, multiplexers, wire and optical fiber optic cables, LAN equipment (e.g., NICs, routers, switches, hubs), home network equipment (e.g., subscriber modems, cable modems, and xDSL modems), and wireless LAN equipment. "Network service"

own core telecom technology, the Korean government successfully developed a digital switching system called the Time-Division Exchange (TDX) through a ten-year state-led R&D project launched in 1986, and already by 1990 the proportion of TDX switches internal to Korea had risen to 47.8% (Kim, 1993). For the Korean procurement market, the TDX switch became a shield providing technological independence from the transnational telecom conglomerates (Hyun & Lent, 1999). By the end of 1997, Korea had exported more than US$ 800 million worth of 3.7 million TDX lines to 26 countries (Lee & Jung, 1998). By 2003, KT as the common carrier was able to replace 76% of imported switches with domestically produced ones (Mani, 2007: 271). Korea thus became the 10th nation in the world to develop and export its own telephony switching system. The process of technological innovation that created the TDX switch has become the prototype of Korea's developmental mechanism.[55] This successful mechanism was based on structural cooperation between specialized R&D institutes such as ETRI and domestic telecom manufacturers such as Samsung and LG under the strong leadership of the government. Castells (1998: 252) points out that "an emphasis on science and technology, and the upgrading of products and process in Korean industry, have been the obsession of the South Korean state since the 1960s." This "obsession" is in fact indicative of the state's desire to escape being technologically dependent upon the advanced countries and their economic mechanisms. The desire to be independent has

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includes the Internet backbone service, subscriber connection service, facility leases, and operation outsourcing, and so on (NCA, 2005: 28).

55 However, since the US forced KT to open their equipment procurement market, the TDX system has gradually weakened in competition with AT&T's SESS in the large-capacity switching system market.

continually haunted Korea's developmental mechanisms since the time of the military dictatorships.

The success of the collaborative model in creating the TDX led to its being applied to the next project on the government's agenda, the High Advanced Nation (HAN)/B-ISDN project,[56] which aimed at developing the asynchronous transfer mode (ATM) switch, then a critical component of the high-speed information network.[57] The government invested US$ 856 million in this project between 1992 and 1998. In fact, the HAN/B-ISDN project provided the technological basis for building the KII. In addition, prior to the launch of the KII project, Korea had completed the development of optical transmission systems at the 155–565 Mbps and 2.5Gbps levels between 1991 and 1995, and the mainframe computers TiCOM I, II, and III between 1988 and 1994. With the successful completion of the HAN/B-ISBN project, the government expected to improve Korea's telecom technologies up to the G7 level, to create new telecom industries, and to construct a national backbone network.

The ATM switching technology was an advance on the TDX switch, both of which were heavily supported by the government's concessionary financing (Ingelbrecht,

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AT&T, the only foreign firm invited, succeeded in open bidding in gaining a 38% share of KT's digital switching systems in 1994 (Ro & Kim, 1996).

56 According to a principal researcher at the ETRI, the HAN/B-ISDN project planned to "develop network integration technologies such as a commercial ATM switching system, 10 and 100 Gbps optical transmission systems, a broadband network termination system, and terminal adapters to support the nationwide information infrastructure." In this R&D project, the government's main concern was "the development of the ATM switch" (Song, 2007 July 17).

57 "ATM is a cell-switching and multiplexing technology that combines the benefits of circuit switching (stable capacity and constant transmission delay) with those of packet switching (flexibility and efficiency for intermittent traffic). It provides scalable bandwidth from a few Mbps to many Gbps. Because of its asynchronous nature, ATM is more efficient than synchronous technologies, such as time-division multiplexing" (Cisco, 2006).

1995; Lee & Jung, 1998). The government forecast the economic benefits of developing the ATM switching technology. First, the basic goal of the R&D investment was to escape technological dependency on foreign telecom equipment." As the national telecom service and equipment market was about US $60 billion in 1995, the development of core technology was critical to protecting the national telecom market from the dominance of the foreign telecom industry. Second, the ATM switch, like the TDX switch, was anticipated to have spill-over effects on the economy by its application to the KII project (Tcha, et al., 2000). Third, as with the TDX, the R&D collaboration on the ATM technology was effective in speeding up the circuit from investment to application: The government — specifically, the MIC — invested the funds, the ETRI was responsible for developing the TDX, the four major domestic telecom equipment manufacturers — Samsung, LG, Daewoo, and Hanhwa — produced the switches, and the wire-line incumbents — KT and Dacom — installed them in the process of building the backbone network. As an official at the National Information Society Agency commented,

> In 1986, Korea entered into the age of universal service in landline telephony. At that time the foreign-produced telecom equipment entirely dominated the national market. With the goal of promoting the domestic telecom equipment market, the government developed the first TDX switch by assigning the enormous public funds to KT, then a state-owned company, and then KT assigned the R&D responsibility to the ETRI. The ETRI transferred the tested TDX technology over to Samsung and LG, both of which were involved in producing the TDX switch. The R&D collaboration in the TDX switch has historical continuity with the process used for developing the ATM for the optical transmission network. (Interview with Jang, 2007, June 07)

Due to the HAN/B-ISDN project developed by the ETRI, the domestic telecom manufacturers began producing ATM switches in 1996, and significantly increased their production rate in 2001 (phase 3 of the KII project) so that they accounted for almost three quarters of public switching production in Korea (Mani, 2007). Most of the ATM equipment was used for building the KII rather than for export. The TDX was highly profitable, since an investment of US $133 million in the R&D produced total sales of US $6.3 billion, whereas the ATM switching system was relatively unprofitable, since an investment of US $200 million in its R&D led to total sales of only US $250 million. This result was dissatisfying, because the government was unable to make the ATM technology competitive in the foreign market nor to escape technological dependency on the transnational telecom conglomerates. An NIA official observed that, in contrast to the commercial success of the TDX switch,

> The ATM switch was limited to domestic consumption, and thus the [commercial] application was negligible. […] At that time, Korea was focused very one-sidedly on the development of the ATM switch, and, as a result, turned a blind eye to the [Internet-based] router equipment used for VoIP. (Interview with Jang, 2007, June 7)

Another NIA official was even more pessimistic:

> While the information infrastructure enhanced the citizens' access right [to digital information], the project to develop the core technology, the ATM switch, was an unsatisfactory policy to some degree. Because of the expansion of the Internet since the mid-90s, the dominance of the established telecom equipment manufacturers such as Lucent and other major foreign conglomerates has gradually collapsed, and the IP router equipment manufacturers led by Cisco have taken a lead in the world market. The new paradigm was unforeseen by our government. Under the present conditions of market control by foreign router

> equipments, the government terminated or downscaled R&D policy plans to develop core technology for the backbone network. At present, Cisco's advanced telecom equipment is completely dominant in the market. Meanwhile, Korea has developed only low-tech access equipment connecting a telephone base unit to subscribers. (Interview with Lee, 2007, June 7)

The director of the Presidential Advisory Council on Science and Technology, which was directly involved in the KII project from 1997 to 2000, also pointed out that "the Korean policymakers could hardly foresee the Internet architecture at that time [in the early 1990s] and thus regarded the ATM as the most advanced network switching technology" (Oh, 2007, June 11). Since 2002, however, the national telecom companies "ceased to produce and install the ATM switch and have replaced many of the ATM switches with foreign IP-based router equipment" (Rha, 2007, June 7). Interestingly, a manager of KT's Network Engineering Department notes the WTO pact as a factor in the failure of the ATM technology:

> The opening of national telecom market [by the WTO pact] contributed greatly to giant foreign companies like Cisco entering into Korean market and replacing our own ATM technology with the IP-based technology. This openness of the domestic market has resulted in it being overwhelmed by foreign advanced technology. […] If Cisco had not existed at that time, Korea might have been able to develop the ATM as the core technology for major parts of the telecom equipment market. (Lee, 2007, June 11)

The story of the ATM highlights two problems: first, the shortcoming of the state-led R&D policy plans, in which the technocrats tried to set out a broad picture of development and technological innovation at the very beginning and did not build in

enough flexibility to deal with technological shifts that may occur over a decade-long project.[58] It ended with a "broken dream," because the ATM technology became outmoded by the IP-based router. Second, the ATM story points out the difficulties that developing countries will always have in attempting to catch up to advanced ones, due to the head start they inevitably possess.

5.4. A DIALECTICS OF EXTERNAL-INTERNAL CONSTRAINTS ON THE KII PROJECT

> [E]xternal causes are the condition of change and internal causes are the basis of change, and […] external causes become operative through internal causes. In a suitable temperature an egg changes into a chicken, but no temperature can change a stone into a chicken, because each has a different basis. (Mao, "On Contradiction," [1937] 2007)

Although it became a worn-out inscription on the gravestone of the demolished socialist systems of the last century, Mao's remark on the dialectics of external-internal causes surrounding the nation-state gives some hints on how to untangle the external and internal constraints that conditioned the KII project. First, in regard to the national infrastructural development by the civilian governments, this chapter has shown that the government launched the KII project under the "hegemonic" influence of IT policy plans

58 One of the interviewees (Song, 2007, May 29) assessed the ATM as technologically competitive in the aspects of security and QoS, despite its minor impact on economic growth. He said that 70% of government agencies still favor the ATM technology over any other equipment.

elsewhere in the early 90s, such as the US-led NII and GII initiatives.[59] In addition, however, the MIC needed to respond to President Kim's rhetoric of globalization by setting forth an IT-driven policy plan to catch up to the advanced countries' push to create the information superhighway. The government-led KII project was also in historical continuity with the series of economic industrialization plans under the military governments, as seen in the developmental strategies of the national infrastructure in each era, for the purpose of boosting national economies (Chapter 4.1.2). The "economic miracle" created by these state-led industrial plans motivated the civilian government to seek to revive its economy through an IT policy plan emulating those of the advanced countries. From this perspective, "internal causes," such as the robust leadership of the government, were stronger than "external causes," such as the advanced countries' IT plans, which merely served as a model for Korea's efforts.

Second, it is clear that the US-led WTO agreements directly triggered the structural adjustments in the national telecom market. Meanwhile, by granting the licenses of the special telecom services under the third reform plan, the government motivated the incumbents KT and Dacom to be involved in launching the KII project, which itself became a growth engine for those companies, especially Dacom (the details of this are discussed in Chapter 6). To weaken the impact of foreign investment, the KII project was timed to launch prior to the advent of the full-fledged openness of the national telecom market. The government wanted to protect the KII project from the rush

59 Even though the NII was strictly a US domestic IT initiative and not even a true policy, its effect on Korean telecom policies was powerful in both "symbolic" and "real" senses; in fact, the NII can be seen as

of foreign investors who tend to be uncooperative in state-led IT plans. In this case, however, the "external causes as the condition of change," represented by the US-led WTO pact and the inflows of foreign investment generated by it, were stronger than the national goal of protecting the telecom economy, even though Korea has successfully launched a digital phase of the national economy, as was its goal, with the KII.

Third, in addition to these implicit and explicit external constraints, there was the government's own desire to escape technological dependency on outsiders through its R&D project for the ATM switch system. Despite the success in employing the technology to build the KII, the HAN/B-ISDN project ultimately failed to accomplish all that the government had hoped. The broken dream of independence through innovation in the high-tech industry revealed not only the myopic zeal of the technocrats but also the overwhelming power of the foreign telecom equipment manufacturers in core technology. Despite the massive R&D expenditure — Korea ranked first in R&D expenditure among the developing countries from 1996 to 2002, allocating 2.5% of its GDP to R&D (World Bank, 2005) — the government has succeeded only in catching up in low- and mid-tech telecom sectors. Korea's "internal causes as the basis of change" were robust, but they were ultimately trumped by the accumulated wealth, power, and technological capital of the advanced countries and by technological change that outmoded ATM switches.

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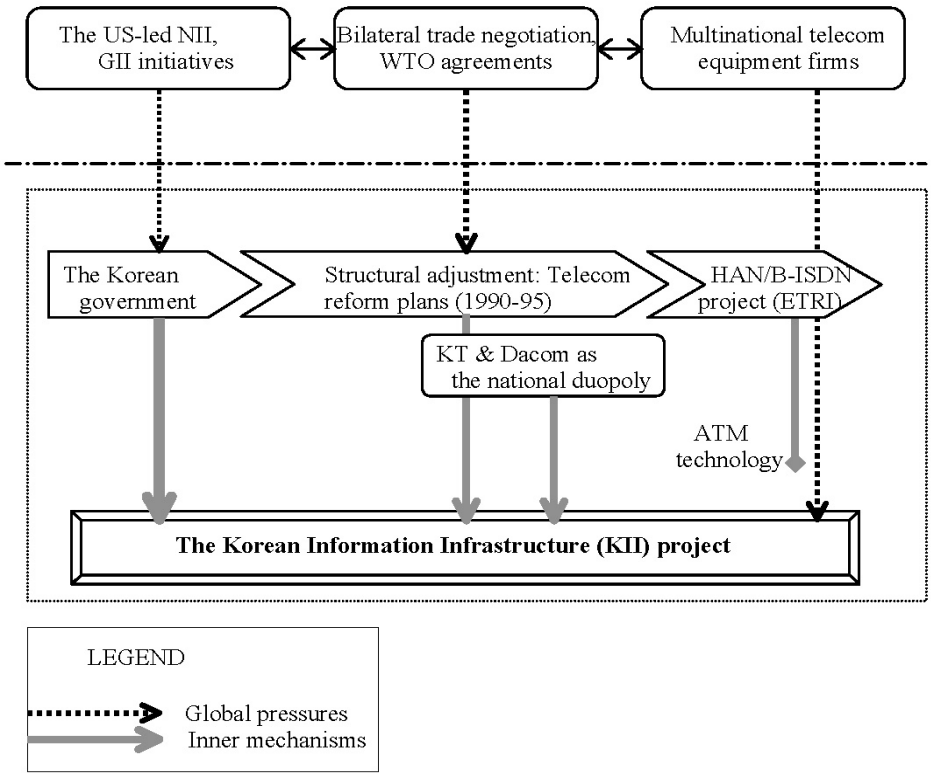
the ideal model for future economy for the Korean government to overcome the early 90s' economic recessions.

Between the dialectic mechanisms of global pressures and national aspirations, the Korean government functioned in several roles: by its promotion of structural adjustments, it acted as a *mediator* between the homogenizing power of liberalization and the protection of the local telecom market; by providing incentives for the private sector, such as sponsoring seed money and new telecom licenses, it acted as an *initiator*; and overall, it acted as a *leader* who drove the KII project forward by enticing and persuading the participation of the various stakeholders. The KII project is thus the manifestation of a unique mixture of national sovereignty and foreign influences (see Figure 5.6).

Figure 5.6. The dynamics of the global-local nexus surrounding the KII project



Source: author's diagram

While the government was forced to accept the terms of the global hegemonic order, it laid the foundation for a "second-stage catching-up" system (Chang, 2006), following the precedent of late-industrialization under the military regimes. To put it another way, when heated to "a suitable temperature" by the dynamics of the early 90s' external constraints and internal desires, "an egg finally changed into a chicken" — a chicken that found itself trapped in the snares of the global network of empire.

While this chapter focused on the dynamics of external–internal factors that conditioned the KII project, the next chapter examines the Korean-style "second-stage catching-up" model, which enabled the launch the KII project through the state's symbiosis with the domestic conglomerates, the *Chaebols*.

Chapter VI: The State–Business Symbiosis in Korea's IT Project: A Final Flowering of the Developmental State

ABSTRACT

In contrast to the private sector development of the national backbone network exemplified by the US Information Superhighway initiative in the early 90s, the Korean government was in the forefront of directing the Korean Information Infrastructure (KII) project, which was aimed at building a nationwide broadband backbone network. This chapter surveys how the "developmental state" model — a term referring to the centralized economic development of the East Asian states — was employed in South Korea by the authoritarian state under the military regimes. It then looks at how the developmental mechanism of Korea during period of the KII project was challenged by contextual factors such as market liberalization, the growth of the domestic conglomerates, and the social democratization that had occurred since the mid-80s and had led to the transition from military to civilian governments in the early 90s. This chapter then shows how in the KII project, the state, rather than asserting its dominance over business entities, served primarily as a moderator mediating conflicts between the private sector and the relevant public agencies. To describe the close state-capital

linkages in the KII project, this study focuses on the government's financial investment system for enticing the private sector to install the infrastructure, the neatly coordinated policy networks between the public and private entities, and the policy discourses by which the government achieved a national consensus on IT-driven economic development. Theoretically, this chapter aims to critically read the developmental state theories which have failed to perceive the dark side of the symbiosis between the state and the *Chaebols*. Further, by perceiving the state as situated within class and society (the state-in-society approach), this chapter examines the evolutionary phases of the state's power from the military regimes to the civilian governments, which have been influenced chiefly by two factors: the emergence of Korean civil society and the *Chaebols*' growth in the market.

6.1. INTRODUCTION

Since the late 80s, the Korean government had to rapidly transform its developmental mechanisms in response to external pressures such as the WTO Agreements and the US–Korea bilateral trade negotiations and internal ones such as the mass protest against the authoritarian state since 1987, the growth in power of the elite *Chaebols*, and the decline of the foreign market due to the Korea's export-oriented manufacturing industry. Driven by the global-local dynamics, the "strong state" model in Korea has gradually withered and been replaced by the "flexible state" or "market-driven state."

The Korean Information Infrastructure (KII) project was designed during this decline in the power of the state. Imitating the US National Information Initiative (NII), the KII's main goal was to interconnect the nation through a high-speed broadband network, and eventually to promote IT productivity in the private sector and to create a larger job market through this network. In contrast to American NII initiative, which was led by the private sector, in Korea the government took the leading role in guiding the KII from start to finish. Through the KII project, the three major stakeholders — the state, the national telecom duopoly (KT and Dacom), and the *Chaebols* — have become deeply interpenetrated, by means of state financial support, organizational collaboration, and a hegemonic consensus manufactured by the government's IT-related rhetoric. The KII project represents a newer developmental state model which is characterized more by the collaborative ties between the state and the private sector, in contrast to the older

model of the state's dominance over the private sector. Inheriting the legacy of the old developmental state, the KII project was a final example of the state's ability to launch, guide, and complete a major national IT policy initiative — final because, as will be evident by the end of this chapter, the state no longer has the power to intervene in the market in the same way that it once did.

This study, therefore, regards the KII project as an example of an evolving phase of the developmental state model. To investigate the symbiotic relationship between the state and the private sector in the KII project, this study first explores the scholarly literature based on the developmental state theories that has described the patterns of such collaborative ties. The study then focuses on the prior-investment system led by the government, the policy consultation bodies created for the project between the state and the telecom incumbents, and the government's IT policy rhetoric for creating a hegemonic consensus. This study then critiques the logic of inclusion/ exclusion in the KII project by evaluating the degree to which the project had a transparent and consultative policy setting that included other stakeholders such as the public and the small- and middle-sized firms and concludes that the denser the network of state–business alliances or linkages becomes the more citizens are excluded from the decision-making processes.

As to methodology, the present study uses data from in-depth interviews with government officials from the Ministry of Information and Communication (MIC), the National Computerization Agency (NCA — now the National Information Society Agency), and the telecom companies KT and Dacom, as well as official documents

relating to the project published by the MIC and the NCA that contain organizational charts and describe the major stakeholders' relationships and the changes in their policy network based on the shifts in specific policy goals.

6.2. THE TRANSFORMATIVE PHASES OF THE DEVELOPMENTAL STATE IN KOREA

6.2.1. The era of economic growth through dictatorship

In modern Korea, the concept of the developmental state arose under the first military regime (1963–79), that of Cheong-hee Park, who came to power by coup d'état. Park achieved rapid economic growth by upgrading the import-substitution economies[60] of the Syngman Rhee (1948–60) and Po Sun Yun (1960–62) administrations, which were largely dependent on US aid, to export-oriented economies through the state-bank-*Chaebol* nexus. Park's regime is commonly described as *kaebal-dokjae*, which means "economic growth through dictatorship." During the Park regime, government–business relationships were formed under the "overall guidance of a pilot planning agency" (Johnson, 1987: 145), such as the Economic Planning Board (EPB), which set forth a socialist-style national plan for industrialization.

Throughout the nation, the Park regime propagated the motto, "Export is the only way to survive!" To accomplish this agenda, Park created five key government planning

bodies to direct the nation's economic activity: the EPB, which reinforced its control over the economy through the management of the national budget and foreign borrowing; the President's Economic Secretariat, which exercised considerable influence over economic decision-making up through the Doo-hwan Chun administration (1980–88); the Ministry of Trade and Industry, which was crucial to implementing economic policy; the Ministry of Finance, which was responsible for regulating and supervising all domestic and foreign financial institutions operating in the country; and the Ministry of Construction, which developed an aggressive policy program of infrastructure expansion. In addition, to promote its export-oriented growth policy, the Park administration encouraged the private sector to launch quasi-governmental trade organizations, such as the Korea Trade Promotion Agency and the Korea Foreign Traders' Association (Hart-Landsberg, 1993).

Relying on these governmental bodies and quasi-governmental organizations, the Park administration launched the first Five-Year Economic Development Plan (1962–66), which was the first of six successive Five-Year EDPs set forth between 1962 and 1991. The basic objective of these EDPs was to industrialize the domestic economy and maximize economic growth through export.[61] According to a national economic index released by the Bank of Korea in 1991, due to Park's growth policy, heavy industry in manufacturing and exports grew rapidly until, by the late 1970s, it occupied nearly 50% of the Korean economic structure, and 65% by 1991.

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60 Under Rhee's administration, the state granted the monopoly of the "three white industries" — the processing of cotton, flour, and sugar from the US — to the burgeoning domestic businesses that later grew to be the family-owned *Chaebols* such as Samsung and Hyundai.

The Park administration's export-oriented industrial policy promoted the emergence of the *Chaebols* in the early 1970s. To expand the heavy and chemical industries (such as steel and iron, nonferrous metal, machinery, shipbuilding, and petrochemical refineries), the government supported selected large domestic corporations such as Hyundai, Samsung, Daewoo,[62] Lucky Goldstar (LG), Ssangyong, and SunKyong; these top six corporations (listed in descending order) showed an average annual capital growth rate of more than 30% during the period from 1971 to 1983 (Koo & Kim). These firms' share in GDP reached 17.1% in 1978, up from 9.8% in 1973, and by 1978 the top 46 *Chaebols* were responsible for nearly 60% of value creation in manufacturing (SaKong, 1993). The military regime's inability to control the *Chaebols*' growth led to endemic overcapacity in automobile production: Hyundai Motors' passenger car production operated at 52% of the market capacity in 1969 and at 61.8% by 1979, when Kia and Daewoo operated at 55.4% and 24.6% capacity, respectively (Kang, 2006). The government expanded the highways to boost domestic market demand as an answer to the overcapacity of the *Chaebols* such as Hyundai, Kia, and Daewoo. The crony capitalism between the state and the *Chaebols* since the time of the Park administration has became typical in the rent-seeking relationships that tie the two together, in which political funds are traded for economic favors. The military junta also made clear that since they held the banks in their hands, it was easy for them to regulate

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61 At that time, the objectives of Korean and Japanese industrial policy were different in that Japan desired to catch up the advanced countries' economies, while Korea hoped to surpass North Korea's lead in industrialization (Harvie & Lee, 2003).

62 In the midst of the 1997 financial crisis, the US auto maker General Motors absorbed the Daewoo Group. Since then it has been named GM Daewoo.

the *Chaebols*. The military authoritarianism of the Park regime became the impetus to initiate the Korean-style "developmental state" model through the so-called "state-bank-*Chaebol* nexus."

Industrial modernization mixed with Park's economic interventionism deeply wounded both urban and rural life in Korea. For instance, in the metropolitan areas, concrete multi-dwelling units and high-rise apartment complexes began replacing green zones and inflated the price of housing rapidly by unleashing speculation in the market,[63] while in the rural areas from 1970 onward the *Saemaul Undong* ("new community movement") swept across farming villages in the name of modernizing and enhancing the lives of farmers. The village restructuring project initiated by the military junta rapidly "modernized" rural areas through village relocation and redevelopment up into the mid-80s. What the regime actually contributed to the movement was 800 free bags of cement in 1971 and 1972,[64] along with an indoctrination of villagers with ascetic ideals such as diligence, austerity, thrift, and mutual cooperation. As a typical side effect of industrialization, a rural exodus caused massive depopulation, leaving households behind in the villages. The *Saemaul Undong* was in fact accomplished by the labor of elderly villagers and by their own financial contributions, rather than by the government's investment: For this project, the farmers were responsible for 70% to 80% of the total amount of financial investment between 1972 and 1978 (Moon, 1991), and the average

63 The construction market in Korea was, and is, dominated by five main construction and engineering firms which are subsidiaries of *Chaebols* (Samsung, Daewoo, Posco, Hyundai, and Kumho) and which also dominate the private participation in infrastructure (PPI) projects (Noumba UM & Dinghem, 2004).

debt per farm household was approximately US $ 3,500 by 1988 (Lie, 1991). Every household in rural areas has been in debt since then, still paying the price for obtaining modern amenities such as electricity, telephony, and cement-roofed housing.

The *Saemaul Undong* did contribute to renovating the poor conditions of land use in such aspects as irrigation, farm feeder roads, small bridges, and farm equipment. In urban areas, high-rise apartments lowered the cost of installing electric and telephone lines, and electrical and communication infrastructure was expanded in both urban and rural areas under the Park regime: Telephone facilities were expanded from 120,000 lines in 1961 to 1.7 million nationwide in 1977 (Kim, 1993). Owing to the housing renewal project, by 1982, rural electrification and the installation of a telephone system were almost completed (Moon, 1991). Nevertheless, the modernization programs directed by the military junta destroyed the traditional and nature-friendly living environment in South Korea: Under the rubric of "sanitation," roads paved in concrete or mortar and houses roofed in slate or cement replaced the "pre-modern" country lanes and traditional gray, straw-thatched roofs of farmhouses, leaving the countryside faded and desolate. As the expansion of electric and communication networks modernized the living conditions of villagers it also created new consumer demand for home appliances such as TV sets, refrigerators, electric cookers, and electric irons, as well as an increase of telephony subscription, in rural areas. The rural demand played a significant role in increasing the consumption of electric products supplied by *Chaebols* such as Samsung, Daewoo, and

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64 The Saemaul Undong was initiated by the so-called "Cement Project" spearheaded by the military regime, which provided all 33,267 villages with 335 cement bags during the winter of 1970–71 and an

LG, which from the early 80s onward succeeded in launching an electric home appliance business not only domestically but also internationally, well beyond their successes in the heavy, chemical, and shipbuilding industries during the 1970s. Nevertheless, up into the 80s and even the early 90s, the Korean economy was based on a labor-intensive economy, far behind from the technology-intensive economies of the advanced countries. As shown in Table 6.1, despite Park's industrial modernization project, high-tech products accounted for less than 3% out of Korea's total exports in the mid-80s.

Table 6.1. Export shares of technology-intensive products (%)

Country	1965	1975	1984
France	7.3	8.4	7.7
Germany	16.9	16.8	14.5
Japan	7.3	11.6	20.2
Korea	0.0	0.5	2.9
United States	27.5	24.5	25.2

Source: Leipziger & Petri (1993: 11)

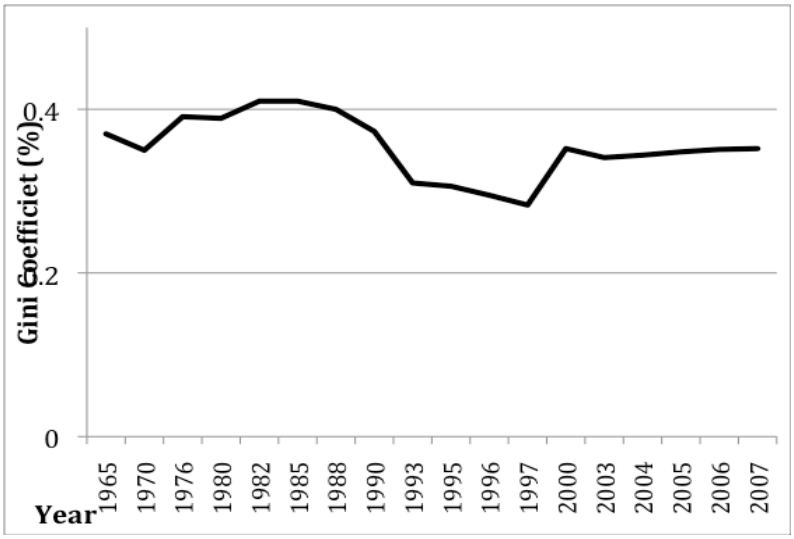
The Park administration thus became an archetype of the developmental state which successfully accomplished industrial modernization in the shortest time. The Park regime was based on a strong repressive state, the state's dominance over the private sector, and growth-oriented interventionism involving labor exploitation and suppression.[65] As

additional 500 bags in 1972 (Moon, 1991).

65 As an example of how Korea's political-bureaucratic elites maintained their dominant power over the interests of big business, Johnson (1987: 157) describes the establishment of the Korean Central Intelligence Agency (KCIA), which was founded as an independent government agency, originally built around a 3,000-man cadre from the existing Army Counter-Intelligence Corps, which had expanded to some 370,000 employees by 1964. The KCIA's original mission focused on counter-communist activities and fighting military corruption. Under the military regimes, the KCIA was used as a domestic surveillance

regards of the control of labor, for instance, the Park regime established a "ghost" national labor union, the so-called Federation of Korea Trade Unions, in order to moderate local union demands, prohibit any potential labor disputes, and discipline recalcitrant workers (Han & Ling, 1998). Further, comparisons of the Gini coefficient[66] of inequality for income between 1965 and 2007 in Figure 5.7 can be viewed with skepticism: The Gini coefficient value of over .40 signifies that income inequality is very significant nationwide, and the Figure 6.1 shows that, during the period of industrial modernization under the Park regime, the Gini values reached over .40, even though it has fallen below .40 (average of .35) since the early 90s.

Figure 6.1. Income inequality in Korea, 1965–2007



Source: Data from Leipziger, et al. (1992) from 1965 to 1988, and from the National Statistical Office (2008) from 1990 onward.

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and spying agency to collect, analyze, and monitor intelligence data on businesses and the citizenry. The intelligence agency enabled the development of a "Big brother"-type disciplinary society which monitored not only any citizen critical of the government but also overall business activities.

66 The Gini coefficient is a measure of income inequality, with a higher value indicating greater inequality The Gini coefficient ranges from 0.0 (perfect equality) to 1.0 (perfect inequality, that is, all income accrues to one household) (Leipziger, et al., [1992]).

This income inequality level of the Gini coefficient around .35 is a phenomenon that prevails in most capitalist societies. Nevertheless, Korea shows Gini coefficient values in gross personal wealth (.62), and real assets (.64) including housing, are double that of income (.35) as of 2006 (National Statistical Office, 2008). These high indicators of inequality reveal the cumulative effects of developmentalism through a number of the national construction and urban planning projects since the Park regime.

Even after Park's assassination in 1979 by his intelligence chief, the military-backed interventionism in the market by the administration of General Doo-hwan Chun, who once again came to power in a military coup, was extensive until the 1987 pro-democracy movement forced him to introduce a direct presidential voting system. After taking power, Chun appointed technocrats who had earned doctoral degrees in economics in the US and were known as followers of the neoliberal Milton Friedman (Kim, 1999). This hardly means, however, that the Chun administration whole-heartedly embraced *laissez-faire* economics. Despite being somewhat influenced by the global trend of neoliberalism promoted from the early 1980s onwards by Reagan in the US and Thatcher in Britain, Chun still intervened directly in the market.

Chun always saw Cheong-hee Park as his role model, and his regime was the embodiment of the strong, repressive state. For instance, under the Chun administration, "labor-management councils" were mandated for all enterprises, effectively destroying autonomous union activities (Han & Ling, 1998). Korean corporations' strategies to weaken workers' militant temper have ranged the gamut from dirty tricks such as detention, verbal abuse, and demotion all the way to the use of the latest computerized

surveillance devices. By dividing workers into spatial, gender, educational, and occupational strata, both the government and the private sector have joined to manage them, "who should be trained like lambs," according to a Confucian managerial ideology (Lie, 2006). Furthermore, in December of 1980, to silence voices critical to his regime, Chun enacted the Basic Press Act[67] and forcefully conducted the *eonron-tongpaehap*, the "compulsory reform of the media." Chun commanded KBS, the state-owned broadcaster, to absorb the TBC television network, which was owned by Samsung Corp. He also ordered the pro-government newspaper, *Kyonghyang Shinmun*, to absorb *Shin-A Ilbo*, a daily newspaper, and forced at least six local newspapers to close their business permanently. Over 700 journalists were dismissed from their jobs and the remaining newspapers were subjected to a high degree of government control (Billet, 1990). As another example of his use of state power against the *Chaebols*, in 1985 Chun dismantled the seventh largest conglomerate in the nation, the Kookjae group, which had around 200 subsidiaries at that time, merely because it refused to donate "political funds" (protection money, in essence). This example shows that regime had the power to punish the *Chaebols* for the slightest disobedience, and also illustrates the rent-seeking relations between the ruling junta and the business elites.

Since the changing political climate brought about by the democratization

67 The Basic Press Act of 1980, the legal cornerstone of General Chun's media censorship and control, was the successor to the Standards for Implementation of the Press Policy of 1962, a decree formulated and enforced by Park's Military Revolutionary Council. The Basic Press Act, like its predecessor, prescribes standards for publication facilities, and in effect functions as a regulatory force, limiting the growth of existing newspapers as well as the entry of new papers without a solid financial basis (Youm, 1986). The Act was repealed in November 1987 and replaced by the Act on Registration of Periodicals and the Broadcast Act (Youm & Salwen, 1990).

movement of 1987, the public began to critique the symbiosis between the government and the *Chaebols*. The domestic conglomerates themselves began to demand a market economy free from the government's direct intervention (Ko, 2001). Due to the rapid growth of the *Chaebols* and the rising political pressure from below, the government could not wield absolute power over the private sector any more. During the presidency of Tae-Woo Noh (1988–93), Chun's designated successor, the technocrats chose a *via media* approach between direct interventionism and deregulation, one in which the *Chaebols* were supported by being granted lucrative business licenses, special loans and other financial benefits from government agencies, and contracts to build the national infrastructure to promote market efficiencies. For instance, in 1992 the Noh administration licensed SK (Sunkyong), the sixth largest *Chaebol* in the nation, as the cellular phone provider over the other more competitive bidders because the son of SK's owner was married to President Noh's daughter (*Mobile Phone News*, 1992, September 12; Ko, 2001). Although the license was ultimately withdrawn due to the public's growing antipathy, the case was a typical example of Korea's crony capitalism.

6.2.2. The era of big capital's ascendancy over the state

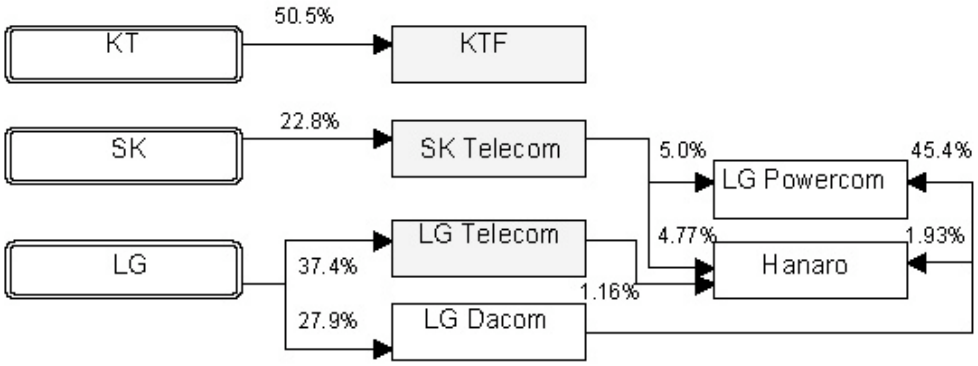
Throughout the period of rapid IT growth owing to the state-led IT policies and initiatives, the civilian governments have continued and in some ways even expanded a crony relationship with the *Chaebols*, which have grown since the Park's regime through the state's financial sponsorship, exclusive grants of business licenses, and selection of

major actors in a newly emerging economy. Under the administration of Young-Sam Kim (1993–1998), the first democratically elected president, the government endorsed the Federation of Korean Industries (FKI), an organization largely representing the *Chaebols*' interests, to select the assignees for the telecom licenses during the telecom reform of 1993. In 1995 the government allowed the *Chaebols* to enter the media and IT industry by granting them profitable new licenses for cable television services (Shim, 2002). The *Chaebols* became the largest recipients of the lucrative profits stemming from the state's permission to launch new business in the telecom and media sector.

Responding to the shift of the world economy into the digital mode of production, the *Chaebols* began to abandon exports of low and medium-low technology products in order to create new profitable sources from the high-tech industry, while adjusting their activities to cooperate with the government's IT policy plans. This foray by the *Chaebols* into the new IT sector represented the creation of the so-called "*e-Chaebols*" (Chang, 2003): In the broadband Internet service market (the KII-P), KT is the national incumbent with a 50% market share, and LG's subsidiaries LG Dacom and LG Powercomm together comprise a second ranked provider with a market share of 14%, as of 2007, even though several small service providers have now entered into that market (NIA, 2007). The *Chaebols* have also extended their market dominance into the new mobile telecom service business where they are the dominant vendors of cell phones. Moreover, technological convergence in the mobile telephony market has legitimated the deregulation of the domestic mobile telecom market in such a way as to further extend the *Chaebol*-owned mobile network operators' dominance into other broadband

communications and multimedia content services through acquiring stocks in younger companies (see Figure 6.2): SK Telecom, a subsidiary of Sunkyong, now dominates over half of the Korean mobile telecom market, while KTF, a subsidiary of KT, has a market share of 32% and LG Telecom of about 17% (*Electronic Times*, 2006, December). The mobile telephony market is "the goose that lays the golden eggs" for the Korean government and industrial conglomerates. The Korean government rapidly created a profitable new market for the *Chaebol*-owned mobile network providers. In other words, the government created the new market — or rather, they structured a new market in such a way that only the *Chaebols* could benefit from it.

Figure 6.2. The *Chaebols*' entrance into the domestic telecom service market



Unit: Stock shares (%)
Source: Data from the company' websites (as of December 2006)

Owing to their privileged position in the domestic market, the *Chaebols*, especially Samsung and LG, were enabled to expand into a variety of other IT sectors, such as their global sales of mobile handsets, flat panel displays, and semiconductors. For

instance, as of 2001, Korea's share of the global semiconductor market was 5.7%, but its market share of dynamic random access memory (DRAM) chips totaled 41.5%, with 27% going to Samsung and 14.5% to Hynix (formerly known as Hyundai Electronics); Samsung and Hynix were ranked in the first and the third, respectively, among global producers of DRAM chips. As of 2000, Samsung Electronics and LG Philips LCD (a joint venture of the *Chaebol* LG and the Dutch company Philips) were ranked first and second, respectively, in the market for large-size TFT-LCD screens, with a combined market share of 32% (Hong, et al., 2004). As of February 2007, the Korean production of mobile handsets and system facilities makes up almost 30% of the global market share and accounts for about US $17 billion of exports (among global mobile handset manufacturers, Samsung Electronics is currently ranked third and LG Electronics, fifth). The export of mobile handsets alone is about 10% of total national exports (NIA, 2007). The typically duopolistic structure of the *Chaebols* can be observed in the equipment market for broadband Internet network, where ADSL hardware and modem production is dominated by LG Electronics and Samsung (Jeon & Bae, 2007).

The state's crony relationship with the *Chaebols*, while it has produced dramatic economic growth, has also produced negative effects on many economic actors. The IT industry is capital-intensive and R&D-intensive, compared to other low and medium-low technology sectors. As with the export-oriented policies under the military regimes, the civilian government has strategically favored the large conglomerates both for building a new economy and for enhancing the export of high-tech products. By doing so, they have put Korea's small and medium enterprises (SMEs) in IT manufacturing far behind the

Chaebols: the employment share of SMEs in IT manufacturing is 41.0%, while their share in the non-IT sector is still very high at 77.9%. The value-added share of SMEs in IT manufacturing is only 14.5%, while it is 58.3% in the non-IT sector. In other words, SMEs obtain their revenues from the medium-low technology products and also have a very low level of productivity in IT manufacturing. Meanwhile, the largest five *Chaebols* contributed to one-half of Korea's GDP as well as one-half of all exports in 2001 (Campbell II & Keys, 2002).

The situation under the civilian governments has not been much different from the disciplinary control of workers under the military regime. According to a survey requested by the Joint Committee to End Surveillance of Workers (Hangil Research and Consulting, 2003), almost 90% out of a random sample of 207 Korean workplaces had monitored workers with a variety of surveillance devices including web log-files, email programs and computer hard drives, telephone conversation recordings, closed-circuit television (CCTV) camera systems, electronic ID cards for gate passes, and the Enterprise Resource Planning (ERP) system.[68] In this survey, Korean workers expressed increasing anxiety about the conditions of workers burdened by the installation of refined surveillance devices for labor control and complained about such reactionary effects of surveillance as weakening the unionized actions of workers, intensifying the labor load, making job status more unstable, and increasing managers' abuse of power.

68 The enterprise resource planning (ERP) system has been rapidly introduced to control activities in many institutions, such as hospitals, in Korea. The ERP system refers to managing and integrating logistics, accounting, and human resources by means of concentrated database system software. Head (2003) describes the ERP system as a digital control mode of the new ruthless economy similar to the industrial assembly line in that it allows managers to manage workers' activities in as much detail as they want.

Table 6.2. The rate of unionization in OECD countries, 1970–2000

Country	1970	1980	1990	2000	Bargaining coverage rate
Australia	44	48	40	25	80
Belgium	41	54	54	56	90
Canada	32	35	33	28	34
Denmark	60	79	75	74	69
Finland	51	69	72	76	95
France	22	18	10	10	95
Germany	32	35	31	25	73
Japan	35	31	25	21	20
Korea, Rep of	13 (20)	15 (21)	17 (18.4)	11	14
Mexico	-	-	43	18	n/a
Portugal	-	61	32	24	80+
United Kingdom	45	51	39	31	36
United States	27	22	15	13	15
OECD Average	42	47	42	34	60

Source: OECD (2003), Visser (2003), Kong (2000: 97), and for Korea, Shin (2006, March 25), followed in parentheses by figures from the Yearbook of Labor Statistics (Ministry of Labor, 1991), which are thought to be inflated.

As evidence of the poor labor conditions in Korea, Table 6.2 shows that Korea has the lowest rate of unionization among the OECD countries from 1970 to 2000, even when viewed in the context of the worldwide decline in the rate of unionization. As regards the bargaining power of the workers, at 14% Korea also has the lowest rate in the Table 5.2.

In the mid-90s, the domestic *Chaebols* also expanded their scope into the global market through building subsidiaries and investing the capital. Further, the *Chaebols* borrowed low-interest foreign loans — as of 1996, the average debt ratio of the 30 top conglomerates reached 450% — without screening by the government. The *Chaebols*' dependence on foreign financial capital accelerated the 1997 economic crisis due to volatile foreign hedge funds, speculative capital, and international lending. Under the pressure of the WTO Agreement on Basic Telecommunications and the IMF bailout program — in which Korea obtained US $58 billion of emergency loans — the Kim Dae-

Jung administration (1998–2003) privatized KT, the state-owned telecom incumbent, and fully opened the domestic banking, media, and telecom market, among others, to foreign investors.[69]

The government's dominance over the *Chaebols* has gradually waned, while the larger *Chaebols* have accumulated even more power as the medium-sized ones have declined or been absorbed.[70] President Moo-hyun Roh (2003–08) confessed the state was losing its power to regulate the *Chaebols* when he commented, "We have already entered into the age of big capital having the upper hand over the state" (Kim, 2005, May 16). The Samsung bribery scandal provides an illustration of how widespread the *Chaebols* power may be: in January of 2008, at the insistence of civil rights groups, the Roh administration launched an investigation of Samsung centered on whether it had amassed slush funds, peddled influence by routinely bribing government officials, the media, and members of the judiciary, and engaged in shady stock deals to pass control of the group from its chairman, Kun-hee Lee, to his only son. Courageous whistle-blower Yong-cheol Kim, the former head of Samsung's legal affairs team, joined by members of the Catholic Priests Association for Justice, told a radio station that "the list of bribe-takers includes not just top prosecutors and ministers in the Roh administration, but also people recently nominated or mentioned as possible members of the cabinet or high-ranking staff

69 In the aftermath of 1997, a discourse about *oeja yuchi* ("the enticement of foreign capital") has dominated Korean society as it seeks to recover from the recession (Lim & Jang, 2006). This discourse was used to legitimize the full-fledged opening of the domestic market to foreign investors.

70 Since the 1997 financial crisis, the concentration of power in the hands of the larger *Chaebols* was accelerated by such events as the collapse of the Daewoo Group, the divestiture of the Hyundai Group, the change of the LG Group into a holding company, and foreign investors' takeover attempt of SK and KT&G (Lee, 2006).

members of the Blue House [the Korean White House]" (*Korea Times*, 2008, January 10). The public, therefore, is skeptical that the "Republic of Samsung" can truly be brought to justice considering the extent of Samsung's power in Korean society (*Asia Sentinel*, 2008, March 2).[71] This scandal reveals that the parasitic bond between corrupt state bureaucrats and monopoly capitalists is still very much alive even under a politically progressive administration and that the balance of power has rapidly shifted towards the latter since 1997 financial crisis.

In sum, Korea's democratic turmoil in 1987 began the momentum to weaken the absolute power the state had enjoyed since 1963, while the 1997 financial crisis under the civilian government remarkably enhanced the *Chaebols*' power through their alliance with foreign capital; once dominated by the state, it is the *Chaebols* that now dominate it. In responding to shifting external and internal factors, the evolving relationship between the state and the conglomerates has transformed the developmental state model from that

71 In the financial crisis of 1997, when the IMF forced the Korean market to follow its structural adjustment program, many Korean mega-conglomerates collapsed in the re-structuring of the domestic economy that ensued, but Samsung seized its opportunity and jumped into first place in the domestic market. The different divisions of Samsung are now a set of huge monopolies, and the corporation as a whole ranks as number one among Korea's ruling conglomerates, accounting for one-fifth of the country's exports. Samsung Corporation encompasses almost every profitable industry under its business logo (Samsung Group, 2006): Samsung Electronics, Samsung SDI, and Renault Samsung Motors, as well as Samsung Securities, Life Insurance, Credit Card, Heavy Industries, Engineering, Everland Theme Park, Advertising, Petrochemicals, Shopping, Cable Channels, and so forth. Samsung's rapid capital accumulation has been made possible by its omnipresent power in the Korean economy and society — described by such common terms as "Samsung's way" and "the Republic of Samsung" — and by its collaboration with the state in controlling the labor market. While Samsung contributed significantly to promoting Korea's national economy in the global market, its dominant market power, with a total of 62 subsidiaries and a sales record of US $1.39 trillion, as of April 2005 (Samsung Group, 2006), makes it a pervasive and overwhelming force in both the Korean economy and Korean society.

of the strong and repressive state through that of a limited or flexible state to that of the market-driven state.

The state's symbiosis with the *Chaebols* signifies the retrogressive aspects of the Korean economy even in the era of the new economy. Castells (2000a: 190–205) describes the Korean *Chaebols* as far more "hierarchical, authoritarian, and patrilineal" than the Japanese *keiretsu* and the Taiwanese *guanxiqiye* networks,[72] because, in addition to being controlled by a central holding company owned by an individual and his family, the Korean *Chaebols*' rapid development was enabled by an anti-labor business climate and the denial of SMEs' entry into new markets.

6.3. THE KII PROJECT AS A LEGACY OF THE DEVELOPMENTAL STATE MODEL

The close relationship between the state and economic conglomerates in Korea has often been termed *jeongkyong yuchak* ("the symbiosis of two entities"), which has a negative connotation.[73] In this symbiosis, the government granted moneymaking licenses to, and invested public funds in, the largest conglomerates, and in return the *Chaebols* donated large sums to political slush funds. A unique mechanism of the developmental state is to transcend simple rent-seeking links between the two dominant elites and to

72 In other Asian countries, business groups guided by a single entrepreneur have been dominant, similar to the Korean *Chaebols*, which historically were inspired by the Japanese *zaibatsu* (ざいばつ, large family-controlled monopolies which were dismantled in the late 1940s); in contemporary Japan, the *keiretsu* (系列) is a business group vertically integrated through majority and minority holdings, while the *kigyoshudan* (企業集団) is a business group horizontally aligned through reciprocal shareholdings (Scott, 1991; Castells, 2000a: 190). The *kigyoshudan* resembles the Chinese *guanxiqiye* (關係業, "related enterprises") found in Singapore and Taiwan (Guillén, 2000).

transform their symbiosis into a mechanism for economic growth. Although developmentalism, promoted under the slogan of national modernization, conceals such chronic problems as an unethical business culture, power elitism, cronyism, corruption, corporate suppression of labor, deep class divisions, and the public's exclusion from the decision-making process, nevertheless, the unethical mechanisms of *jeongkyong yuchak* have been a driving force for economic growth, curbing the excessive penetration of foreign capital and enhancing the market competitiveness of domestic conglomerates.

Many scholars have explored the transformations of state–business relationships in Korea, focusing on cross-regime variations in economic development, specifically, the shifting balance of power between the two. Analyses of Korean state–business relations include a shift "from dominance to symbiosis" (Kim, 1988); "governed interdependence" (Weiss, 1988); a "pragmatic mix of government guidance with private initiative" (Jeon, 1994); the "patron-client relation" (Nam, 1994); a shift from "the stern but stable state-directed symbiotic partnership to a more unruly and erratic partnership" (Moon, 1994); "embedded autonomy" (Evans, 1995); "public-private reciprocity" (Fields, 1997); the shift from the developmental state to the "post-developmental" or "market-driven state" (Kim, 1999; 2005); "path dependency" (Jang, 2000); the "state production of oligopolistic capitalism" (Castells, 2000b); an "eclecticism beyond orthodoxies" (Clark, 2002; Clark & Jung, 2004); a "state–*Chaebol* alliance based on a more populist social contract" (Hundt, 2005); a "transformative state in which the state acted as senior partner

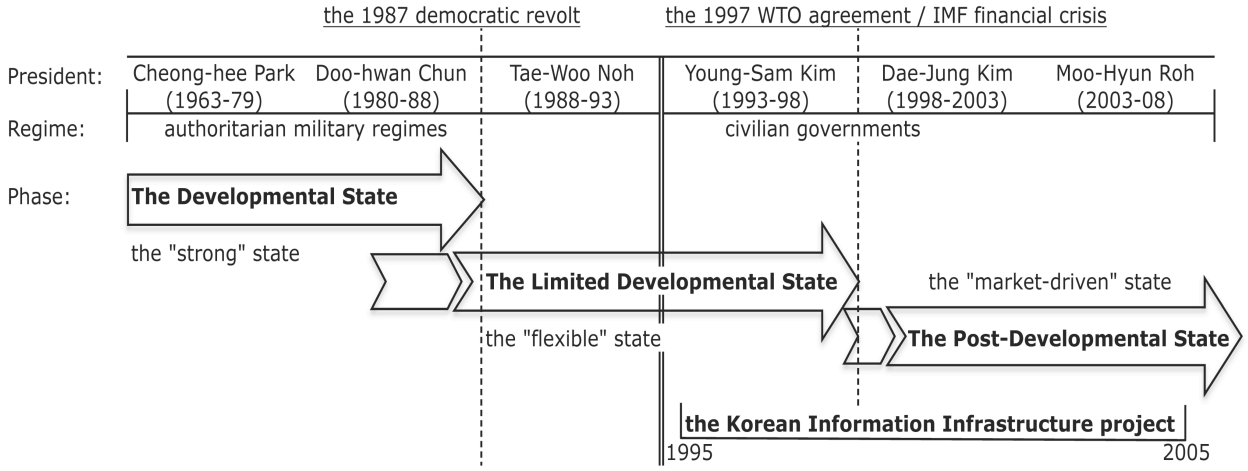
73 In addition to *jeongkyong yuchak*, under Park's junta, the term *gwanchi gyeongjae*, or "state-controlled economy," was commonly used to denounce the military elites' intervention in the market.

rather than commander-in-chief" (Cherry, 2005); and the demise of "Korea, Inc." (the state–banks–*Chaebols* complex) and the rise of "neoliberal consensus" (the coalition of *Chaebols*, technocrats, politicians, economic experts, and NGOs) (Lim & Jang, 2006; Lee & Han, 2006).

Despite their slightly different foci and analyses, most studies note the major contextual factors weakening the state's power, such as the growing *Chaebol*-dominated economy, increasing democratization, and global pressures for liberalization. They also agree that the Korean state's *modus operandi* has changed considerably from the military regimes to the civilian governments. Some of the studies (e.g., Kim, 1999, 2005; Lim & Jang, 2006; Lee & Han, 2006) further subdivide their analyses into periods marked by such historical events as the citizens' uprising of 1987 and the IMF financial crisis of 1997. Some scholars (e.g., Jeon, 1994; Nam, 1994) describe the shifts in the state–*Chaebol* relationship as if the older relationship has been completely annulled by the new. The present study, in contrast, sees the state-business linkages as transformative and continuously evolving, while retaining embedded traces of the past. As shown in Figure 6.3, the KII project, which extended from 1995 to 2005, was accomplished during Korea's evolution from a limited or flexible development state to a market-driven or post-development state. These phases of evolution are quite distant from the strong state model exemplified by the first two military regimes (those of Park and Chun). Initiated during the flexible state phase, the KII project involved coordinate state–business relationships which were maintained through continuous negotiation processes carried out by a series of intermediary committees. Nevertheless, the entire project was initiated,

developed, and guided by the state — a situation which would be difficult, if not impossible, to replicate in Korea's present post-developmental state phase of evolution. In other words, an explanation of the KII's success requires consideration of the "*Chaebol-governance* process and the political institutional arrangements for the state-firm relationship based on the 'politics of reciprocal subsidy'" (Mansell & When, 1998: 123, italics in original).

Figure 6.3. The evolving phases of the developmental state and the KII project



Source: compiled by the author

6.4. THE CLOSE STATE–BUSINESS LINKAGES THROUGHOUT THE KII PROJECT

The major goal of Young-Sam Kim's administration was to shift Korea away from its export-centered economy, which had been the major mechanism of market productivity under the military regimes, and search out a new source of profits for the

domestic conglomerates. Kim favored the affiliation of Korea with the global economy and regarded the KII as a powerful engine to drive the nation's economic structure towards the knowledge-based economy. By interconnecting government agencies and public institutions with high-speed broadband networks, he sought to upgrade the nation's infrastructure and expand its capacities to create a new IT-driven market. In 1994, the Kim administration announced the broad master plan for the KII and launched the Ministry of Information and Communication (MIC), which absorbed the major IT-related administrative functions from other ministries. In 1995, the government also issued the "Framework Act on Informatization Promotion" (FAIP, Act No. 4969) which included the legal provisions for conducting the KII policy plan which set forth the R&D goals to be met, provided the funding for the long-term IT project, and established the top decision-making committee and its subsidiary bodies.

The KII project has been highly praised as a successful policy experiment by government officials, policymakers, scholars, and journalists from foreign countries, who focus on Korea's attainment of "broadband heaven" through vigorous state leadership and corporate cooperation (see Chapter 5.2). Few, however, have examined the inner mechanisms of the KII project's success such as the state-led funding structure, the special steering and intermediate committees, and the consensual dynamics of IT discourse. This section investigates the mechanisms that made the eleven-year state-led project viable, and examines how the state-business linkages have became more flexible and less consistent since the demise of the strong, repressive state.

6.4.1. Taming the telecom incumbents with the carrot, not the stick

Information infrastructure projects such as the KII are typically burdensome to the private sector, and corporations are therefore usually less than enthusiastic about such plans, which involve massive, long-term investment, high risk, and uncertain returns. To involve Korean Telecom (KT) and Dacom in the KII project, the Kim administration offered a variety of enticements: preferential tax treatment, the granting of new licenses, and investment loans underwritten by the government. As one manager of KT's Network Engineering Department noted, KT, the domestic telecom incumbent, "was relatively favorable to the government, which was its dominant stockholder until KT was completely privatized [in 2002]" (Kang, 2007, June 5). The government had also allowed Dacom to acquire licenses for international and long-distance telephony services during the national telecom restructurings of 1990 and 1994, respectively, which were initiated for the purpose of curbing the international pressure for telecom market liberalization, and Dacom had rapidly emerged as the second largest telecom company in Korea. As a result, the government was able to gain the cooperation of the two telecom incumbents without any great conflict. A deputy director of LG Dacom described the situation this way:

> The KII project was very supportive for the private partners in that the government minimized our business risk by its public investment. At that time nobody dared to invest the enormous funds for it; through the public funding, Dacom was able to leapfrog ahead by facilitating the nationwide optical networks. The contribution from public investment was highly significant. (Song, 2007, May 29)

A manager of KT's Network Investment Planning Department also agreed on the effect

of the state-sponsored investment:

> It is obvious that the state-led "investment first, construction next" policy plan gave KT and Dacom the incentive to participate in the KII project without a great business risk, and also minimized the potential friction between the government and us throughout the project. In those days, KT, as the first partner in the government project, benefited from the immense state-led investment that allowed us to expand the optical networks. (Kim, 2007, June 1)

The "investment first, construction next" principle was the telecom companies' major incentive to join in the KII project, allowing them to minimize their investment risk and cost at the earlier stage of the project. KT and Dacom also regarded the huge project as a chance to upgrade their copper lines to high-speed fiber optic networks.

In the building of the backbone networks connecting the public agencies and institutions — the so-called KII-G — KT was allotted a 70% share and Dacom a 30% share. The KII-public (KII-P) was independently built as a commercial network through the budget of the telecom companies themselves, and the KII-testbed (KII-T), the optimal high speed R&D network, was built by the public-private partnership. For the KII-G, its most important backbone network, the government invested a total of US $6.2 billion over the three phases. At the beginning, the government as the major stakeholder aimed to own the backbone network directly and grant the telecom companies a 25-year lease to it. The government — specifically, the MIC as funding distributor and the National Computerization Agency (NCA, now the National Information Society Agency) as funding manager and coordinator — also pressured the telecom operators to apply an 80% or 90% discount to the proposed online service charges for public agencies that would become subscribers in September of 1997. As Che-Hyun Jo, the Deputy Director

of Dacom and one of the key actors in the KII-G project, noted in his official interview with the NCA (2005), the discount rate requested by the government was burdensome, and the mood became very dark within the telecom companies. The sensitive issues of the KII-G network ownership and service charges triggered critical conflicts between the government and the private sector (MIC & NCA, 2006: 130). In addition, the Board of Audit and Inspection's questioning of the MIC's funding method for installing the optical lines in 1996 jeopardized the completion of the project itself (131).

This crisis at the early stages of the project (1995–1997) finally caused the MIC to change the subscriber costs and ownership structure: It decided to transfer ownership of the fiber-optic backbone lines to KT and Dacom and to establish a joint public-private sector KII fund (a so-called "bilateral netting account") out of which the KII-G would be built and out of which the government would subsidize 40% of the service charge for subscribers in government agencies and public institutions. In return, the two telecom companies agreed to reimburse the joint fund a portion of their profits year by year until their government loans were paid off, and to offer a 40% discount rate to KII-G subscribers. As an interviewee who was an official at the NCA, which managed the cost system between two entities, commented, the new cost mechanisms for the KII-G enabled by the government subsidies led to a breakthrough in the conflicts between the government and the private sector (Rha, 2007, May 28). Further, since a 40% discount and a 40% government subsidy was applied to the service charges, government agencies and public institutions were able to receive broadband Internet for 20% of the actual cost, and institutional users grew rapidly — from 2,184 subscriber lines in 1996 to 30,137 lines

in 1998 (Lee, et al., 2007). Once a critical mass of subscribers had been reached, the government was able to complete the KII-G phase of the project without further difficulty; the KII-G recorded the highest growth rate (789%) of subscribers in 1997, as compared in 1996, the first year of service, and the growth rate then stabilized to an average rate of 20% growth annually from 1998 to 2005. As of September 2005, 32,000 public agencies and institutions are subscribers to the KII-G (MIC & NCA, 2006).

The increase in subscribers from public institutions and agencies brought a more stable flow of profits to the telecom companies, and this, in turn, furthered the development of the KII-P, the commercial network. At this point, the government could not overtly intervene in guiding the KII-P because of external pressures brought to bear on the government. As an official of the NCA (now the NIA) describes it,

> In the mid-90s, the government had no choice but to leave the KII-P's development in the hands of the private sector. Under strong global pressure to liberalize the telecom market, the government could not intervene in the market or lead the KII-P directly, but could only recommend the government's roadmap to the private sector. Otherwise, it might cause serious friction in US–Korea trade relations. (Jeong, 2007, June 5)

Despite this, since 1997 the government has successfully stimulated private investment in the local loop and facility-based competition by introducing the so-called "cyber-building certificate program" into the KII-P. Through this certificate program, apartments and buildings were ranked according to their capacity to handle high-speed Internet. As a public official who worked for the KII project pointed out, because South Korea's population is largely located in a few large urban areas and because most residents live in

large apartment buildings, the MIC's facility-based Internet promotion policy was effective in expanding the penetration of high-speed Internet service into the general public. He added that, in the early stages of this program, the certificate system also allowed construction companies to raise the mortgage price on new government-certified "Internet-ready" apartments (Moon, 2007, June 7). The demand created through the indirect promotion of broadband Internet assured the telecom companies and the construction companies — the latter of which were mostly owned by the *Chaebols* — a steady stream of new customers. Further, since 2001 the Ministry of Construction and Transportation (MCT) has required that all new apartments or multi-dwelling units have broadband Internet connections (Falch, 2007; Lee & Chan-Olmsted, 2004).

Most of my interviewees, who were directly involved in implementing the KII project, agreed that the KII-G was the significant factor in the KII-P's development and furthered network-based economic growth. As Yeong-Ro Lee, executive director of the NIA, noted,

> In the 90s, the Korean economy was competing in very few areas of the world market, such as shipbuilding and microchips; due to the KII project, it is now ranked first in the telecom service market for the first time. It would have been impossible without the construction of the KII to reach the current state where IT represents 30%, of foreign exports. In my personal view, the industrial repercussions of the KII go well beyond our imagination. Think about these: the world-class digital services such as Internet banking, "CyWorld" [a popular Korean web-community site], and web portal service are all products of the KII project. (Lee, 2007, June 7)

A Deputy Director of LG Dacom described the "spillover effect" of the KII-G (the public network) to the KII-P (the commercial network) this way:

> Although the two projects [KII-G and the KII-P] were separately operated, each is closely related to the other in the way in which the KII-P has been developed on the basis of the electronic network built by the KII-G. Dacom's broadband transmission lines for commercial users "technically" overlap those [of the public network], even though the two networks are "logically" separated. (Song, 2007, May 29)

A manager of KT also agreed on the infrastructure effect of the state-sponsored investment:

> It is obvious that a part of the backbone networks was used for the commercial network. Both overlap in some ways. In that sense, the KII-G contributed [to the development of the KII-P] to some degree. (Kim, 2007, June 1)

The two interviewees from the facility-based telecom service providers (KT and Dacom) directly involved in constructing the KII consider the commercial network to be underpinned by the KII-G's optical lines, which were mostly supported by the government's prior investment. Further, open access to the already-built cable and high-speed optical networks and the competition between various forms of service within the KII-P are influential factors that enhance commercial networks. The broadband open access to commercial broadband networks (through a regulatory process known as "Local Loop Unbundling," or LLU) allows any carrier to provide service over networks such as cable. For this reason new entrants into the market, such as Hanaro Telecom, Thrunet, Dreamline, Onse Telecom, and other private vendors, can provide service nationwide and using multiple technologies, even if they have no physical network presence in the area

(see Table 6.3). For instance, a carrier such as Hanaro has open access to KT's broadband network as well as to Thrunet's extensive cable network (ITU, 2005, April).

Table 6.3. Broadband Internet service providers and their subscribers in Korea

Provider	2002	2003	2004	2005	2006	June 2007					
						Total	xDSL	HFC	LAN	FTTH	Satellite
KT	4,992,395	5,589,058	6,077,694	6,241,789	6,352,542	6,522,631	4,267,828	-	1,869,480	384,211	1,112
Hanaro Telecom	2,872,351	2,725,563	2,748,934	2,773,213	3,612,749	3,678,403	505,153	2,028,043	996,930	148,277	0
Thrunet	1,301,620	1,293,364	1,287,916	836,625	-	-	-	-	-	-	-
Dreamline	169,529	149,598	133,927	99,723	28,370	4,576	330	1,751	2,495	-	-
Value-added carrier	367,135	619,103	857,026	1,154,506	-	-	-	-	-	-	-
Non-facility based carrier	174, 012	177,047	218,456	256,666	179,621	175,972	32,909	-	143,063	-	-
LG Dacom	146,336	201,704	206,197	213,272	111,905	86,844	3,902	24,986	58,056	-	-
LG Powercom	-	-	-	261,916	1,204,293	1,489,695	-	753,350	736,335	-	-
Onse Telecom	452,109	423,062	391,289	353,001	220,156	9	0	7	2	-	-
CATV system operator	-	-	-	-	2,262,403	2,410,117	59,698	2,244,142	106,277	-	-
CATV relay operator	-	-	-	-	15,251	16,004	2,181	7,275	6,548	-	-
Network operator	-	-	-	-	55,408	57,546	7,056	44,250	6,240	-	-
Total	10,405,486	11,178,499	11,921,439	12,190,711	14,042,698	14,441,687	4,878,857	5,103,804	3,925,426	532,488	1,112

Note: Powercom launched broadband service in September of 2005, and Hanaro Telecom acquired Thrunet in 2005
Source: NIA (2007)

The open access and competition in the broadband market in Korea has given rise to more technological choices for consumers, such as Asymmetric Digital Subscriber Line (ADSL)-based Internet service (currently used by 34% of total broadband subscribers), as well as cable modem service (Hybrid Fiber Coaxial [HFC] service, used by 35% of subscribers), apartment Local Area Network (LAN) service (used by 27%), and other broadband services such as FTTH (fiber to the home), wireless LAN, satellite, and WiBro.

In sum, the domestic telecom companies were fully supported by the state, first through the immense financial underwriting of the KII-G and the assurance of fixed subscribers and then through the MCT's promotion of the KII-P through the certificate system together. Underpinned by the KII-G's optical lines and by the open access to and competition in the broadband market, the KII-P has experienced rapid growth. With regard to the KII-G, rather than the state dominating the private sector by top-town command, as in an earlier period, disagreements between the two were settled by a series of bilateral negotiations between the state and the telecom companies. The commercial telecom market of the KII-P was managed by a combination of limited state intervention and market competition. As a principal researcher at the NIA notes, "These close public-private relationships reflect the specific political system of Korea" (Jeong, 2007, June 5). The KII project, thus, is a prime example of the limited or flexible state model — of the shift in state–capital relations "from dominance to symbiosis" (Kim, 1988).

6.4.2. Intermediary organizations for the KII project

In the early 90s, before the launch of the KII project, the Economic Planning Board (EPB) — which then regulated the national budget office — was hesitant to allocate the immense public funds necessary for the project because its cost–benefit justification was weak. Further, the Ministry of Trade, Industry, and Energy (MOTIE) argued that most equipment for the networks fell under its jurisdiction and thus that the MOTIE was responsible for the KII project, whereas the MIC's focus was on the regulatory aspects of

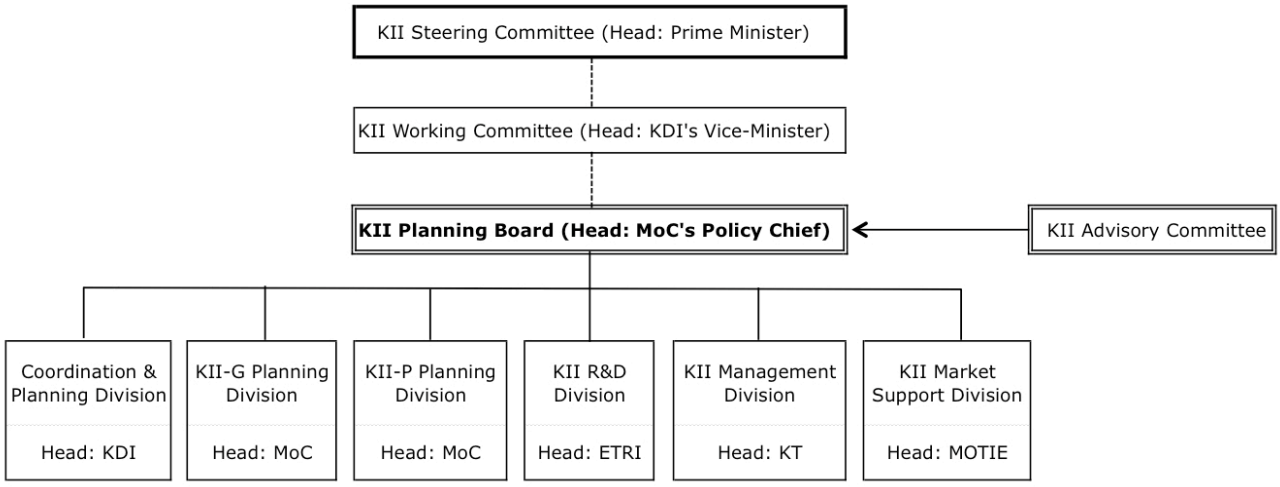
the network-based telecom market (Jeong & King, 1997). The KII project, however, was seen as the engine in a plan for national economic growth, and neither bureaucratic gridlock nor budgetary concerns could long be sustained in the face of such a vision.

Just after the Basic Plan for the KII project was announced in 1993, the government organized the KII Taskforce to draw up a more concrete roadmap for the project. The Taskforce was made up of officials from the MIC and the NCA, from the telecom provider KT, and from the Electronics and Telecommunications Research Institute (ETRI), which is the government-sponsored R&D institute. Based on the Taskforce's preliminary investigation into the viability of the KII project, in May 1994 the government created the KII Steering Committee (Presidential Order No.14275), which was composed of the Prime Minister, as the chair, and twelve relevant cabinet ministers. Under the KII Steering Committee, the government appointed the KII Working Committee, chaired by the Vice-Minister of the Korea Development Institute (KDI, a semi-governmental think tank), and high-ranking officials of the relevant government agencies. Under this KII Working Committee, the government organized the KII Planning Board to carry out such concrete tasks as designing the master plan, gathering the public funds, and developing the technologies to be employed in the backbone network.

As shown in Figure 6.4, the IT Policy Chief at the MoC (now MIC) is the head of the Planning Board, which was made up of six divisions, each related to some aspect of the project's scope: the KII Coordination & Planning Division, the KII-G Planning Division, the KII-P Planning Division, the KII R&D Division, the KII Management

Division, and the KII Market Support Division. The members of these six divisions were selected from the following: the public officials of the MIC, the MOTIE, the KDI, and the Ministry of Finance and Economy; experts and researchers from the ETRI and the NCA; and officials from the telecom companies of KT, Dacom, and Korean Mobile Telecom (now SK Telecom). With the help of the KII Advisory Committee, set up for the purpose of policy advice, the Planning Board directed the KII project from its inception until 1995, when its affairs were transferred to the Informatization and Planning Office at the MIC (NCA, 2006; MIC & NCA, 2006).

Figure 6.4. Organizational chart of the KII Planning Board

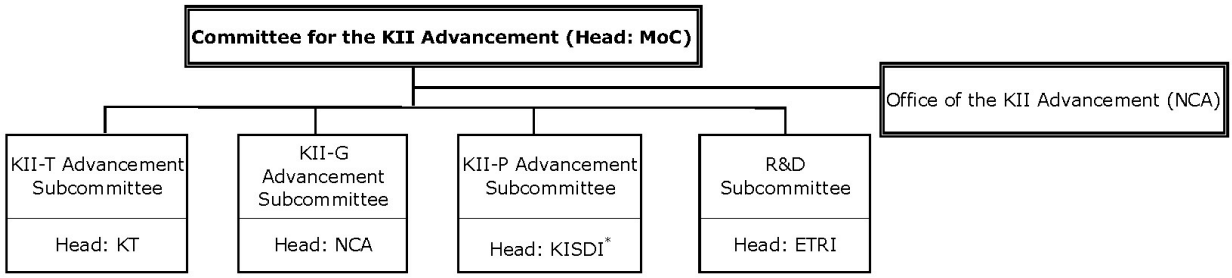


Source: author and mostly MIC & NCA (2006: 61)

From early in the national IT project, therefore, the government ensured the interconnection of the private sector and the relevant public agencies through this Planning Board.

The KII was developed in three phases, based on the shifting of specific policy goals. During the first phase of building a backbone network (1995–1997) and the second phase of backbone network completion (1998–2000), the KII-G Steering Council and the KII-G Service Council — which succeeded the KII Planning Board in 1995 — were assigned to monitor the ongoing probable issues and discuss the service cost, quality, and upgrade, with the private sector representatives. These Councils mediated a series of conflicts between the state and the private sector in the earlier phase of the project. In contrast to the KII-P, which was mostly left to the self-ruling mechanisms of market, the government steadily steered the KII-G project to completion by means of these intermediary organizations. By the beginning of the second phase of the KII project, President Dae-Jung Kim was politically overburdened with managing the IMF financial crisis and the WTO agreements, both of which occurred in 1997. The government considered requesting the National Assembly to reduce the budget allotted to the KII project but decided to maintain the pre-assigned quotas of the KII infrastructure investment. On the threshold of the third and final phase of the KII project (2001–2005), the Kim administration began to focus on the backbone network as a significant catalyst for market development.

Figure 6.5. Organizational chart of the Committee for the KII Advancement



* Korea Information Society Development Institute

Source: NCA (2003, January)

To comply with Kim's ambitious vision, in 2001 the government organized the Committee for the KII Advancement, which included the major private actors and public institutions involved in building the three backbone networks — the KII-G, the KII-P, and the KII-T. Figure 6.5 shows the organizational chart of the Committee for the KII Advancement. The Office of the KII Advancement — a new entity created by the NCA — coordinated the whole organization by mediating between the four Subcommittees: the KII-T Advancement Subcommittee, the KII-G Advancement Subcommittee, the KII-P Advancement Subcommittee, and the R&D Subcommittee. Each Subcommittee was composed of high-ranking officials from the government agencies, the mobile and landline telecom service providers, the government-sponsored R&D research centers, the IT policy research institutes, the major *Chaebols* as the telecom equipment

manufacturers, the IT-related business associations, and the universities[74] (NCA, 2003, January). By embracing new entrants into the project such as the mobile telecom service providers, the commercial Internet service providers, and the *Chaebols* as telecom equipment manufacturers in addition to the established participants, the government desired to maximize the economic effects of the KII project (see NCA, 2003, January, discussing the goals of the KII Advancement Committee).

The main issues discussed by the Committee were promoting the domestic telecom equipment market, nurturing the software and media content market, and creating commercial values from the KII (NCA, 2003: 10–11). The Committee for the KII Advancement promoted upgrading the national information infrastructure in order to reposition it for the new economy. The telecom equipment market, however, was getting worse, because, after 2001, the national telecom vendors ceased to produce and install the domestically-made asynchronous transfer mode (ATM) switch, which was a critical component of the earlier high-speed information network, and replaced many of the ATM switches with foreign IP-based router equipment. The ATM was a core technology, developed by a coalition of the state, the R&D institute (ETRI), and the *Chaebols*, by which the government had created a new domestic demand for telecom manufacturing and thus had shielded the national telecom market from the dominant market power of the multinational telecom companies. Due to the change of the technological paradigm created by the emergence of the Internet, however, the government was forced to shift its

74 The participation of the universities in the KII Advancement Committee indicates the personal involvement of some professors as IT policy advisers, rather than the systematic involvement of the

R&D support from a growth policy based on the old ATM switch to one based on the new IP-based router (see Chapter 5.3.3), although ultimately the state–private sector attempt to develop a core IP network technology and redirect the technology's developmental path failed.

According to a principal researcher of the NCA (Jeong, 2007, June 5), the government spent KR 4–5 billion *won* (approximately US $500 million) for operating the intermediary organizations described above. This expenditure signifies the government's bid to enhance the bureaucratic efficiencies. In fact, the IT-related inter-ministerial structures such as the KII Planning Board were a legacy of old National Basic Information System (NBIS), a national computerization project launched under the Chun administration. Chun first conceived of information and technology as a new engine of economic growth, as well as a bureaucratic tool to rationalize the organizational structures of the public sector through the use of a backbone network (see Chapter 4.1.2, which discusses the NBIS in detail). The NBIS Steering Committee, an inter-ministerial agency established in 1989, served as a model for the civilian government when it came to establish the KII Steering Committee in 1994. Since the period of the military regimes, then, intermediary organizations have served as policy mechanisms to minimize internal conflict and enhance the speed of decision-making processes through efficient consensual mechanisms.

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university research centers.

The series of intermediary organizations for the KII project reflects the Korean government's inability to enact the national infrastructure plans through a top-down command structure over the private sector, and its anxious desire to attract them into the policy planning process. The intermediary organizations were quite efficient at least in lessening the friction with the private sector, while at the same time they excluded the voices of civil society from the decision-making process. The aforementioned Figure 6.4 and 6.5 show graphically the lack of any conduit to transmit the citizens' concerns into the special committees. From the start of the KII project, the government simply considered the supply side for enhancing the broadband networks through a strategic partnership with the private sector, ignoring the possibility of the citizens' participation. The government could defend itself by arguing that the KII project served the public interest by enabling more high-speed Internet access and at lower prices. The national IT policy initiative, however, manifested such undemocratic characteristics as uncritical technocratic IT promotion, preferential treatment for a few private sector incumbents, and profit-driven strategy plans. The logic of exclusion, relying on the top-down policy-making process, enabled the government to exhibit its cause rather than to hear the real voices of the citizens.

6.4.3. The exhibitionist IT policy initiatives and discourses

The government's desire to shift Korea's economy into one suitable for the digital mode of global economy was heralded by a series of policy plans. Table 6.4 chronicles a

variety of state-led IT policy plans and reforms in the telecom market in Korea during the period of 1993–2007, which overlaps the period of the KII project. Since the mid-90s when the KII project was launched, the civilian government announced and implemented a series of major IT initiatives and plans such as Cyber Korea 21, the e-Korea Vision 2006, and the U-Korea Master Plan. The KII project is also closely related to the large-scale introduction of e-government, e-commerce, and IT economy, as well as to post-KII projects such as the next-generation broadband network (BcN).

Table 6.4. Informatization Progress in Korea, 1993–2007

Year	Milestone	Contributions and Accomplishments
1993	Launching Informatization	• Opened Government Administration Information System, the part of the NBIS • Introduced market competition in paging services (10 new operators) • Popular distribution of personal computer
1994	Promoting Informatization	• *Established Plan for Korea Information Infrastructure (KII)* • Founded the Ministry of Information and Communication • Commercializing Internet services • Began the duopoly system for mobile services.
1995	Stabilizing Informatization [KII launched]	• Established the Framework Act on Informatization Promotion • *Confirmed the Blueprint for the KII:* two facility-based telecom service providers (KT and Dacom), exclusively involved in building the KII-G • Invited competition in national long distance market (2nd license to Dacom) • Launched cable TV service
1996	Dawn of Internet & mobile network	• Joined the OECD • Enacted the Framework on Informatization Promotion Act • 27 new licenses granted: three for personal communication services (PCSs), six for trunked radio systems (TRSs), eleven for second-generation cordless telephones (CT-2), three for PCS, two for leased line facility rental, one more for international telephony (Onse enters international market as 3rd service provider), one for radio paging, and three wireless data transmission. • SK Telecom launched digital CDMA services (and also absorbed KMTS, the mobile telephony subsidiary of KT)

1997	Opening the Internet era	• *Completion of the KII's first phase* (Built 80 call zones linking 14,955 public institutions with the capacity of 45Mbps) • Began e-commerce services and its preparation • 10 new licenses granted: one local operator (Hanaro), one long-distance operator (Onse Corporation), six TRSs, and one paging operator
1998	Coping with Y2K Problems & the growth of Internet culture	• Shaped countermeasures on Y2K Problems nationwide • Launched public administration services through Internet • Popularization of Internet Plaza (PC Cafe/Network Game Room)
1999	Raid growth of the IT venture and users	• Established Cyber Korea 21(The Second Master Plan of Informatization Promotion) • Rapid increase of IT venture businesses • Mobile phone, surpassed fixed line subscribers in numbers • Launched mobile Internet service
2000	Popularizing Internet and e-business	• *Completion of the KII's second phase* (Connecting all 144 call zones including 28,686 public institutions and schools with ATM switches with the capacity of 155Mbps) • Established master plan to promote e-commerce • Applied e-document to all government agencies • Expanded e-Business to offline businesses
2001	Activating mobile Internet	• *Organized the Committee for the KII Advancement* • Stimulated mobile Internet through mobile phone, PDA • Profiled as the world's best broadband Internet infrastructure (OECD Report) • Launched Digital Terrestrial TV Broadcasting Service
2002	Maximizing digital competitiveness	• Established e-Korea Vision 2006 (The Third Master Plan of Informatization) • Laid the foundation of e-government • Initiated IMT-2000 mobile service • Launched Digital Satellite Broadcasting service
2003	Shift of informatisation from a supply pull to a demand creation	• Announced Broadband IT Korea Vision 2007 (Revision of the Third Master Plan for Informatization Promotion) • The issue moved from a facility-base development of the network over to a service-base one, due to the maturation of domestic telecom market • Established the Road Map for e-Government • Launched mobile banking service
2004	Building new IT growth Infrastructure	• Promote the building of IT growth-engine infrastructure • Number of Internet users exceeded 30 million people. • Built Broadband convergence Network (BcN) implementation plan • Drew up u-Sensor Network master plan • Established IPv6 promotion master plan • Promoted IT839 Strategies • e-commerce transactions reached KRW 300 trillion.

2005	Beginning of digital convergence era [Completion of the KII]	• *Completion of the KII's third phase* (Linking 32,000 public institutions with ATM-MPLS high quality IP service with the capacity of 1Gbps) • Issued the Master Plan for IT839 Strategies • Built mid- and long-term information security Roadmap • Launched terrestrial and satellite DMB service • Banking via the Internet exceeded banking done by tellers
2006	First year of the journey to the ubiquitous world	• Established U-Korea Master Plan • Launched commercial services on BcN, WiBro, and High-Speed Downlink Packet Access (HSDPA) • Achieved total e-commerce volume of KRW 400 trillion
2007	Striving to enter into the ubiquitous society	• Achieved terrestrial DMB terminal penetration of 4 million • Launched nationwide HSDPA service

Source: Compiled and modified from the charts from NIA (2007); NCA (2006); OECD (2000); World Bank (2006).

The government's nationwide IT policy since the early 90s has been greatly mobilized by the technocrats' "exhibitionist" policy plans aimed at accomplishing the goal of "globalization" (*shegyehwa*), a term that dominated the rhetoric of the Young-sam Kim administration (see Chapter 5.3.1). The KII project would not have been possible without the active propagation of IT policy plans, and each successive administration has propagated a series of IT policy initiatives and their accompanying rhetoric. To evoke the national goal of building a backbone network, in 1996 the Kim administration announced the Basic Plan on Informatization Promotion (BPIP), the first IT policy initiative at the national level (MIC & NCA, 2005). The first goal of this initiative was to popularize the slogan of IT-based development throughout Korea, among government officials at the national and the provincial level, as well as in the private sector. The second goal was to develop a roadmap to the KII under government guidance and to adapt it to the rapidly changing environment of electronic backbone networks being built in the advanced countries. The third, more concrete, goal was to

enhance transmission capacity and geographic coverage of the broadband network through the KII project. By improving the penetration rate of the high-speed Internet, the government believed that Korean society would become "a world-class strong IT country" (MIC, 1996).

The Kim administration used the BPIP as a public relations tool for promoting the KII project. Under President Dae-Jung Kim, IT policy was promoted by even more colorful rhetoric (rather than using common policy titles like "plan" or "initiative," the Kim administration decorated the name of Korea with the futurist adjectives or nouns like "cyber," "e–," or "vision") about the dreams of a flourishing IT-driven Korean society. Kim, once a prominent political activist, was focused on alleviating the economic recession that had taken hold of Korea since the 1997 IMF crisis. The financial crisis meant that the Kim administration, which took office in March of 1998, inherited the heavy political burden of attempting to restructure the domestic market so as to open it to competition from global conglomerates. While Dae-Jung Kim had advocated a democratic reform of the old authoritarian regime, under the conditions of increasing globalization his policy shifted to the radical adoption of neoliberal economic policies and to promoting the information and culture industries over the labor-intensive heavy industries. Because of Kim's success in enacting political reform, opposition to his administration's economic drive toward privatization and commercialization was muted (Cho, 2000: 422). In his inaugural speech on February 25, 1998, Kim emphasized the value-added economic effects of the cultural industry and began to consider that the development of software and media contents be prioritized over other strategies to

nurture the national economy (*Yonhap News Agency*, 1998, February 25). In March of 1999 the government announced a second IT policy initiative, CyberKorea 21 (CK21) (MIC & NCA, 2005). Since that time, both culture and IT have been widely regarded as key elements necessary for earning foreign dollars and creating a new job market. Due to so-called "Korean wave" (or *Halryu*),[75] which refers to the growing appeal of Korean popular culture in other Asian countries (Koh, et al., 2005), Korea's exports in the cultural industry such as music, games, films, animation, and television programs have experienced a sharp rise — they amounted to US $4.95 billion (0.3% of a total export) in 2000 and US $13.73 billion (0.42% of a total export) in 2006 (MCT, 2007).

The policy goal of CK21 under the Kim administration is to create a "knowledge-based society," improving "national competitiveness" and "the quality of life to the level of the more advanced nations" (NCA, 2002: 79). CK21 highlights policy support for IT businesses and encouraged policy goals for advanced information and communication economies by setting forth planned guidelines for IT growth. CK21 also stressed the state-driven IT education program, the so-called Informatization Education Plan for 10 Million Citizens, and used this slogan to create 300,000 new IT-related jobs and to increase the digital literacy of citizens (MIC & NCA, 2005). During this period, the government sought to encourage the demand side of the KII, striving for the creation of a critical mass of consumers through public IT education. Impelled by Kim's call for the

75 Korean television programs and cinema have gained a "pan-Asianist" value (Dator & Seo, 2004; Kim, 2007), and the scope of their cultural influence in the global market has become similar to the pan-Iberian/Latin American *telenovela* culture, which is relatively independent from the monolithic cultural dominance of the Hollywood empire.

rapid completion of the KII in his New Year's message in 2001, the MIC announced the Basic Plan for the KII Advancement to accelerate the KII's construction. In September of that year the government organized the Committee for the KII Advancement, which was aimed at the market adoption of the nationwide information infrastructure, and in April of 2002 the government announced its market-driven policy initiative, named "e-Korea Vision 2006" (eKV06).

The MIC's eKV06 states that its goal is both to promote the "information society" at the national level and to gain "strong ties of international cooperation with the global information society" (NCA, 2003: 10). To do this, eKV06 declares that the government itself must "create a smart government structure with high transparency and productivity" (e-government) and should encourage private corporations "to strengthen global competitiveness by promoting the informatization of all industries" (e-business) and enable citizens "to enhance their ability to utilize information and technologies" (e-education). Through implementing these goals, the government hopes to persuade Korean society to become "a global leader e-Korea" (MIC & NCA, 2005: 100–104). Once the KII project entered its final phase, the government's IT policy agenda targeted three areas: bureaucratic efficiencies through "smart government," e-commerce through the development of media contents, and mass digital literacy through the public and private educational institutions. While the policy visions set forth in the e-government and e-business areas can be read as expanded and concretized provisions of the previous market-oriented IT policies, eKV06's addition of e-education for citizens seems to be a distinct advance on the policies of CK21 or the BPIP. It is notable as the first instance of

the Korean government considering at a national policy level such public issues as the "information gap" between individuals and between regions. As is typical of the bureaucratic approach to the citizenry, the government restricted its role to inconspicuous tasks, such as supplying computers or promoting commercial Internet access, as well as the routinizing and rationalizing of electronic services for citizen requests for official documents. The focus is on a quantitative approach that emphasizes outward appearance and growth, as seen in the dramatic growth of the IT industry. The government promoted the cultivation of digital technology as a necessity for increasing the efficiency of government bureaucracy, to improve national productivity, and to become an active part of the global society.

President Moo-hyun Roh, who took office in March of 2003, was even more focused on the promotion of IT-based development of Korean society.[76] In December of the same year, his administration issued the "Broadband IT Korea Vision 2007" (BK07), which sets forth IT as the real engine for national wealth in Korea that would finally raise the yearly salary in Korea to US $20,000 per capita. BK07 emphasizes the geopolitical position of Korean economy as "the electronic hub for the East Asian countries." To accomplish this, with the KII plan nearing its end, the government began to design the

76 President Roh has been described as "the world's first president to be elected with the broad support of the online generation" (Watts, 2003, February 24: 16). His image at the time of his inauguration was one of being technically flexible and open to the Internet. Midway in his term of office, Roh held an unprecedented "Internet conversation with the nation" on March 23, 2006, which had the largest audience in the history of online broadcasting in Korea. Moreover, the president himself uploaded five letters per a month onto the presidential website, named the Office of the President Briefing, in order to promote direct communication with the nation without the intervention of the press. His nickname "the night-owl president" is derived from his staying at the keyboard until late at night for decision-making and electronic

next generation of infrastructure plans for advancing the private sector networks. For instance, BK07 sets forth the goal of building the total broadband multimedia networks of convergence; the details were set forth in the "Basic Plan for the Broadband convergence Network (BcN)" and "U-Sensor Network" (USN), issued in February of 2004; the "Distribution and Promotion Plan of the next Internet protocol IPv6," issued in April of 2004; and the "Master Plan for IT839 Strategies," issued in July of 2005[77] (NIA, 2007). In BK07, the Roh administration also emphasized that the quality of life in Korea would be improved by the rapidly increasing opportunities arising from e-commerce with the completion of the KII-P. While Roh succeeded in promoting the development of an Internet-based society in Korea, his IT initiatives have overemphasized business-oriented growth policies based on values such as "efficiencies," "competitiveness," and "productivities," to the detriment of public welfare values such as "sustainability," "public commons," and "equal opportunities." For instance, BK07 describes IT primarily in terms of its being a panacea for Korea's economic recession and as "the engine for new growth that would create a GDP per capita of US $20,000" (MIC & NCA, 2005: 104–110).

Table 6.5 shows the major IT policy initiatives implemented by each civilian government. Interestingly, each president promoted a new IT-related discourse with its

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approval of e-documents through the electronic record management system that he himself invented (Lee & Lee, unpublished work).

77 IT "839" had three pillars (services, infrastructure, new growth engines); eight telecom services (Wi-Bro, DMB, home networking, telematics, RFID, W-CDMA, Terrestrial D-TV, and Internet telephony); three infrastructures (broadband convergence network, U-sensor network, and IPv6); and nine new growth engines (mobile telephony, digital televisions and broadcast devices, home network equipment, system-on-

own IT policy initiative, especially at the beginning of his term. Throughout the three presidencies, the discourses are centered on Korea's active affiliation to the global society and the advancement of domestic IT economies. The goals center on the creation of a new IT job market, a large demand for broadband Internet initiated by IT education, e-governance, and e-commerce.

Table 6.5. IT policy initiatives under the civilian governments

President	Young-sam Kim (1993–1998)	Dae-Jung Kim (1998–2003)		Moo-hyun Roh (2003–2008)
Government rhetoric	Globalization, dog-eat-dog competition	Liberalization, knowledge-based society		Global IT leader, participatory society
IT policy initiative	**Basic Plan on Informatization Promotion (1996–2000)**	**CyberKorea 21 (1999–2002)**	**e-Korea Vision 2006 (2002–2006)**	**Broadband IT Korea Vision 2007 (2003–2007)**
Goal	Construction of basic electronic backbone network	Creating new IT-related job market	Upgrading the IT infrastructure	E-government, East Asian hub of the IT industry
Phase	1st Phase (1995–1997)	2nd Phase (1998–2000)	3rd Phase (2001–2005)	BcN (2006– present)

Source: author and NCA (2006) data

Through the IT policy initiatives, each government gave the private sector — specifically, the *Chaebols* — its blessing, and persuaded its citizens to be members of a Korean-style "information society." The state's promotion of IT to its citizens has boomeranged on itself by increasing the consumption expenses per household: the rate of

chip products, next-generation personal computer, embedded software, digital content and solutions, vehicle-based information equipment, and intelligent robot products) (Shin, 2007).

IT-related consumption (5.4%) per household in Korea is burdensome, almost double that in Japan (3.1%) and triple that in the US (1.6%). Figure 6.6 suggests that, although Koreans spend less per megabit speed than other countries do, they are overburdened with a variety of IT consumption costs (these include fees for using the online digital content, mobile phone subscriptions, and other IT service charges).

Further, due to the bureaucratic desire of all three presidents, who hoped to bequeath a monumental policy inheritance to the citizens within their term, the completion year of the KII project was repeatedly moved forward, first to 2015, then to 2010, and finally to 2005, when it was actually completed. A principal researcher at the NIA observed,

> The reason the KII project was completed by 2005 rather than by 2015 is directly related to the presidential pledges of each administration, which aimed to accomplish its political outcomes by "exhibitionist" policy initiatives. It is obvious that the three phases of the KII project were greatly curtailed or condensed in response to the inauguration of a new president. (Jeong, 2007, June 5)

For instance, due to the 1998 inaugural speech of Dae-Jung Kim, the MIC was forced to make a new IT policy initiative, CK21. BK07 was launched at the time of Roh's inauguration, even before the eKV06 initiative of his predecessor had been implemented (see Table 6.5). In fact, the four IT initiatives over three presidencies largely promoted Korean IT development in order to meet the exhibitionist (or public relations) political goals of each administration, rather than to fulfill the "soft" goals of improving the citizens' ability to access, use, and recreate information freely. Consequently, the rhetoric

of these initiatives — such as that of surviving global competition and of regenerating the national economy — successfully played upon the citizens' anxieties, such that there is now one broadband Internet per household, and allowed the state-led project to be completed with ease and even ahead of schedule.

6.5. CASUALTIES OF THE STATE–*CHAEBOL* CRONY RELATIONSHIP

To sum up, in contrast to the old military regimes, the civilian governments since 1993 have articulated various mechanisms, such as intermediary organizations and the exhibitionist (or public relations) policy initiatives, in order to successfully guide the state-led infrastructure plan to completion. The Korean government's attempt to stimulate the private sector and to create new IT demand was extremely successful over the three phases of the KII project. Nevertheless, the process by which the KII success story was carried out raises at least one serious issue, that of the entire exclusion of the citizens, as previously mentioned, from the decision-making process of domestic telecom policies. In the same way, they have been excluded from the series of multilateral and bilateral negotiations such as the WTO basic telecom agreement and the recent Korea–US Free Trade Agreement (KORUS FTA) negotiations. In a more recent example, during the 2007 FTA negotiations with US trade representatives, for instance, the Korean government exerted monopolistic power on the decision-making process, ignored various stakeholders' voices, including those of civil society groups, and even disseminated

disinformation to the citizens in order to accomplish its political goal.[78] As the next chapter indicates, these undemocratic aspects of the government's IT policies have evoked civil society's resistance to the policymaking processes behind the closed doors. One case that highlights these tensions occurred around such as the KII-based system of collection and management of citizens' data, as embodied in the National Education Information System (NEIS).

[78] During the negotiations over the Korea–US FTA, the Korean government frequently concealed the details of its agreements with the US, despite the requests of civil rights groups that such information be made public; further, the government even disseminated disinformation claiming that the bilateral trade negotiation would be wholly beneficial to Korea's citizens and its national economy, even though the risks involved could threaten local sustainability. Anger against the government's propaganda finally brought tens of thousands of demonstrators to the streets in protest against the Lee administration, which aimed to reopen the Korean beef market, once the third-largest importer of American beef, due to Koreans' fear of eating meat tainted with potentially-fatal mad cow disease, since they placed no faith in the Lee administration's reiterated assurances that the beef would be thoroughly inspected and safe (e.g., Hansen, 2008, June 20).

Chapter VII: The KII and the Transformation of State Surveillance Practices toward a Grid of Control

ABSTRACT

While the previous two chapters investigated politico-economic aspects surrounding the birth and development of the KII project, the present chapter focuses on how the Korean Information Infrastructure (KII) functions as a virtual network to enhance the government's surveillance power over its citizens. The "National Education Information System" (NEIS), initiated in 2003, is a nationwide database system aimed at managing more than 200 pieces of personal information about each of the eight million students in South Korea in a central server computer operated by the Ministry of Education and Human Resources. This policy initiative, which was first planned as integrated management of students' profiles but later evolved into a plan for a central database system monitoring each student, could not have been conceived without the material existence of the KII. This chapter first investigates the shift in South Korea from a disciplinary society (in which there is the visible and physical violence of power) to a control society (with its modulating and normalizing techniques of power). Under the authoritarian and military regimes in Korea (1948–1992), the national ID system and the

National Security Law were the state's primary means of social control over the citizens. Under the civilian governments (1993–present), the deployment of institutional power by the government has been based more on the logic of free-floating control and the articulation of micro-power. This chapter examines how the techniques of power were gradually transformed from a centralized and hierarchical model into a distributive and dispersed network model, based on the flow, speed, and mobility of the KII. Theoretically, this chapter supports Gilles Deleuze's thesis (see Chapter 2.3.2.) that today's society has become increasingly based on digital technology, which is used for the reproduction of power systems — an idea summarized by his term "control society" — while never demolishing the conditions of disciplinary suppression by state power over the citizens. For observing the new techniques of social control based on the electronic backbone network, this chapter examines the policy debate over the introduction of the NEIS, a plan that ignited the anger of civil rights movement groups, as well as that of unions for lawyers, parents, teachers, and professors, who blocked its implementation. Although the overall scope of the NEIS was reduced due to these protests, this chapter concludes by examining it as an example of the state's continuing bureaucratic desire to manage the citizens' data electronically.

7.1. INTRODUCTION

The present chapter examines the recent asymmetric relationships between the citizens and the state, especially as they are revealed in the surveillance practices of the Korean government. Since the launch of the Korean Information Infrastructure (KII) in 1995, Korea, even more than most countries, has been subject to the dual effects of the bureaucratic state and the advance of digital technologies, owing to the authoritarian and hierarchical structures of Korean politics and business, as Castells (2000b: 262–266) has observed. The East Asian development model of an information economy, specifically, South Korean development model, can be described as one characterized by a "democratic deficit" (Venturelli, 2002: 81). Due to the abatement of the Cold War, by the time the first civilian government took office in 1993, it was able to begin a shift from the anti-communist rhetoric of previous regimes[79] to a more pragmatic rhetoric of achieving prosperity through IT-based bureaucratic efficiencies. The North-South summit meeting of leaders from both Koreas in June of 2000 in Pyongyang increased the momentum for ending the rigid anti-communist sentiment based on the National Security Law in South Korea. Since then the government has instead focused on baptizing digital technology as the foundation to a flourishing welfare state. Due to the government's pro-IT policy, Korean society has accomplished rapid growth in networking and mobile technology, while at the same time the nationwide backbone network, as well as the high penetration rate of mobile phones, has allowed the government elites increasing electronic access to

citizens' data. The new material conditions of electronic networks have enabled the government to monitor the citizens' activities through its real-time based surveillance practices, to integrate citizens' local data into the national database, and to sort out the collected information based on the government's specific purposes in a given situation.

This chapter explores the ways in which the Korean government's desire for social control were articulated and realized under the new material conditions of digital networks, specifically, the Korean Information Infrastructure project. First, this chapter examines the changing patterns of surveillance practices from the period of the military regimes (1948–1992) to that of the civilian governments (1993–present): while the surveillance practices of the former were based on the disciplinary logic of confinement, censorship, centralization, and physical violence, the surveillance practices of the latter have increasingly been based on a digital grid of control. Second, this chapter looks at a series of controversial laws and policy initiatives under the civilian governments that have enabled the government elites to perform electronic network-based censorship or surveillance over the citizens. Third, to delineate the institutional desire for control through the electronic backbone network, this chapter focuses on the societal debate over the introduction of the "National Education Information System" (NEIS) of 2003 as an archetypical case of institutional surveillance, which led to a mass protest of the citizens. Finally, this chapter explores how the NEIS — an offspring of the KII project — stands

79 As late as 1997, however, "communist sympathizer" was still an accusation hurled at Dae-Jung Kim by those who hoped to undermine his presidential campaign.

as an example of the emerging digital surveillance techniques for the state desire for social control.

As the data for its analysis, this chapter uses the NEIS and other privacy-relevant laws, along with press conference reports, documents on public hearings, written reports of events, and policy analysis reports, most of which were published by the Jinbo Network and the Citizens' Action Network, organizations defending citizens' cyber-rights in Korea.

7.2. THE RISE IN GOVERNMENT SURVEILLANCE PRACTICES

Many countries are increasing their surveillance of citizens in order to enhance societal control. The bureaucratic interests that underlie the current strategies are aiming to install a code of control within each technical artifact (such as the KII), and thus technological rationalization will be complete when technical design merges with social and political hierarchies. According to Human Rights Watch report (2008), state-led censorship and surveillance of bloggers and citizens has been pervasive in authoritarian countries such as Egypt, Iran, Pakistan, Saudi Arabia, Syria, Tibet (under the Chinese government), and Tunisia, in the name of preserving the social order. For instance, the Chinese government has employed new technology to tap 153 million users' cell phones, especially, those of political dissidents using text-messaging services (Kurtenbach, 2004, July 2). Further, the Chinese government has been oppressing their citizens and those of subject territories (such as Tibet) by severely censoring what they can access online.

Internet giants like Google and Yahoo have helped facilitate this oppression in order to gain access to the Chinese market (Våge, 2004).

The surveillance practices in the developing countries differ little from those of advanced Western countries such as the UK and the US, although the latter's surveillance techniques are more refined and complicated. For instance, the UK government has supported the so-called "Celldar project" that intends to enable locational tracking of users wherever a mobile phone receives a signal (Burke & Warren, 2002, October 13). "Celldar" conceals its aim of ubiquitous surveillance under the ideological cover of "protecting national security from terrorism," but this potentially repressive project seems to mirror Latour's (1992) description of how impulses of state control will be realized and "delegated" to technological devices. Similarly, since the 9-11 terrorist attack, the US government has also gained easier access to mobile phone and email conversations (Cauley, 2006, May 11). The US federal government has increasingly gained the bureaucratic power of monitoring the citizens by shifting the security concept from national security to homeland security (Relyea, 2002).[80] For example, since 9-11 there have been well-publicized large-scale instances in the US of Internet and wireless carriers tapping citizens' communications on behalf of the federal government without the issuing of a court order. As shown by these examples from various different countries, the

80 According to Relyea's (2002) analysis, security concepts function as ideological and political signs that aim to promote public security and safety at the price of the civil right of privacy. These ideological concepts are easily institutionalized under threats and anxieties such as the Cold War or terrorist attacks. Since the events of September 11, existing security concepts are being reconfigured as the security threat has changed from communism to terrorism. The evolution of security concepts from national and internal security to homeland security, according to Relyea, depicts the expansive processes of consensus and persuasion by policymakers.

increasing patterns of surveillance and censorship can be largely characterized by the bureaucratic drive to preserve the security of society (Beniger, 1986: 11), that is, to preserve the stable reproduction of society from both internal and external attacks — at the cost of a reduction in citizens' human rights. The invasion of privacy, in other words, is regarded as a price worth paying for the promise of security.

It should be noted, however, that private corporations have also introduced into the workplace electronic monitoring devices, such as those that record and store telephone conversations, voicemail messages, computer files, e-mail messages, and Internet connections. For corporations, high-tech surveillance technologies are used to monitor efficiency and to ensure behavior that is in the company's best interests; they are also used, as in South Korea, to prevent workers from organizing and to fight union activism. In this context, technology affiliates itself with the private desire for a "panoptic" workplace. Even without the monitoring of overseers from a physical watchtower, technology functions for corporations as "a fail-safe system to increase their sense of certainty and control over both production and organizational functions" (Zuboff, 1988: 390). For private corporations, the suppressive side of technology can be activated by an aggressive desire for labor control. The government normally interacts with the private sector to produce both the economic foundation and the normative standards for surveillance (Phillips, 2003). This combinative effect of surveillance by the state and the private sector illustrates the gradually expanding "asymmetry of power between individuals or groups of individuals on the one hand and powerful governmental and commercial entities on the other" (Doty, 2001: 123).

In Korean society, systematic surveillance practices conducted by both the state and the private sector also have risen in recent times. Korea has historically experienced shifts in the practices of power concurrent with major shifts in its political life. The next two sections of this chapter investigate in detail the historical transformations of state surveillance techniques from the military regimes to the civilian governments. This investigation establishes the context in which to understand the evolution of government surveillance in Korea's recent history as well as the newly emerging surveillance techniques that have largely been made possible by the nationwide expansions of telecom infrastructures such as the KII.

7.3. SOLID AND DISCIPLINARY POWER

After being liberated from the thirty-six-year Japanese military occupation (1910–1945), Korea was split into two nations through civil war in 1950, and the country was left in ashes. Korea had little experience with the representative system of democracy found in advanced Western countries, and this political immaturity enabled a series of autocratic governments to wield oppressive power over the citizens during the periods of the first two civilian governments (1948–1962) and the following three military regimes (1963-1992). Using anti-communism against North Korea as a rationale, these South Korean governments justified their repressive practices against citizens in the name of national security. From the time of General Cheong-hee Park, who seized power in 1963, up through the early 1990s, anti-communism was a powerful ideological shield to suppress political

dissent and citizens' demands for human rights. Throughout the 1960s, 70s, and 80s, citizens were controlled by a pervasive grid of military-authoritarian practices: the national ID system identifying each Korean, the use of paramilitary violence to break worker unions, the use of closed-circuit television for policing, the widespread practice of government eavesdropping, and politically motivated investigations of activists. The military regimes employed a wide variety of means to compel most citizens to be docile subjects, imposing curfews, forcibly shearing the hair of "hippies," torturing political activists, searching citizens' possessions on the street, and silencing the voice of dissent in the public arena.

In 1979 Park was assassinated, and on December 12 of that year General Doo-hwan Chun spearheaded a coup d'état. As soon as he seized power, Chun declared nationwide martial law, which was directed at banning all political activity, crushing the labor movement, closing the universities, and arresting pro-democracy politicians and activists, including Dae-Jung Kim (Shelley, 2001). These actions sparked an uprising in Gwangju on May 18, 1980. For the five days of the uprising, the citizens of Gwangju held the city: over 200,000 people participated in demonstrations and hundreds of citizens in the provincial capitol building (which served as the headquarters for the citizens' army) took up arms against the military regime. During this period, when Gwangju was completely blockaded by siege and cut off from contact with the outside world, a Citizens' Council was spontaneously organized to defend the city, maintain public security, distribute food and water, and prepare to offer armed resistance to the military. On May 22, 1980, however, the military regime brutally quelled the uprising,

massacring as many as 2,000 people — striking workers, protesting students, and citizens — and took control of Gwangju.[81] Chun then used the demonstrations in Gwangju as a pretext for furthering his repressive policies.

The Park and Chun administrations (1963–1988) typify the brutal era of repressive and disciplinary society at the institutional level. During this period, the state's regulatory control apparatus was twofold: the National Security Law and the national ID system. In the name of ferreting out spies or sympathizers aligned with communist North Korea and of protecting South Korea from the dangers of communist infiltration and influence, the National Security Law (NSL) had already been enacted in December of 1948 under Syngman Rhee, the first president of the republic (1948–1960). Over the next half century, military dictators used the NSL's elastic definition of "anti-state groups" to suppress political opponents. The NSL, which is still in force and was last revised in 1996, still defines "anti-state groups" in such a way as to allow arbitrary interpretation of the term. Article 2 states that "anti-state groups refer to domestic or foreign organizations or groups whose intentions are to conduct or assist infiltration of the Government or to cause national disturbances" (as revised 31 May, 1991). The NSL prescribes up to seven years in prison for those who praise, encourage, disseminate the materials of or cooperate with anti-state groups (Article 7), and five years' imprisonment for failure to report "anti-state" activities (Article 10). Using this law, any dictator who desires to punish political

81 The role of the US in crushing the Gwangju uprising has never been officially clarified. Since the US government had final authority over the US-Korean Allied Forces Command, and thus the Korean government would have had to obtain official permission from the US in order to move infantry divisions, airborne units, and special task forces into Gwangju, most Koreans believe the US government was indirectly involved in the Gwangju massacre.

opponents can legally imprison or even execute them, relying on the law's ambiguous language. Although Korea's Constitution declares that "all citizens enjoy freedom of speech and the press, and of assembly and association" (Adopted on 17 July 1948: Chapter 1, Article 21), the NSL has empowered the government to effectively override the Constitution.

Many countries have used identity cards in one form or another, but the national ID system in Korea is a total surveillance system individually identifying each Korean. Originally, a Resident Registration System was used for regulating the population's data on the basis of place of birth and residency. This system was a legacy of the Japanese imperialist occupation of Korea (1910-45). The project of regulating the entire citizenry was established under Park, who in 1968 extended the notorious registration system to the whole populace, and by 1975 the data was managed by means of computer databases. Since that time period, all citizens have been required to obtain and to carry a national ID card. If the police ask to see the card, one must be able to provide it. Each citizen must obtain a personal identification number given by the state, which must then be used for all kinds of purposes, some of which are described below, over one's lifetime. Also, all citizens over the age of 17 must have all ten fingerprints on file. In all, the government collects over 140 different pieces of profiling information on each individual citizen.[82] Successive Korean governments have defended the bureaucratic efficiency of the system and emphasized that it is the price to be paid for the protection of citizens from crimes

82 In addition to such basic data as name, sex, date of birth, and national identification number, Korea's ID system includes detailed personal data such as permanent address, current address, military record, criminal

and for identifying victims in accidents. This ID system is not much different from that of a Big-Brother-type "superstate," which regulates all citizens with a thirteen-digit personal reference number[83] not unlike the bar code system used on commercial goods. A citizen would have severe difficulties without it, because one must submit it any time one buys certain goods, rents a house, drinks a beer in a bar, applies for loan from a bank, applies for employment at business or school, or even when one posts a comment on the Internet. The regulatory control of citizens is an example of a serious violation of fundamental human rights of privacy, because it is permanent in duration and vast in scope.

By using the regulatory weapons of the national ID system and the NSL, military dictators controlled the citizens for more than twenty-five years. For instance, the national ID system was the easiest way to ferret out the political dissidents — students, union organizers, politicians, and other critical citizens to the military regime — during on-the-street questioning or a crackdown by the intelligence officers. General Chun, the worst of them, recognized the value of the intelligence agencies in maintaining control over the citizenry. Just before he came to power via the military coup in 1979, Chun took control of both the Korea Central Intelligence Agency (KCIA) — created in 1961 under the presidency of Park, it was renamed the National Intelligence Service (NIS) in 1999 — and the Defense Security Command (DSC), whose original mission focused on counter-communist activities and fighting military corruption. After the success of Chun's coup,

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records, records of each change of residence, the issuing agency and issuance date of the ID card, photographs, family relations, and all ten fingerprints.

83 In the Korean ID system, each identifier (e.g., 681207–1xxxxxx) consists of a combination of the date of birth (the first group of six digits; in this case, the date of birth is 7 December 1968), sex (this is the first

the KCIA and the DSC were used as domestic surveillance and spying agencies to collect, analyze, and, whenever useful, fabricate intelligence information about the citizenry. For instance, these agencies created imaginary underground spy rings loyal to communist North Korea and then falsely accused citizens of belonging to them, as shown in the 1985 case of a group Korean students studying abroad in the US (*Hankyoreh*, 2008, June 23), and the 1986 case of Hee-Chul Kang (Lawyers for a Democratic Society, 2005, March) who were convicted of espionage; only after serving long prison sentences were individuals in both cases were finally cleared of these charges

The integration of the intelligence agencies, the national ID system, and the NSL enabled the development of an extreme disciplinary society to control and suppress the "abnormal" or "other," such as striking workers, protesting students, progressive politicians, and, in general, any citizen critical of the government. During the dark days of these repressive military regimes, Korean citizens were eager to have more political rights, such as freedom of speech, expression, and assembly. Under the Chun Government in 1987, a university student (Chong Chul Park) was killed by water torture during police interrogation. Although two policemen were charged and the Interior Minister and the national police chief were dismissed in the aftermath of the incident, demonstrations in Seoul and other cities had to be dispersed by the police with tear gas (Haberman, 1987, April 5). By June, confronted with nationwide rioting, Chun was forced to step down from the presidency and allow direct presidential elections in Korea.

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number of the second seven digits: 1 was assigned to a man and 2 to a woman, but, since 2002, these numbers have been changed into 3 or 4), and a randomly given six-digit number.

1987 was a momentous year for South Korea as it marks the beginning of the end of the repressive military regimes. In December of that year, citizens elected a president by direct popular vote for the first time in 26 years, even though Tae-Woo Noh, a former military colleague of Chun's, won the election by fraud (Han, 1988); he held the presidency from 1988 to 1993. Nevertheless, with the Noh administration, Korean society entered an era less brutal than the one under the Park and Chun administrations. During the Noh administration, the NSL, the national ID system, and other repressive surveillance mechanisms were still in place, but their use began gradually to shift and be modified.

7.4. LIQUID AND NORMALIZING POWER

Upon entering into a stable phase of civilian government after the citizens' political victory in the second direct presidential election in December of 1992, the public's focus gradually shifted from demands for political democracy to demands for freedom of expression. This shift can be viewed as extending democratic concerns into a new cultural arena. With the widespread dissemination of digital communications since the mid-1990s, the Koreans have discovered the freedom afforded by electronic conduits of cultural expression. The eruption of sociocultural exchange spurred by the mobility and interconnectivity of new communication technologies has acclimated citizens to speaking out in their own voices and expressing their own values. The ecology of the citizens' autonomous culture has

shifted from the street barricade struggle of resisting authoritarian regimes by throwing stones and Molotov cocktails to resisting the dominant discourses of society through electronic forms of cultural expression such as the Internet café, electronic forums, blogs, and text messaging with mobile phones.[84] These changes were ironically facilitated by the Young-Sam Kim administration's drive to shift the Korean economy from traditional labor-intensive industries to cultural or knowledge-based economies. The new material conditions of electronic mobility were firmly undergirded by the launch of the Korean Information Infrastructure (KII) in 1995, which has promoted the rapid growth of commercial broadband Internet service nationwide, as well as the increase of bureaucratic efficiencies in government agencies. The eruption of socio-cultural exchange spurred by the mobility and interconnectivity of new communication technologies has also acclimated citizens to speak out in their own voices and express their own values. The ecology of the citizens' autonomous culture has gradually shifted from the street barricade struggle of resisting authoritarian regimes by throwing stones and Molotov cocktails to resisting the dominant discourses of society through electronic

84 Koreans actively spoke out their own voices by using electronic media as shown in the following political protests: 1) In the 2002 Korean presidential election, an election campaign using mobile phones was very effective in organizing citizens and uniting them on the agenda of political democratization. At that time, using their own cell phones, Korea's younger citizens mobilized and encouraged friends, families, and peers to vote for the progressive candidate (Kim, 2003); 2) Another example is *OhmyNews*, a Korean online news site launched in 2000 with the editorial principle that "every citizen is a reporter," which has enlisted 38,000 "citizen reporters" who publish about 150 stories on the site each day (http://www.ohmynews.com). The website now draws half a million visitors a day and has become one of the alternative Internet media framing the public agenda. 3) In June of 2002, a citizens' rally commemorating the tragic death of two teenaged girls struck by a U.S. military vehicle was initiated for the first time by one citizen's online posting expressing anger at the presence of U.S. Armed Forces in Korea (People's Solidarity for Participatory Democracy, 2003, February).

forms of cultural expression such as Internet cafés, electronic forums, blogs, and text messaging with mobile phones.

Due to the civilian government's pro-IT policies, more than seven out of 10 households now have high-speed Internet access. The number of mobile phone users in Korea is also rapidly growing — as of June 2007, there were over 42 million registered users in Korea, out of a population of 48 million — and the high-speed data communications of mobile phones utilize the seamless multimedia services throughout the country (MIC, 2007, July). According to data from the Organization for Economic Co-operation and Development (2005), the process of digitalizing all telecommunication networks in Korea was completed in 2003. In fact, most Koreans spend their time on electronic networks (Fackler, 2007, November 18)[85] — playing online games in Internet cafés, decorating their blogs, communicating with each other using mobile devices, connecting with hobby or other interest groups through Internet portal sites, and exchanging audio-visual materials with others. This constant communication through electronic media, and the rise of a culture of free expression via these new media, led to the state's desire to control the communicative networks of Korean "netizens." This state's desire first took place in the indirect way of suppressing the online users' free speech rights through the application of more rigid copyright: between 1957, when the Copyright Act (No. 8029) was first enacted in South Korea, and 2004, it has been revised

85 As one of the negative symptoms of compulsive Internet use in Korea, *The New York Times* (Fackler, 2007, November 18, http://www.nytimes.com/2007/11/18/technology/18rehab.html?_r=1&oref=slogin) reported, "a growing number of students have skipped school to stay online, shockingly self-destructive behavior in this intensely competitive society. […] Up to 30 percent of South Koreans under 18, or about 2.4 million people, are at risk of Internet addiction."

eleven times — three of them since 2000. The trajectory of the act's revisions can be summarized in a phrase of the "reinforcement of intellectual property rights" for the copyright owners and holders (Hong, 2005: 9).[86] The government frequently uses the charge of copyright infringement to arrest those who express criticism of the government on the Internet. For instance, recently the government arrested the CEOs of major online storage companies for violating copyright by illegally transacting video files and movies; however, the Internet users suspect its real intention, because their websites became famous for live broadcasts by users of candlelight vigils against the import of U.S. beef, part of the government's KORUS FTA negotiations (*Chosun Ilbo*, 2008, June 18).

In Korean digital society, furthermore, few constitutional provisions exist to protect citizens' privacy rights against the surveillance practices that are systematically carried out by the government. If one wonders why such practices are still widespread under a civilian government, one must realize that state agencies have continued to hire officials who served under the military regimes, and government hiring has continued to be dominated by Korea's traditional clan culture, in which affiliation by region, educational institution, and birth place are paramount. Yet because the disciplinary

86 In October 2004, without any public discussion on this sensitive issue, some conservative members of the Korean parliament pushed through a twelfth revision of the Copyright Act that dramatically increased copyright owners' rights. The revision gave copyright owners an absolute monopoly over digital content and extended authors' copyrights to the span of their lifetimes plus 45 years. On January 17, 2005, the revised Copyright Act, which included controversial provisions that rigidly applied proprietary rights to immaterial labors, took effect. Under the revised copyright law, copyright owners gain the rights of transmission of artistic products over the Internet and all mobile communication devices; anyone who enjoys the new culture of sharing can be prosecuted for copyright infringement. This has led to the policing of images uploaded for decorating Web sites, background sounds for blog sites, lyrics from commercial music, and essays copied from online newspapers or magazines. Even if such sharing is for individual, noncommercial purposes, the use of copyrighted works without their owners' permission, such as uploading and linking others' creative works, is illegal.

mechanisms of the military regimes conflict with the gradual development of citizens' socio-cultural freedom, the power system since the civilian government began has tended to reconfigure itself using "soft" mechanisms such as creating integrated electronic databases or hiding identifiable tracking codes within the technological artifact itself. For instance, the electronic ID card and e-passport containing a chip with fingerprints and other personal information are typically used for identifying and monitoring any citizen at any time or place. Scholars' descriptions of new urban geographies dominated by electronically "fortified" cities (Davis, 1990) or "carceral" cities (Soja, 1996) reflect the new stage of Korea's policing of citizens through pervasive panoptic technology.

Table 7.1 shows a timeline of the regulatory control of electronic communications showing privacy-related scandals and legislation under the civilian governments.

Table 7.1. Regulatory control of the electronic networks under Korea's civilian governments

Dates	Events
(1993–1998)	**The Young-Sam Kim administration**
Nov 1997	– Submitted revision plan of the "Resident Registration Act" (including introduction of the electronic ID card), but it was defeated by citizens' opposition
(1998–2003)	**The Dae-Jung Kim administration**
– 1999	– Instead of e-ID card, introduced the plastic resident registration card
Jul 2000	– Proposed to enact the so-called "Framework Act for Establishment of the Public Order in Telecommunications"
Nov 2001	– Introduced the "Rating System of Internet Contents," led by the Information Communication Ethics Committee
Mar 2003	– Introduced the "National Education Information System" (NEIS) to manage more than 200 items of personal information about 8 million students in a main computer server
Jun 2003	– Installed 340 CCTV (Closed-Circuit TV) systems (360 degree rotation/ 22x zoom) in Kangnam-Ku district in Seoul, sparking social protests

Oct 2003	– Allowed investigators to access short text message of cell phones without a warrant
Nov 2003	– Proposed the "Protection from Terrorism Act," which aims at increasing the investigative power of the National Intelligence Service
(2003–2008)	**The Moo-hyun Roh administration**
Sep 2004	– Proposed an "Act on the Use and Protection of Location Data" which offers little protection to the citizen from illegal mobile tracking by a third party
Dec 2004	– Organized a task force for the "National Total Management Information System of Crime and Justice" (NTMIS) to integrate citizens' legal data on a central server
Feb 2005	– The Samsung SDI mobile tracking scandal: Samsung secretly tracked union workers by using cloned cell phones, but the Public Prosecutor terminated the investigation because of the extreme difficulty in locating perpetrators
Jun 2005	– Proposed revised edition of the "Protection Act of Telecommunications Secrets," which makes it easier for prosecutors to eavesdrop on phone calls
Oct 2005	– New ID cards planned for 2007 to protect against ID forgery
Oct 2005	– Installed CCTV systems (270x zoom/ 1km visibility range) in the Cheonggyecheon public park in Seoul, and gathered over 3 million citizens' images information
Dec 2005	– Proposed revision of the "Act on Promotion of Information and Telecommunication Network Use" to enact the "Enforced Real-Name System," mainly led by the Ministry of Information and Communication (MIC), for the purpose of forcing users to put their real names and resident ID numbers whenever posting any message on the Internet
April 2007	– Revision of the "Protection of Communications Secrets Act" enacted in 2004
(2008–present)	**The Myung-bak Lee administration**
March 2008	– Provincial government officials discovered using Voice over Internet Protocol (VoIP) to eavesdrop on subordinates in Kyonggi-Do province
April 2008	– Ministry of Foreign Affairs and Trade requires new e-passports to conform with the US Visa Waiver Program (VWP), which requires that passports have a chip containing fingerprints and other personal information
April 2008	– Lax privacy policies of the ISPs and telecom companies revealed: • 22 former and current executives and managers of Hanaro Telecom charged with leaking private information of its customers to telemarketers • Auction, an Internet shopping mall and subsidiary of eBay, facing two massive lawsuits after hackers stole IDs, passwords, phone numbers, and shopping logs of 10.81 million customers in February of 2008 • LG Dacom facing a class action suit for leaving customer records open on the Internet between 2005 and March of 2008 during which time 8 million subscribers' data was stolen

The various legislative acts found in the timeline of events in Table 7.1 are intended to regulate the new spheres of the citizens' new communication activities, including the Internet and cell phones. The main direction of government surveillance as evidenced in

the timeline from 1997 to the present can be summarized as follows: First, the government has desired to update the traditional disciplinary tools, such as the national ID system and the closed circuit TV (CCTV) system by digitizing and interlinking them over the Net. Second, the government has continuously legitimized the control of electronic space by means of legal enactments (e.g., the Framework Act for Establishment of the Public Order in Telecommunications of 2000, the Act on the Use and Protection of Location Data of 2004, and the 2005 revision of the Act on the Promotion of Information and Telecommunication Network Use). Third, the government has introduced "positive technologies of power" (Foucault, [1999] 2003: 48),[87] such as e-ID cards and e-passports for the purpose of invisible social control in wired space. Fourth, the locally dispersed data on citizens have been integrated into a central server, as will be discussed in the NEIS case (Chapter 7.5). Finally, the scandals in Korea's large corporations are representative of the country's unethical business culture, which has few qualms about leaking customers' data to third parties, whether intentionally or accidentally.

Under the Young-Sam Kim administration (1993–1998), electronic surveillance of citizens was undeveloped, marked mainly by the government's desire to collect the citizens' data by introducing the e-ID card in the last year of Kim's presidency. Considering that the Kim administration had begun to introduce the new pro-IT policies and initiatives, including the KII project, from 1995 onward, the network-based

87 This term of Foucault's stems from the effect of digitalization on social control. By automating and systematizing control electronically, power is able to hide its real intention of social control.

surveillance practices were still embryonic and had yet to be applied nationwide. The state's electronic surveillance practices were rapidly increased under Dae-Jung Kim's administration (1999–2003), during which the nationwide electronic backbone network was almost completed and the distribution of mobile telephony was dramatically expanded.

Even under the civilian governments, control mechanisms of the military regimes such as the national ID system and the National Security Law have been used as the major mechanisms to manage the citizens. However, with the new information and telecommunications policies promoted by the civilian governments, especially under the administrations of Dae-Jung Kim and of Moo-hyun Roh (2003–2008), the rigid and visible techniques of power have become more integrated with and veiled by the digital networks — that is, the techniques of control have shifted to more refined and invisible ones.

The invention of positive technologies for free-floating control is the most significant of all of these, because it can hide beneath an ethical patina the real intention of control directed at establishing the new digital rule of cybersociety; for instance, the enforcement of the "real name system" prevents anonymity of expression, which can be considered as a form of pre-censorship (i.e., it exerts a "chilling effect" on free speech). Moreover, the new technique of control embeds the old disciplinary technique of the national ID system within it because it uses the national ID database to verify real names on the Internet. Introduced under Dae-jung Kim's administration, the "rating system on Internet contents" has been actually used to stifle minority voices on the Internet such as

those of political radicals, gays and lesbians, high school drop outs, and feminists. In contrast with the "real name system," the rating system on Internet contents is a form of post-censorship, which intends to regulate "aberrant" websites that deviate from the ruling norms of power.

In addition to this pre- and post-censorship on the Internet, the government and the private sector have shown an increased desire for surveillance on a real-time basis in the wireless sphere. For instance, the use of mobile phones for labor control in the Samsung SDI case[88] confirms once again the undemocratic tendencies of the Korean business culture of surveillance, with the government's acquiescence in longstanding practices of the *Chaebols* such as the blacklisting of militant workers. A political dispute was also ignited by the eavesdropping of the National Intelligence Service (NIS) on the cell phone conversations of a news reporter working for a daily newspaper (Joo, 2004). On further investigation, it was revealed that government agencies, including the National Police Agency and the NIS, tracked mobile phone users in 12,184 cases in 2002, 20,773 cases in 2003, and 16,497 cases in just the first half of 2004. Cell phone users tracked included 12 politicians and five journalists (*Media Today*, 2005, September 27).

88 In July 2004, twelve former and current workers of Samsung SDI, a subsidiary of the Samsung group, filed a lawsuit claiming that the company had secretly tracked their activities outside of the workplace to stop them from establishing a labor union: Samsung SDI used hacked and duplicated mobile phones to monitor militant employees and laid-off workers who were attempting to organize a trade union (Joint Committee for Fact-Finding and Management Accountability Regarding Surveillance of Samsung Workers, 2005, February 16). This scandal evoked public protests over the violation of workers' human rights. Even though there was serious infringement of the workers' rights, however, in February of 2005 the Public Prosecutor terminated the investigation after six months because of the extreme difficulty in locating perpetrators, and thus no one at Samsung has been held legally responsible for a systematic, intentional violation of human rights. Further, at the behest of conservative politicians of both major parties, the issue

Most significant is that the intelligence agencies' eavesdropping was made possible by the voluntary cooperation of SK Telecom, one of the largest mobile telephony carriers, which gave access to its customers' records without any consideration of privacy. These surveillance scandals and practices in Korean society depict the confluence of unethical business interests randomly collecting citizens' personal information and an underdeveloped political system which trivializes citizens' privacy rights.

While the military regimes used physical oppression (such as imprisonment, abduction, torture, and police violence) and disciplinary control through collecting data about citizens (such as the residential ID system, wiretapping, surveillance, and on-the-spot inspections), the civilian governments have rapidly built the Internet backbone and wireless networks not only to adapt to the global trend of digital capitalism but also to conceal the state's surveillance and control techniques within technological artifacts. During both periods, a common goal has been the "war of speed" aiming at both control and growth. This local dynamic of building main national infrastructures was not so much decided by a simple affiliation into the global market as it was by complex processes of domestic control and economic development through the mass mobilization of the citizens toward informatization. In Korea, the major drive of informatization has been not only the state's desire to support the domestic conglomerates — as discussed in previous chapters — but also its desire to regulate the citizens by the normalizing control of network technology. In the process of Korea's informatization, the legacies of control

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of Samsung workers' human rights was dropped from the official agenda of the parliamentary investigation.

constructed by the military regimes have become the material basis of the electronic backbone networks that are currently advancing the technocratic desire for centrally amassing and managing data on every citizen.

7.5. CASE STUDY: "NATIONAL EDUCATION INFORMATION SYSTEM" (NEIS)

Civilian governments not only enforced interception of the network-based data on the citizens but also centralized local databases, to become more of a control society. Both the "National Education Information System" (NEIS) inaugurated in 2003 and the "National Total Management Information System of Crime and Justice" (NTMIS) inaugurated in 2004 are examples of the central government's modulating and assembling of locally dispersed micro-powers (see Table 7.1).

The NTMIS aims to integrate citizens' criminal and legal data in one central database system operated by the Ministry of Justice, whereas previously, such data had been managed separately by the police, prosecutors, courts, and other special criminal investigation agencies. Similarly, the NEIS is designed to integrate the information from over ten thousand schools and education agencies in a central server operated by the Ministry of Education and Human Resources (MEHR). The records of eight million students — more than 350 items of personal information about each student, including academic, health, activity, and family records — which had previously been managed in each school or district have now been integrated into the Ministry's central database. In a

climate of weak legal and technological privacy protections, the government pushed forward with the NEIS, despite the protests of civil rights groups in Korea, based on the bureaucratic elites' utilitarian rationale, discussed below, that centralizing the management of all citizens' data would be efficient for managing organizational society (in the case of the NEIS, the national school system).

The introduction of these database systems to manage each citizen's personal information would be inconceivable without a national electronic backbone network, the KII, which enables the integration of local data on the central database. The following sub-sections investigate the historical origin and controversial issues of the NEIS, the counteraction of the citizens against the NEIS, and its implication in relation to the NII.

7.5.1. Prehistory of the NEIS

The NEIS was originally derived from the earlier National Basic Information System (NBIS), a national computerization project launched under the Chun administration. From 1987 to 1996 the NBIS was a nationwide computerization project made up of five major information networks,[89] one of which was the Education and Research Information System (ERIS), the predecessor of the NEIS. The NBIS under the military regime was the first state-led IT network building plan to computerize the administrative affairs of government agencies and public institutions, and by building the ERIS the

89 The National Administrative Information System, the Financial Information System, the National Defense Information System, the National Security Information System, and the Education and Research Information System.

government expected to create a new labor market through IT education. In December of 1988, the ERIS was again split into two separate project units — the Education Information System (EIS) and the Research Information System — because the government aimed to develop each project separately. The goal of the EIS implemented under the guidance of the MEHR was quite simple: by 1996, the government aimed to distribute one PC training room per school, each equipped with 20 computers (to be shared by two students apiece) and a PC with a printer for a teacher (MIC & NCA: 2005). This PC-supply policy contributed to shifting the schools' documentation activities from hand-written documents to a computerized system — a "stand-alone" (S/A) computing system, since the concept of the networked PC system had barely been conceived at the time (the late 1980s). In 1998, the MEHR introduced the "client-server" (C/S) system, which enabled the schools to largely interconnect themselves through an Intranet. This C/S system was directly managed by school principals on a separate school server within each school. To construct the C/S system, which was installed in 8,651 (86%) out of a total 10,061 primary and secondary schools, the government had invested about US $150 million up to 2001 (Joint Struggle Committee for Human Rights in Information Society and Against the NEIS [hereafter JSC], 2003a).

Since 1998, the information backbone network (KII) has gradually expanded throughout the nation's major metropolitan areas, and the demand for high-speed broadband Internet has rapidly increased as well. To create a critical mass of subscribers for the KII, the government offered a steeply discounted institutional rate on service charges; in general, government agencies and educational institutions received a 40%

discount on broadband service charges from the service providers and a 40% government subsidy, so that they paid only 20% of the actual cost (see Chapter 5.4.1).[90] The government further discounted the rate to subscribers from elementary, middle, and high schools by charging them only 13% of the actual cost, and even offered them free access to the Internet at 256Kbps (MIC & NCA, 2006). To accomplish this massive discount of service charges, the MEHR had already requested the government to benchmark the "E-Rate" offered by the US government, which is a 20% to 90% subsidy for schools and libraries drawn from the Universal Service Fund (US Department of Education, 1997). Following this US standard, the steep discount rate for educational institutions in Korea became decisive in creating the momentum to expand the broadband service into isolated schools in remote areas.

In 2001, the KII project was entering into its third phase — the optical backbone network for interlinking the government agencies and public institutions (KII-G) — and the government began to focus on the quality of the network service and the development of commercial media contents, since the physical backbone network had been completed. The broadband Internet services of educational institutions through the physical conduit of the KII-G had grown enough to cover the entire school system due to the government's sponsorship of subscriptions. To exploit to the new material conditions brought about by the KII (the increase of broadband interconnectivity and the national

90 Moreover, the major daily newspapers participated actively in advocating the government's goal of IT education by means of their own IT campaigns to the students, such as the IIE (Internet in Education) by the *Chung-Ang Ilbo*, the KidNet movement by the *Chosun Ilbo*, School Informatization and Internet Youth Camps by the *Dong-A Ilbo*, and GreenNet by the *Hankook Ilbo* (MIC & NCA, 2006). These campaigns led

coverage of the optical networks), President Dae-Jung Kim announced eleven e-government initiatives. The goal of e-governance was to digitize key administrative and civil information and construct a seamless web of data through the national backbone network. The government planned to develop such IT policy programs as the Internet-based Civil Service, e-Procurement System, and National Finance Information System, as well as the National Education Information System (NIA, 2007). Through these programs, the government wanted to create integrated online government services, such as "a service enabling any citizen to report, file, or pay taxes over the Internet" (NIA, 2007: 29).

The government introduced the NEIS as part of the e-government initiative to connect the nation's 10,870 primary and secondary schools to 16 provincial education boards in order to handle educational affairs electronically. Since the NEIS was designed under the state-led e-government initiative, the government designed it as a centrally integrated database system interlinking educational institutions under a bureaucratic vision. The locally managed C/S system was abruptly dismantled even before it was fully installed. While it was discarding the enormous investment in the old C/S system, the government spent an additional US $52 million to install the NEIS and more than US $500 million to upgrade the schools' PC system with new models. From March to September of 2002, the MEHR undertook a system design and deployment for the NEIS with the technical support of Samsung SDS, and then from September of 2002 to

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by major newspaper companies worked synergistically with the government's IT promotion at the national level.

February of 2003, it conducted a pilot test at 267 schools in order to measure the feasibility of the NEIS. In February of that year, as the Presidential Transition Committee was preparing for the Moo-hyun Roh administration to take office, the Korean Teachers and Educational Workers Union (KTU), or *Jeongyojo*, a left-wing labor union, along with civil rights movement groups, requested that the new Roh administration cancel the implementation of the NEIS because it threatened the civil rights of students and teachers and would create problems such as infringing on the privacy of students and parents, the bureaucratic control of teachers, and overburdening staff with computer work, since teachers would be required to register every detail of school management and of students' academic performance, health, and enrollment records (Alliance of Seventeen Human Rights Groups, 2003, February 12). On March 1, 2003, the inauguration day of the new administration, however, the MEHR launched the NEIS, heedless of the request from civil rights groups.

7.5.2. Bureaucratic efficiencies vs. an Orwellian vision

The NEIS was a typical policy program directed by the central government. The proponents of expanding the NEIS to the entire nation — the government, the MEHR, and the system developer — have defended the "openness" of the system, in contrast to the "closedness" of the locally-operated C/S system (Presidential Commission on Policy Planning [PCPP], 2008). They stress the efficient management of an "integrated" system of students' records on a central server (PCPP). Meanwhile, the opponents of the NEIS

— the KTU, the coalition of parents, and the civil rights groups — have critiqued the scope of data collection and the security weaknesses of a central server controlled by the MEHR.

The strongest criticism of the NEIS has been directed against the amount and sensitivity of the personal information it collects on each student (Jung, 2003, April 1). The NEIS collects 358 personal records per student, as previously mentioned, which are broken down into the following three categories: student academic and enrollment records, school management information, and health records. "Student academic and enrollment records" consist of 45 records for each student, such as resident ID number, passport picture, attendance, lateness, sick leave, accidents, special talents, behavior patterns, and written evaluations. "School management information" consists of 170 items related to each student's socio-economic status, such as whether the student is a beneficiary of a social security program, receives special education, is the head of a family, or has been subject to disciplinary action at school, the birth dates and educational backgrounds of students and parents, and records of counseling, delinquency, deviancy, and imprisonment. "Health records" include 143 records about a student's health, such as preventive inoculation, physical condition (obesity, eyesight, color blindness, hearing difficulties, nose trouble, malnutrition, mental disorders, and allergies), the results of pathology tests, and disease history. Besides these detailed records, the NEIS also incorporates 24 other sections including data such as a school's budget, salaries, equipment, facilities, accounting, and personnel records, including 27 items of personal information on each teacher, such as the state of their health, their property (including

real estate), records of political activities, and criminal records (Kim & Kim, 2004; JSC, 2003a). The database also links each student's personal information with that of their parents, including birthdates, residential ID numbers, and educational backgrounds. The NEIS therefore enables the state to control vast amounts of specific personal information about students, parents, and teachers. This so-called "open" system integrates these privacy-sensitive data into the central server of the MEHR, and that database is once again integrated and re-sorted into the national ID number database and other databases containing even more personal information about individuals: the scope is thus truly Orwellian.

This integration of databases signifies a new stage of integration and articulation between micro-power in the local and macro-power in the central government. If these integrated data in the central server are greatly vulnerable to security breaches, the damage might be unlimited in scope. Already in early 2003, Korea was substantially affected by a virus attack that crippled the domestic Internet system.[91] The so-called "1-24 Computer Disaster" was caused by a security flaw in Microsoft's web-server software, and since then Koreans have begun to believe that any networked computer is vulnerable to a malicious virus or hacking. Other new doubts were created by the sudden shift of

91 The vulnerability of Microsoft's software provoked harsh criticism, and since then the government has begun to consider alternatives to it. At that time, despite the availability of patches, Microsoft made it difficult to keep track of its security alerts, so the alerts did not get through. Software users were furious with Microsoft's self-contained, monopolistic software technology, and an influential Korean civil rights group, People's Solidarity for Participatory Democracy, launched a lawsuit for damages related to the Slammer virus. Named in the suit are Internet service providers such as KT and Hanaro Telecom, the Ministry of Information and Communication (MIC), and Microsoft itself. The civil suit was brought on behalf of some 1600 Internet users and companies, but their claims were ultimately denied (the Civil Suit Bureau 24, Seoul Central District Court, 2005, December 23).

government policy from the C/S system to the NEIS. The government had already invested massively in the C/S system, and, up until April of 2001, the MEHR had expressed no other plan than to expand the installation of the C/S system into every school. Interestingly, according to a monograph released by the JSC (2003a), just after the MEHR's briefing about the C/S system in the Blue House (the Korean White House), the Special Committee for E-government — a special joint taskforce for implementing eleven e-government policy goals under the Dae-Jung Kim administration — caused the MEHR to change their policy plan from the C/S to the NEIS. This report adds that the government urged the MEHR to cooperate with Samsung SDS, a network system developer and subsidiary of Samsung Corporation, to shift school networking from the C/S system to the NEIS. According to the recent policy report by the Presidential Commission on Policy Planning (2008), since then, a total of 88 members —12 public officials of the MEHR and 76 persons from Samsung SDS — began to launch to analyze, design, and build the NEIS, without considering the participation of the general citizenry, more broadly selected expert groups, and the relevant civil society groups. In fact, these two reports confirm that the government and Samsung SDS exclusively arranged a secret deal to replace the C/S system with the NEIS. These opaque decision making processes and controversies over the government's IT-driven educational policy finally evoked the mass protest of citizens against the NEIS, as discussed in the next section.

7.5.3. The battle over the NEIS

From early 2003 onward, the KTU and other civil society groups were already developing a civil disobedience movement against the implementation of the NEIS (JSC, 2003a), which they claimed would allow the government to keep and control an unconstitutional database system threatening the civil rights of students, teachers, and parents. On February 18, the KTU filed a petition with the National Human Rights Commission (NHRC)[92] claiming the NEIS violated human rights by its systematic surveillance of students' records. On March 3, the KTU also launched a sit-in protest against the NEIS, and on March 17 and the parents' group also announced their opposition to the NEIS' implementation, but the government continued to implement the database system despite these protests. The NHRC (2003, May 12) issued policy recommendations siding with the civil rights group, judging that the three categories of students' records (school management information, student academic and enrollment records, and health records) infringe upon the basic human rights under international law as well as the national constitution's protection of privacy.[93] The NHRC recommended that each school continue to use the C/S system to store such private information, while enhancing the security level of the system. The NHRC also called for the government to

92 The NHRC is a government commission "established in 2001 as a national advocacy institution for human rights protection. It is committed to the fulfillment of human rights in a broader sense, including dignity, value and freedom of every human being, as signified in international human rights conventions and treaties to which Korea is a signatory" (NHRC, 2007).

93 The NHRC cited the Universal Declaration on Human Rights (Article 12), the International Covenant on Civil and Political Rights (Article 17), the Convention of the Rights of the Child (Article 16), the OECD's Guidelines Governing the Protection of Privacy and Trans-border Flow of Personal Data, and the UN's Guidelines for the regulation of computerized personal data file, as well as Article 10 (the Right to Pursue Happiness) and Article 17 (the Right to Protect Private Life) of Korea's Constitution (JSC, 2003b).

remove the three privacy-sensitive categories containing students' information and teachers' personnel records from the NEIS (Privacy International, 2007). The NHRC has no power to enforce its rulings, because its scope is limited to issuing policy recommendations, but the NHRC's recommendations in this case had sufficient impact throughout Korean society that the government was forced to scale back its implementation of the NEIS. The Ministry of Education and Human Resources (MEHR) officially announced that it "would consider the NHRC's recommendations with respect" (*Hankyoreh*, 2003, May 5). On May 26, the MEHR, in its negotiations with the KTU, finally seemed to accept the NHRC's policy recommendations to drop the three contested categories of students' data and to revise the whole process of implementation. Table 7.2 shows the number of items that the government agreed to remove from the NEIS database and what items remain.

Table 7.2. The three contested categories of NEIS data

Categories	Original Plan	Removed	Retained	Percent removed
School management information	170	56 (37)	114 (133)	33% (22%)
Student academic and enrollment records	45	45	0	100%*
Health records	143	135	8	95%
Total	358	236 (217)	122 (141)	66% (61%)

Notes: * 100% is to be removed after a student's graduation.
Numbers in parentheses refer to the figures for special schools for the disabled.
Source: JSC (2003a: 7)

Even though the government agreed to drop 60% of the personal information from the original database, a total of 122 privacy-sensitive records were still problematic. Despite

the civil rights groups' concessions during negotiation, the MEHR later betrayed them by announcing that it will allow each school to choose its own database management system, raising the suspicion that schools would be pressured to adopt the original version of the NEIS (JSC, 2003b). Reacting to this announcement from the MEHR and under persuasion from the Provincial Offices of Education, which are subdivisions of the MEHR, some primary and secondary school principals began to voluntarily introduce the NEIS into their computer system, although the principals' decisions were taken without any agreement from the teachers (*Yonhap News Agency*, 2003, June 19).

The MEHR's betrayal aroused public outrage: on June 18, human rights activists launched a hunger strike struggle against the NEIS (People's Solidarity for Participatory Democracy, 2003, June 26). On June 20, the KTU visited the MEHR building to resist the government's adherence to the NEIS and to launch a nationwide rally with large demonstrations to halt its implementation, while shouting a slogan that "the MEHR must stop the NEIS policy of an ostrich sticking its head in the sand" (*Hankyoreh*, 2003, June 21).[94] Facing such a strong backlash, the government realized that the MEHR had lost the credibility to lead the NEIS policy program and instead created a Committee for Educational Informatization (CEI) headed by the Prime Minister. Ostensibly, the CEI was to listen to the various stakeholders' voices in redesigning the NEIS plan. The KTU argued that, in reality, the government arbitrarily appointed CEI members behind closed doors and entirely excluded the anti-NEIS civil rights groups. The KTU claimed that "the government should never have included on the Committee persons who opposed the

NHRC's policy recommendations" (*Hankyoreh*, 2003, June 24). On June 25, a large number of civil society groups, human rights organizations, and unions — including the People's Solidarity for the Participatory Democracy, the Lawyers Association for a Democratic Society, the KTU, and the Democratic Labor Party — jointly held a press conference demanding that the CEI be reformulated on the basis of transparency and democracy. On July 8, the 43 civil rights groups opposing the NEIS established a Joint Struggle Committee to Protect Human Rights in Information Society and Against the NEIS (JSC). The JSC announced to the media that it would "organize a pan-national movement against NEIS, to conduct national campaigns for abolishing the e-government project [the NEIS] which infringes the human rights, and more broadly, to discuss the citizens' human rights in an information society" (JSC, 2003, July 8). The JSC also declared that it would reinforce solidarity with the international organizations fighting for human rights such as the United Nations Human Rights Council, Privacy International, Education International, and the International Labor Organization. In September of 2003, the JSC began to stage a massive candlelight vigil protesting against the NEIS in several major cities and a one-person picket protest[95] in relays in front of the entrances to schools.

To end the long-lasting conflict surrounding the NEIS, in September of 2004, the government again entered into a bargain with the KTU, and came to the conclusion that

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94 http://www.hani.co.kr/section-005000000/2003/06/005000000200306211816391.html.

95 In Korea, this is a popular way to express one's anger against the authorities: one person stands or sits in front of the building where the targeted authority resides while holding a picket or a banner until relieved by the next protester.

in September of 2005 the NEIS would be tested in a revised form and installed in the following year. Both parties agreed on some controversial points: First, the plan to have a central server of the NEIS managed by the MEHR would be nullified. Instead, each individual school could choose the S/A, the C/A, or the NEIS system. If choosing to introduce the NEIS system, a high school must install an individual Intranet server unable to connect outside servers, and an elementary or middle school must construct a group server system capable of linking no more than 15 schools internally. Second, once the NEIS was operated by the server of an individual school or a group of schools, the three privacy-sensitive categories for students' record (school management information, student academic and enrollment records, and health records) could be kept, on the condition of deleting some highly sensitive records (Kim, 2004, September 24). Third, to save the costs of building the distributive networks, Linux was adopted as its major operating system. Linux, an open source operation system, has been installed on 2,335 NEIS servers since March of 2006 when the revised NEIS was officially launched (Kim, 2007, July 16).

Although the civil rights groups failed to abolish the NEIS, they did accomplish the goal of blocking the government's desire to manage students' personal information through a central sever system. In this case, public protest achieved its goals, or some of them. Through a dramatic bargaining process, the NEIS scandal came to an end, but privacy issues in the education system have not. For instance, although in March of 2005 the National Assembly passed the revised Basic Education Act with a new provision to protect students' personal information, simultaneously, illegal activities such as the

leaking of students' data to the private educational service companies are increasing (Park, 2007, August 29). The Ministry of Education, Science, and Technology — created under the new president, Myung-bak Lee, by a reshuffling of the MEHR and the Ministry of Science and Technology — has planned to install CCTVs in 70% of school buildings by the year 2010 in the name of monitoring gang activities in schools (Noh, 2008, May 18). The state's desire to collect students' personal data seemed to backfire and was almost foiled in the NEIS case, but the government's recent plan to install CCTVs in most schools signifies that the state is incessantly seeking to monitor students, at the same time as the increasing leaks of student data to private companies (*Hankyoreh*, 2005, April 21) indicate that the private sector is on the prowl for whatever data it can obtain from these expanding stores of government data.

The KII was the government's chosen instrument for improving the global competitiveness of the national economy, providing the citizens more efficient public services, and promising them a better quality of life. The government considered the KII, and within it, the NEIS, to be the first step toward creating a rosy digital future by interconnecting the public educational institutions at the national level. The case of the NEIS, however, has begun to suggest to the public that anti-democratic and retrogressive aspects of Korean political culture have been deeply embedded within the design of such technical codes.

7.6. LESSONS ABOUT SURVEILLANCE, PRIVACY, AND PROTEST IN THE KII ERA

Even among Asian countries, South Korea is known as a country highly passionate about education, where the parents are wholly devoted to improving the social status of their children through their investment in higher education. From elementary school through high school, Korean students strive fiercely to enter the exclusive universities in and around the Seoul metropolitan area. The government and the public and private educational institutions have also justified promoting stronger competition among the students and wielding disciplinary control over them. The NEIS case represents a worst-case scenario resulting from the technocratic education policies by which the state has regulated the students' academic affairs and their personal information. The NEIS also became a locus of confrontation between privacy groups and proponents of IT efficiencies in which both parties failed to accomplish their ultimate goals. To install the integrated database system, the government used the plea of "efficiencies" of systematic management to justify bureaucratic control of citizens. The opponents resisted the NEIS's lack of privacy safeguards (Park, 2007) and warned of the potential dangers of a state-controlled database system.

The NEIS controversy in Korea offers several lessons about surveillance, privacy, and protest in the age of nationwide networks like the KII: First, surveillance cases similar to the NEIS are arising with increasing frequency in the digital age, all aimed at bolstering the bureaucratic capacity for social control. It is obvious that national networks like the KII not only promote the national economy but also stimulate and refine government surveillance practices such as the "free-floating" control of digital databases

(Deleuze, [1990] 1995; see Chapter 2.3.2.1). Second, with the conjoining of digital technologies and bureaucratic control, citizens' privacy rights are more easily vaporized, and their losses more difficult to perceive, than in disciplinary society under the military regimes. Third, the confluence of an underdeveloped political system, vulnerable citizens who are sorted by bureaucratic and business interests, cronyism between the *Chaebols* (e.g., Samsung SDI and LG CNS) and the government for creating the national database systems such as e-ID card and the NEIS, and the lack of a legal system protecting privacy continuously reinforce the pervasive use of public power in Korea. Fourth, despite these constraints, in the new era of civilian government, Koreans' political engagement — as can be seen in the robust alliance of civil society groups against the government's NEIS policy — has become mature enough to counteract the new network-based surveillance techniques in the contemporary control of power. In this lies the hope for Korea's future.

Chapter VIII: Conclusion

8.1. THE REAL CONDITIONS BEHIND KOREAN-SPECIFIC DEVELOPMENTALISM

This study had its origins in questioning the popular belief among policymakers that the Korean Information Infrastructure (KII) project has improved the quality of Korean society and culture and further upgraded the country's IT status in the global community. It is obvious that policy rhetoric that ignores the real conditions behind the successful KII policy plan creates a barrier to an accurate evaluation of the KII project by telecom policymakers, politicians, and communication scholars. In fact, Korea's developmentalism — its continuing efforts to catch up to the economic power of the advanced nations — has been founded on close linkages between the state and powerful corporate interests, which resulted in neglecting the participation of the citizenry. From each chapter, this study can detect the opaque decision-making processes surrounding the KII, such as allotting the KII business licenses for specific vendors, KT and LG Dacom (Chapter 4 & 5); redesigning the KII as a regulatory means to control the citizens as seen in the case of the National Education Information System, though this attempt was largely thwarted by public reaction as detailed in Chapter 7; and excluding the citizens' voices in the intermediary organizations built to facilitate the KII as discussed in Chapter 6. The

underdeveloped political culture of Korea led the KII project to be a half-ripe policy: it serves as the material foundation which has made Korea an IT powerhouse but also, as policy, it represents the already entrenched corporate interests and reinforces the bureaucratic efficiencies for social control. The present study has confirmed that the past legacies of authoritarian interventionism and developmentalism under the military regimes still haunt such projects as the KII. Although it was planned and implemented under civilian governments, the KII could not escape the authoritarian and undemocratic character of the politico-social structure inherited from the military regimes.

This study has examined in detail the major contextual factors conditioning the KII project: the global constraints conditioning its telecom policies (using globalization theory), the dense state–capital linkages (using developmental state theories), and the bureaucratic desire for control (using critical geographies).

As the background for investigating the major driving forces that conditioned the birth of the KII project in the early 1990s, Chapter 4 surveyed how, from the period of Japanese colonialism through the military regimes to the current civilian government, different regimes have changed space and spatialization in Korea by building national transportation and information infrastructures. Specifically, this chapter examined how the state-led infrastructure plans in each of these eras have been closely related to the economic goals of the various regimes: Under the colonialist regime, the infrastructure across the peninsula was built to serve the Japanese imperialist desire to access the Manchurian market. The military regimes had a strong sense that they must industrialize the national economy, which lagged far behind the advanced nations. This industrial

modernization project rapidly developed the economy; by the early 90s, however, Korea was experiencing an economic recession as a result of losing its privileged export status based on low-wage labor in textiles and heavy industry. The civilian government's main goal, therefore, was to shift the national economy towards a knowledge-based system, and they chose the KII as an infrastructure to revive Korea's economic growth in the new digital economy. This chapter, thus, situated the KII project not only within the succession of past administrations' infrastructure plans, but also within the response of Korean government and business to the new digital mode of capitalism.

As regards the global constraints, Chapter 5 examined how Korea's state-sponsored project to create the most developed broadband network in the world was catalyzed by the context of market liberalization, a process led by the US and other developed countries and including the WTO regulations and the US Trade Representative's designation of Korea as a Priority Foreign Country. This chapter investigated the dynamic mechanism of the nation confronting the pressures of economic globalization, which has two contradictory aspects: the voluntary affiliation of Korea into the unified global economy and the local adjustment to survive within the hierarchical system. While the government's series of IT-driven policy plans aimed at positioning Korea's IT infrastructure in the forefront of universal global capitalism in the digital age, this chapter showed that tensions have arisen between the strong wave of economic liberalization and the desire to protect and promote national sovereignty. De-nationalizing processes, rather than being a simple integration of local economies into the global, have also fed nationalizing dynamics at the same time (Sassen, 2006). The development of the

ATM switching technology, an essential part of the KII, was a typical case illustrating how the Korean government wanted not only to enlist the local economy as part of the global network of capitalism, but also to promote priming-the-pump policy plans in order to create new profitable resources for the local market. Thus, this chapter describes how the state leadership in the KII project was an active expression of the national IT strategy, even though in the case of the ATM switching technology it ended with a "broken dream" because the ATM technology became outmoded by the IP-based router. Further, within the process, this chapter shows how the state assumed a collaborative role as an agent of local capital and as a mediator controlling the inflow of global capital. This analysis once again confirms the assessment that the globalizing process is "partly inhabiting and even getting constituted inside the national" (Sassen, 2007: 2). Theoretically, this chapter exemplifies the East Asian textures of localization in response to the irresistible force of economic globalization. The economic sphere of globalization can be seen as the underdevelopment or closure of local economies overwhelmed by the globalizing flows of capital, finance, and commodity, while the socio-cultural spheres of globalization have been more flexible and autonomous in their response the universal principle of globalism. Even within the economic sphere, however, this chapter notes the strong tendencies of the local manifested under the structural hierarchy of economic globalization.

With regard to the dense state–capital linkages, typical in the developmental state model in Korea, Chapter 6 first surveyed the legacy of the developmental state model under the military regimes (1963–1992) which created centralized, authoritarian national plans for industrialization carried out through intergovernmental organizations mediating

close linkages between the state and the *Chaebols*; this model showed some continuities but also some discontinuities with the KII policy plan under the civilian governments. Continuity is seen in the *Chaebol*-biased policy plans of the government and its intermediary organizations in both eras. For instance, like the Economic Planning Board (EPB) established under the military regime of Cheong-hee Park, the KII Planning Board was distinctively effective in implementing the IT project through its intermediary role in which it managed the various interests of the different government agencies and the *Chaebols*. Discontinuity can be seen in the shift in the role of the state: While the developmental state under the military regime acted as a commander directing the *Chaebols* in the execution of its plans and policies, the post-developmental state under the civilian government became a coordinator who guides policy projects in a manner favorable to the *Chaebols*. Under the military regimes, the state and the *Chaebols* had a direct crony relationship in which the government granted business licenses and in return the *Chaebols* donated political slush funds. In contrast, this chapter described how the KII project's success was facilitated by indirect government subsidies to the *Chaebols* such as public investment loans, a joint public-private sector KII fund, and the Internet subscriber promotion through the cyber-building certificate system.

Chapter 6 confirms that even in today's Korea, "those with a connection to a few leading political figures have precedence over others who might be better qualified" to participate in policymaking (Hyun & Lent, 1999). The backward political conditions in Korea (which can be seen in the pervasive practice of ignoring the procedural consensus mechanisms of policymaking and relying instead on personal ties or favoritism to specific

Chaebols) combined with the dominant trends of contemporary global capitalism have made the market more vulnerable to crises such as the IMF financial crisis of 1997, and impeded new entrants into the market. Chapter 6 assesses the KII project as a prototypical IT policy reflecting an evolving phase of the developmental state model (the "flexible" state), an IT policy which was enacted in the midst of the shift from the "strong" state to the present "market-driven" state. As regards the *Chaebols*, the KII project has created the material conditions enabling them to become "*e-Chaebols*," incumbents in new IT sector, as well as in the traditional manufacturing sector. Theoretically, Chapter 6 contributes to a critical reading of the developmental state theories through disclosing the negative effects caused by the symbiosis between the state and the *Chaebols* during the KII project and by relating the evolutionary phases of the state power to the emergence of Korean civil society and to the *Chaebols*' growth.

Chapter 7 examined how the KII has also facilitated the state's control of its citizens and how the civilian government's surveillance techniques based on the digital networks differs from the disciplinary surveillance techniques of the military regimes. The KII has provided the citizens more efficient public services by the e-government system, but at the same time it has enabled the government to shift its surveillance of citizens from a visible, disciplinary, oppressive, and place-based mode of social control to an invisible, mobile, and flow-based one. To illustrate the KII-based control conducted by the government, Chapter 7 examined the case of the NEIS, which aimed at managing the profile data of students, parents, and teachers through the central server of a government agency (MEHR). The NEIS was a unique Big-Brother-type proposal, one which could

hardly be imagined without the nationwide high-speed backbone networks. It represented the conjoining of bureaucratic efficiencies and digital technologies under the conditions of an immature political culture, which took no consideration of the citizens' privacy rights. The chapter concluded that the confrontation between the proponents of IT efficiencies and the civil society groups that united against the NEIS epitomizes the citizens' hopeful possibilities for increased democracy in public life in Korean society. Theoretically, Chapter 7 confirms Gilles Deleuze's thesis (see Chapter 2.3.2.) that today's society has transformed the power mechanism for social control from one of disciplinary suppression to a digital grid of control over the citizens. In regard to the NEIS case, this chapter confirms that, in this Deleuzean world, there is a new tendency of surveillance techniques to articulate locally dispersed micro-power (localized data) into the centralized macro-power (a central server system).

In sum, it is unquestionable that the KII project, sustained by government subsidies, has enhanced the national IT indicators and elevated Korean society into the first tier of global IT development (a shift of the Korean economy from the export-oriented industrial system to knowledge-based one); nevertheless, the legacy of developmentalism practiced by the military juntas has also left its mark on the KII project (which was carried out under the "flexible state," a mixture of the strong state and the market-driven state). Just as under the military regimes, so today the *Chaebols* such as KT, LG Dacom, SK, and Samsung have been great beneficiaries of the KII and become the dominant actors of the IT economy (the creation of *e-Chaebols*). Moreover, without strong protections for citizens' privacy rights, the KII can easily become (as the NEIS case

shows) a further extension of the state's surveillance of its citizens, and in this way the KII signifies a shift in Korea from a disciplinary society to a network-based control of society (see Table 8.1).

Table 8.1. The role of the KII as a catalyst

	The KII as a catalyst of the following evolving phases:
Major infrastructure	*From a physical infrastructure to a virtual infrastructure*
Catching-up economy	*From an export-oriented industrial economy to a knowledge- or digital-based economy (from Chaebols to e-Chaebols)*
Form of the state	*The flexible state (a transition from the strong state to the market-driven state)*
Social control	*From a disciplinary society to a network-based control of society*

Further, the KII embodies a decision-making process that is confined to technocrats and business interests and has excluded the general citizenry, more broadly selected expert groups, and the relevant civil society groups. The lack of democratic decision-making processes in building the KII can be seen in such policies as the careless introduction of the NEIS, the ill-judged choice of the ATM as a core technology, and the exclusive membership of the intermediary organizations that guided the KII's design. It is thus all the more necessary to construct a democratic forum at the national policy level which is sustained from below to work on behalf of the public welfare against the proprietary interests of the *Chaebols*.

8.2. BEYOND A DEVELOPMENTAL STATE MODEL: TOWARDS A SUSTAINABLE DEVELOPMENT MODEL

South Korea has accomplished rapid economic growth within a brief period: under the Park regime, the "developmental dictatorship" succeeded in accomplishing industrial modernization; at the same time, it caused a "tendency toward deformation" of economic growth under conditions of extreme state intervention, a deformation that includes such phenomena as the increase of inequalities between the classes, environmental destruction, harsh labor control, and crony capitalism. At the present time, although economic policy is no longer implemented by an autocracy, the close relationships between the government and the *Chaebols* are still influential in designing the national economic plans, and civil society's ability to be involved in or monitor the policymaking processes is limited. The state rhetoric of a "catching-up" economy has easily overruled voices from below by regarding them as unnecessary noise.

Policy change in Korea should lead toward reformulating telecom policies along much more socially-interventionist and redistributive lines, and toward decentralizing or democratically controlling the overwhelming power of the *Chaebols*. What is needed is a democratic force from below that can exert itself against such interests and assert instead the public's interest. Understanding the history of the KII project provides insights into how to formulate future telecom policies along much more democratically participatory lines while restraining the overwhelming power of the telecom oligopolies and *Chaebols* and soliciting the input of citizens and citizens' groups. The results of the present study suggest that the attempt of states to intervene in a protectionist way to oppose global

capitalism will only serve to further expand the power of the *Chaebols*, which will in the course of time simply expand into transnational oligopolies. What options are open to those who would avoid furthering the same type of collusion between the state and the *Chaebols*?

First, to stop the crony linkages between the state and the *Chaebols* in Korea, the civil society needs to force both the government and the *Chaebols* to guarantee small and medium enterprises (SMEs) a fair share in granting the IT-related business licenses. For instance, in composing a consortium for a specific IT project such as metropolitan-area network (MAN), the central and city governments can legally require the allocation of one half of the business rights to SMEs, along with restrictions on the share allotted to each *Chaebol*. Korean SMEs have existed in a "master–slave" relationship with the *Chaebols* in which they are forced into serving as the *Chaebols'* subcontracted sweatshops. The best way to revive IT venture capital in Korea is to shift away from such practices and allow SMEs equal access to the market as independent actors. None of the SMEs in Korea were able to grow large enough to challenge the established *Chaebols*; due to the favoritism shown by the state to the *Chaebols*, the rise of new *Chaebol*-sized corporations is rare, indeed, almost impossible in the current Korean market. The irrational slogan that only the *Chaebols* can nurture the national economy and compete with other countries' multinationals in the global market has prevailed; instead, the logic of scale should be replaced with the IT growth thesis focusing on the SMEs' innovative roles in a creative industry. The government should set out fair rules that allow for the SMEs to survive and compete in the market, rather than serving as "midwife" to the *Chaebols*.

Second, while the privatization and commercialization of the Internet are significant factors endangering a free culture in Korea, as they are throughout the developed world, the most urgent issue surrounding media and the Internet in South Korea is the government's continuing pre- and post-censorship, such as the Internet content rating system, the real name system that prohibits anonymous postings on discussion groups, and the imprisonment of system operators and users in order to restrict free speech. Under the contemporary undemocratic and underdeveloped political culture, the political elites could easily pollute the IT infrastructure by restricting the citizens' public life. While Korea has, as mentioned in Chapter 7.5.3, a National Human Rights Commission, currently its rulings are only advisory; what is needed is for the Commission to be given legal power to enforce its rulings against acts of censorship carried out by the government or its agents, or by corporations or others.

On a broader societal level, in order to resist such invisible and concealed bureaucratic power of social control, as in the NEIS case, citizens' privacy and human rights should be cultivated by the tactics of counter-surveillance or so-called "synopticon" (Mathiesen, 1997) that enables the public not only to monitor power's surveilling eyes but also to resist the surveillance networks of political power. Whereas, in its original conception, the panopticon is a disciplinary model for supervising prisoners from an all-seeing high tower, the counter-surveillance or "synopticon" designates a reversal in which the many (the citizens) watch the few (the powerful). For instance, following the example of environmental impact assessments which measure the potential results of such development projects as a dam, motorway, airport or factory even before their launch, one

of the tactics of the synopticon could be the creation of technology impact assessments (TIA) which ensure the citizens' ability to monitor and participate in an IT policy from its design to implementation. In control societies, place has been transformed into "flows." The greater the role communication networks play in the production and reinforcement of power, the more the citizens are enabled to re-appropriate the dominant system residing in the flows. It is likely that the same conditions that reinforce abilities of power can also empower the citizens. Even under seemingly rigid control, political tension exists between the codification of power and its rearrangement by the intervention of human agents.

Third, the KII was a project designed by self-assured technocrats, without considering minority voices or feedback from civil society. It has been the pattern of Korean IT policies to ignore the importance of social inclusion and the civic participation of marginalized community groups and user groups that should lie at the heart of IT development. What is needed is a democratic force from below that can exert itself against such interests and assert instead the public's interest. For instance, in his history of South Africa's transitional period of 1990 to 1994, Horwitz (2003) notes the policy setting of a "culture of democratic consultation and transparency." He describes various stakeholders' "forums" in South Africa as providing a space for the effective intervention of civil society groups in a more "concerted" setting rather than a "corporatist" in national telecommunications policymaking processes. A well-ordered society creates the optimal conditions for citizens to participate in the policymaking processes and within it to cultivate for their own benefit the virtue of cultural diversity. In contrast to the unfair conditions in the market supported by the state's developmentalism and favoritism in

Korea, the present study suggests a democratic "forum" at the national policy level could be sustained from below to work on behalf of the public welfare against the proprietary biases of economic oligopolies that have manipulated Korean social reality up until now. Speaking of the situation in the US today, McChesney (2004, 2007) mentions the concept of "critical junctures" at which there is the momentum for media and telecom reform; at the present time, civil rights activists such as media watchdog groups and grassroots movements should exert pressure on the Korean government to rearrange the technological and cultural resources, wealth, and power now controlled by the interests of big business and by neoliberal deregulatory policy.

Finally, at the rhetorical level, Korean civil society needs to take a leading role of transforming the current social climate which is dominated by the central and local government's logic of economic development through the IT industry and competition in the global economy. In a Korea desiring to accomplish in a compressed timeframe the creation of a modernity resembling that of wealthier Western societies, the spontaneous elements springing from local demands are always viewed from a business perspective of "development" and "competition." There is a strong tendency for the Korean government to "see the information society still in industrial terms, bent and shaped to fit the old economy of mass produced electronic hardware commodities" (Venturelli, 2002: 83). Public rhetoric in Korea needs to be enriched by adding some adjectives to these nouns: we need "sustainable" development and "fair" competition to enhance the living conditions of citizens. Civil society in Korea should encourage the government to situate the IT development within the concerns of "sustainable" development, which aims to

promote democratic values in the information society such as a diversity of IT opportunities to the underserved and underprivileged, respect for privacy and human rights, and the relative independence of IT policy from the industrial approach.

These four suggestions for Korean society are in accord with the recommendations set forth in the joint Civil Society Declaration ("The Seoul Declaration"), which was endorsed by a variety of online civil rights and civil society groups around the world (such as the Electronic Privacy Information Center, the Electronic Frontier Foundation, the European Digital Rights Initiative, IT4Change, Public Knowledge, the Associations for Progressive Communications, Consumers Korea, and the Jinbo Network), submitted to the 2008 OECD Ministerial Meeting on the "Future of the Internet Economy" held in Seoul on June 17–18. At this meeting, the world civil society groups urged the developed countries to promote the following issues in the age of "the Internet economy:" freedom of expression, the protection of privacy and transparency, consumer protection, support for pluralistic media, an inclusive digital society, cultural diversity, and other human rights issues. Going beyond the Korean IT aspects focused on in the present study, the agenda expressed in this declaration expresses essential information rights principles which need to be taken into account in national decision-making processes for IT polices in order to guarantee citizens' basic human rights around the globe.

8.3. LIMITATIONS AND RECOMMENDATIONS FOR FURTHER RESEARCH

As a macroscopic inquiry into the structural contexts surrounding the KII project, this study has limitations that need to be addressed by future research: First, with regard to the research scope, due to its emphasis on the KII's structural aspects (such as its global constraints, the close state–business linkages, social control, and the shift toward a new economy), this study intentionally minimized the autonomous role of actors who were isolated from or went against larger forces in the system. The relation between structural determination and human agency is a central concern of political economy, the theoretical base of this study, and the conceptualization of this relationship is at the core of the theory and method of the political economic approach. Nevertheless, this study excluded the role of agency in the analysis; the justification for this lies in the fact that the voices from below have been entirely excluded from the policymaking process throughout the KII project. For the state-led KII policy, the dialectic tension between agency and structure appears to be inactive, except the case of the NEIS (see Chapter 7.5), in which it can be seen "how it comes about that structures are constituted through action, and reciprocally how action is constituted structurally" (Giddens, 1976: 161). In Korea, it is at the socio-cultural level of IT development, rather than at the policymaking level, that the louder grass-root voices have been heard and it is at this level that one can see structural changes being brought about through human agency. For instance, the IT-related scandals and their framings in Korean society shown in Table 7.2 illustrate the structural processes constituted by the agents' actions. Meanwhile, the NGOs and the citizens are rarely seen monitoring or intervening in the elites' decision-making processes for IT policies. Rather

than searching Korean history for nonexistent empirical cases of policy interventions from below, future study should expand the research scope to examine how to develop policy alternatives at the process of decision-making and how to build a more open forum which would enable agents to be actively involved in as an impetus for societal change. In other words, the dominant pattern of elitist structure in IT policy in Korea needs to be overcome by developing realistic policy alternatives to democratize the design, use, and impact of IT.

Second, this study has a limitation in illustrating the power structure among the major stakeholders, especially the political entities surrounding the KII project. This could be overcome through a network analysis detailing the policymaking processes in each of the different administrations and agencies involved. Since a political entity is composed of a class of politicians, their shared interest groups, and various government agencies, the present study's approach, which presents the state as a unified entity seeking to attain a goal, is a simplification that may have lost the rich textures of the conflict involved in policy decision-making processes. Further research can fill in this blind spot by doing policy network analyses that stress the performative character of relations among policymakers and relevant interest groups, so as to understand patterns of linkage in terms of political motives and the synergistic effect of the policy activities constituted in those relations.

Third, many researchers (see Chapter 5.3) from the academic field of Asian Studies have compared and analyzed the East Asian countries' economic growth and its relationship to state interventionism; however, a comparative study which aims to

examine the "catching-up economy" model among these countries in the new digital age is still to be performed. The present study is also restricted to one country; future research, thus, could extend its scope to perform a comparative study with other East and South Asian countries such as Taiwan, Singapore, Malaysia, and Japan, which have shared political experiences analogous to those of Korea in their IT development, specifically, in having state-led IT infrastructure plans.

Finally, this study can be extended by examining how the post-KII infrastructure projects initiated by the government are connected to or differentiated from the now-completed KII project. Since the 1997 financial crisis in Korea, private investment in the national infrastructure plan has increased significantly, and future research can return to the investigation of the new characteristics arising in the new IT infrastructure projects that continue to be implemented in South Korea.

Appendices

APPENDIX A: EXCERPT OF A SEMI-STRUCTURED INTERVIEW GUIDE

I am preparing a doctoral dissertation in the Department of Radio-TV-Film, University of Texas at Austin, Austin, TX 78712. The dissertation will be titled "The Political Economy of Networked Mobility: The Historical Development of the Korean Information Infrastructure, 1995–2005."

This semi-structured interview aims to capture your viewpoint on the nationwide information superhighway project. If you feel that any issue was not adequately addressed during your interview, I would be grateful if you left your phone number and email so I could contact you in person. We are confident that, as a key actor or expert related to the national IT project, you have highly-qualified opinions that will contribute to understanding the dynamics of the Korean telecom project.

Please state your job position at the time of the IT project and your current job position. If you prefer to answer under cover of a pseudonym, please let me know.

A. EXTERNAL INFLUENCES

In the introductory phase of the information superhighway project, did multilateral trade agreements such as 1997 WTO Agreement on Telecommunications and the early 1990s' information superhighway policy experiments in advanced countries

such as the US, Japan, and the EU greatly influence the launch of our own nationwide project?

Probe: If not, what factors most influenced the project? Why? How?

B-1. GOVERNMENT INTERESTS IN THE NATIONAL IT PROJECT

(Directed at governmental officials)

What governance issues are of primary concern to the government as regards the KII?

Probe: Was the introduction of the NEIS in 2003 a successful example of a governance issue related to the KII? Why or why not? Are there any other plans to introduce similar integrated database systems in other areas?

B-2. SHIFTING TOWARD A DIGITAL ECONOMY

(Directed at business executives)

How do you think that the KII project affected the 1997 IMF crisis in Korea?

Probe: How? Can you clarify its effects on economic growth? Have there been any changes in the major policy goals of the superhighway since the crisis?

C. MUTUAL INVOLVEMENT OF GOVERNMENT AND BUSINESS

How did the policy consultation between industry representatives and government officials affect the IT project?

Probe: Could you tell me more about the organizational structure of the consultative body? Were there any other examples of close cooperation between the government and the private sector?

If there are other important issues that were not addressed in this interview, please feel free to discuss those with me. Your answers will never be used for any purposes except academic ones. Thank you for your cooperation and your honest answers.

APPENDIX B: CONSENT FORM

Interviewing key actors involved in South Korea's telecom policy

Title: **The Political Economy of Networked Mobility: The Historical Development of the Korean Information Infrastructure, 1995–2005**

Conducted by: **Kwang-Suk Lee,** PhD Candidate (Email: suk_lee@mail.utexas.edu)
Radio-Television-Film, the University of Texas at Austin, Telephone: +1 512 477 4725

Supervised by: **Dr. Sharon Strover** (Email: sharon.strover@austin.utexas.edu)
Director, the Telecommunications and Information Policy Institute (TIPI)
Chair, Radio-TV-Film Department, the University of Texas at Austin, Telephone: +1 512 471 6652

You are being asked to participate in a research study. This form provides you with information about the study. The person in charge of this research will also describe this study to you and answer all of your questions. Please read the information below and ask any questions you might have before deciding whether or not to take part. Your participation is entirely voluntary. You can refuse to participate without penalty or loss of benefits to which you are otherwise entitled. You can stop your participation at any time and your refusal will not impact current or future relationships with UT Austin or participating sites. To do so simply tell the researcher you wish to stop participation. The researcher will provide you with a copy of this consent form for your records.

The purpose of this study is to investigate South Korea's structural mechanisms/politico-economic processes for installing the information superhighway network throughout the country from 1995 to 2005. As part of the requirements for the research, we are collecting in-depth policy opinions of key actors from the regulatory bodies and the telecom business who were involved in the Korean Information Infrastructure (thereafter KII) project. You are being asked to participate in the study because you are a representative speaker in the project I am interested in documenting.

If you agree to participate in this study, we will ask you to do the following things:

- If you participate in this research, you will be asked to tell us your job position at the time of the information superhighway project and your current job position.
- The interviews consist of three parts; each part has three or four main questions eliciting participants' opinions about external and internal factors that affected the KII project in Korea.
- You will be asked to discuss these questions based on a semi-structured interviewing technique that combines open-ended informal questions with a fairly open format of conversation, in order to sketch out the dynamic processes of conflict and alliance among actors involved in this decade-long project.

Total estimated time to participate in study is one hour.

Risks of being in the study:
Since this study will be dealing with high-ranking public officials' unique opinions on the KII project, it is not expected that there are any physical or mental risks to participating in this study. However, there may be risks or discomforts that are unknown at this time. To protect participants' privacy and the confidentiality of the research data, you will be given the option of answering under cover of a pseudonym. If you wish to discuss the information above or any other risks you may experience, you may ask questions now or call the Principal Investigator listed on the front page of this form.

Benefits of being in the study:
Since the in-depth interviews are intended to utilize the expertise of each informant, you will have the opportunity of expressing your unique perspective on the KII project. Additionally, after this study is completed, the results will be beneficial in aiding others in both the public and private sectors who will be designing similar large-scale policy initiatives in the future.

Compensation:
You will not receive any compensation for your participation. All the participants will take part in this study on a voluntary basis.

Confidentiality and Privacy Protections:
- In order to maintain the confidentiality of the research data and protect your privacy, you will be given the option of giving your answers under cover of a pseudonym, and I will store the interview records in a secure place and limit access to the data to myself and my supervisor.
- During the interviews, you may decline to answer question if you think they may threaten your privacy or you do not want to reveal some information concerning a particular issue.
- The data resulting from your participation may be made available to other researchers in the future for research purposes not detailed within this consent

form. In these cases, the data will contain no identifying information that could associate you with it, or with your participation in any study.

- The interview records of this study will be stored securely, kept confidential, and destroyed after they have been transcribed or encoded.
- Authorized persons from the University of Texas at Austin and members of the Institutional Review Board have the legal right to review your research records and will protect the confidentiality of those records to the extent permitted by law. All publications will obtain your prior permission about whether to exclude or include any information that will make it possible to identify you as a study participant. Throughout the study, the researchers will notify you of new information that may become available and that might affect your decision to remain in the study.

Contacts and Questions:

If you have any questions about the study please ask now. If you have questions later, want additional information, or wish to withdraw, please call the researchers conducting the study. Their names, phone numbers, and e-mail addresses are at the top of this page. If you have questions about your rights as a research participant, complaints, concerns, or questions about the research please contact Jody Jensen, Ph.D., Chair, The University of Texas at Austin Institutional Review Board for the Protection of Human Subjects at (512) 232-2685 or the Office of Research Support and Compliance at (512) 471-8871 or email: orsc@uts.cc.utexas.edu.

You will be given a copy of this information to keep for your records.

Statement of Consent:

I have read the above information and have sufficient information to make a decision about participating in this study. I consent to participate in the study.

Signature:_____ Date: _____

_____ Date: _____
Signature of Person Obtaining Consent

Signature of Investigator:_____ Date: _____

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Interviews

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Hur, J. H. (2007, May 28 / June 7) Executive principal researcher, U-Infrastructure Application Team, Infrastructure Division, National Information Society Agency (NIA). (At the Seminar Room, the NIA Building, Mugyo-Dong, Seoul, Korea).

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