Policies for Computerization of the Government Information Management in Korea

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This paper examined computerization policies of the Korean government for the government information management system in the milieu of advancing information society. The author intended to summarize government-wide computerization efforts organized since 1978 *and to review problems of the computerized government information management system in Korea.*

About one decade of earnest efforts of computerization and computer network promotion resulted in considerable achievements. Administrative efficiency and quality of public services have improved steadily with the progress of computerization. Computerization of the government information management has had various eufunctional impacts upon socio-economic and cultural change. However, errors, insufficiencies, imprudences and other unwelcome side effects accompanied successes and benefits of computerization.

The primary purpose of this paper is to examine computerization policies of the Korean government for the government information management system in the milieu of advancing information society. The author intends to summarize government-wide computerization efforts organized since 1978 and to review overall problems of the computerized government information management system in Korea.

Public administration is an "information processing factory." It intakes information inputs, processes them, and produces information outputs. Therefore, a system of information management is indispensable to every public administration system. This has been true throughout the history of public administration. There has always been some kind of information management system for all of individual public administration systems in the world. However, individual characteristics including the level of development of information management systems have differed widely in different ages and places.

Historically, we can identify a general trend of ever increasing elevation of importance of government information management systems. Particularly in recent years, development of government information systems has been epochal. The key impetus to this great change is the advance of "information society" which is characterized by the fourth

information revolution. Conditions and requirements of information society boost the status of government information management system. In information societies, evolving computerization of all walks of life is a necessity and a fashion. Computerization of government information management systems is both needed and inevitable. The Korean society is confronted with rapidly expanding conditions of information society. The government has recently been eager to develop computerization programs to improve administrative capabilities, to cope with challenges of information society, and to guide the development of societal conditions.

I. A Definition of Government Information Management System

The government infomation management system is defined as a system that is managing all the information needed for the public administration system. The government information management system is a subsystem of the public administration system which, in turn, is a subsystem of the societal system.

The government information management system is a purposively and deliberately designed and operated system. It comprises data and information, software, hardware, a system of operation and human elements. It is, of course, managed by human beings. The government information management system manages both data resources and information processes. It plans, evaluates, coordinates and controls acquiring, processing, using, storing, and dispensing of data and information according to predetermined methods and procedures.[1] The government information management system is designed to serve goals of the public administration system and other suprasystems. It is a complex totality of methods, procedures and activities aimed at provision of needed information to all levels of the public administration.

Changes in techniques, contents and capabilities of government informattion management systems have been closely tied to the development of "societal technologies"[2] and changing patterns and necessities of the organizational society. The "information revolution" brought by wide utilization of computers has had unmistakable impact upon information mana-

1) Donald A. Marchand, "Information Management in Public Organizations: Defining a New Resource Management Function," in Forest Horton, Jr. and Marchand, eds., *Information Managements in Public Administration* (Information Resources Press, 1982), pp. 58-65.

2) A "societal technology" means a technology which accompanies overarching societal impacts and vast dissemination effects.

gement systems of large, complex organizations of both public and private sector. This impact materialized as computerization of information management systems. In so-called information society, one of the important and leading characteristics of the government information management system is the widespread use of computers. In recent decades, computerized integrated information management systems have been unyielding prescriptive models for information management of large-scale organizations. The referent model of our discussion is also a computerized information system. Here, by computerization is meant the introduction of computer systems into the information management system. The computerized integrated information management system covers all of three branches of computerized information systems: electronic data processing system; management information system; and decision support system. It also covers computer network systems.

II. Progresses in Computerization

In comparative terms, Korea was one of the late starters in the race of computerization. But she is not too late, and is now rapidly catching up the front runners. In Korea, observers trace the origin of computerization efforts in the government back to 1967 when the Economic Planning Board installed the US-made IBM 1401 system and put to use in survey data processing and statistics.[3] Since then on, introduction of computers to the government information management system has steadily increased. However, computerization efforts in the government up untill late 1970's were rather scattered and unorganized. Untill then, government-wide integrated policies for computerization were not yet established.

A significant change occured in 1978. It was a turning point. In 1978, for the first time in the history of the Korean public administration, the Ministry of Government Affairs of the Korean government formulated the Basic (Master) Plan for Computerization of Public Administration which laid down government-wide computerization policies.[4]

3) cf., Kim, Taegyum, "Implementation of 'Basic Plan of Government Computer Network System,'" in *Administration and Computerization* (Ministry of Government Affairs, Vol. 9, No. 2, 1987,.6), pp. 21-33.

4) References for following discussions: *First and Second Basic Plans for Computerization of Public Administration*; Ministry of Government Affairs, *MGA Annual Reports* (1983~1988); National Computerization Board, *Expanded Meeting of National Computerization* (1987); Ministry of Government Affairs, *Handbook of Computerization* (1984); Gwak, Chiyung, "Progresses and the Future of Computerization of Public Administration," in *Administration and Computerization* (MGA, Vol. 10, No. 2, 1988.6), pp. 27-37.

The plan period was for the duration of five years (1978~1982). This plan reflected findings of two-year preplanning research programs. In 1979, the "Statute for Computerization of Public Administration" and the "Ordinance for the Organization of the Steering Committee on Computerization of Public Administration" were enacted.

The First Basic Plan included a plan on selection of priority functions which can be computerized, a plan on establishment of telecommunication networks connecting computer centers, a plan on joint and collaborative utilization of administrative information, hardware requirements and budget estimations, strategies of promoting increased use of domestic produce of computers and related machineries, and policies of recruitment and training of computer specialists and operators. Under the guidelines of the Basic Plan, individual departments and agencies established more detailed operational plans on yearly basis. During the First Plan period, policy emphases were placed upon selection and development of administrative functions (jobs) for computerization, installment and utilization of hardware (computers and multi-functional office machines), development of technology, training personnel working on computer system operation, and improvement of related administrative systems and practices. As a result of concerted efforts in those areas, by the early 1980's majority of government organizations installed computer systems and put to use for information processing.

In 1982 the government formulated the the Second Basic Plan for Computerization of Pulbic Administration for the duration of 5 years from 1983 to 1986. This Second Basic Plan placed policy emphases upon systematic categorization of computerized functions (jobs) developed by various departments and agencies, expansion and integration of telecommunication networks between government computer centers, continuous development of administrative data base, and active utilization of domestic computer systems to foster computer industry which would in turn strengthen the foundation of computerization programs.

During the ten-year time span of the First and Second Basic Plan, the government computerized 697 administrative functions or jobs. Computerized jobs are comprised of four large categories: 319 (46%) jobs are classified as "programmed or routine management," 208(30%) jobs are classified as "tabulation and statistics," 89 (13%) jobs are classified as "information search," and remaining 81 (11%) jobs are classified as "analysis and projection."

During the First Basic Plan period, the government installed 56 computers and intro-

〈**Table I**〉 Organizational Distribution of Computerized Functions by the End of 1986

Names of Agencies	number of functions
Total	697
· Economic Planning Board	44
· Supply Administration	23
· Ministry of Government Affairs	22
· Ministry of Science and Technology	32
· Government Legislation Agency	1
· Patriots and Veterans Affairs Agency	20
· Ministry of Foreign Affairs	31
· Ministry of Home Affairs(including police and local government)	47
· Forestry Administration	27
· Ministry of Finance	11
· Monopoly Administration	28
· National Tax Administration	43
· Customs Administration	20
· Ministry of Justice	5
· Public Prosecutions Administration	9
· Ministry of Education	16
· Ministry of Agriculture, Forestry and Fisheries	4[illegible]
· Rural Development Administration	30
· Fisheries Administration	27
· Ministry of Trade and Industry	7
· Industrial Advancement Administration	6
· Patents Administration	6
· Ministry of Energy and Resources	1
· Ministry of Construction	19
· Ministry of Health and Social Affairs	28
· Environment Administration	16
· Ministry of Labor	33
· National Railroad Administration	23
· Maritime and Port Administration	16
· Office of Hydrographic Affairs	7
· Ministry of Communication	30
· Office of Cultural Properties	4
· Seoul Special City	25

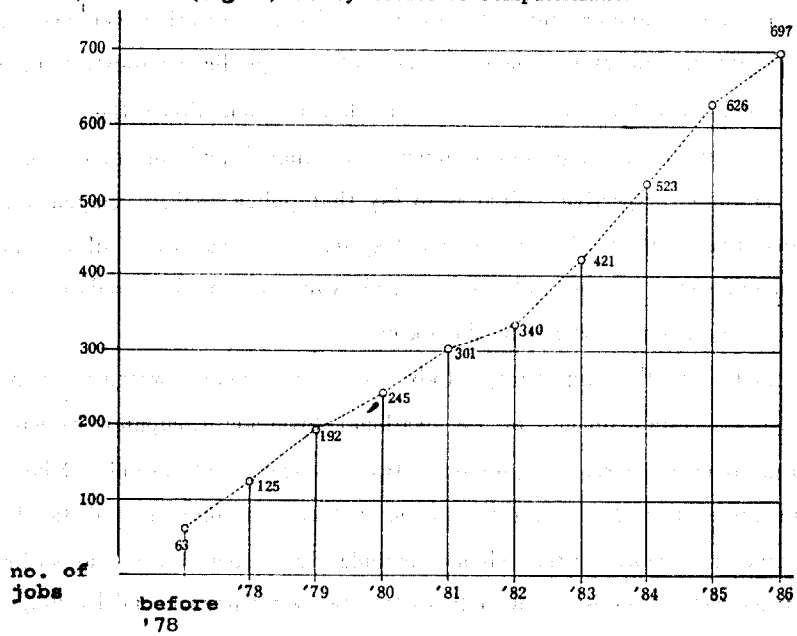
Source: Ministry of Government Affairs, *MGA Report*(1988), p.77.

duced 653 units of standardized multifunctional office machines (W/S) and computer terminals. During the Second Basic Plan period, the government installed 38 computers, and 1,829 units of computer terminals and multi-functional office machines. In 1987, the government acquired 26 computers, 1,872 units of computer terminals and other electronic data processing machines. By the end of 1987, total of 120 mainframe computers

were installed and operated in the government. Among these computers, 17(14%) of them are of "large capacity," 55 (46%) of them are "medium scale computers," and 48 (40%) of them are "small scale computers." They can be calssified by machine types: 28(23%) NEC computers, 14 (12%) IBM computers, 22 (18%) TOLERANT computers, 17 (14%) PRIME computers, and 39 (33%) other computers. They are also classified by procurement methods: 54 units were purchased, 17 units were leased, and 49 units were rented.

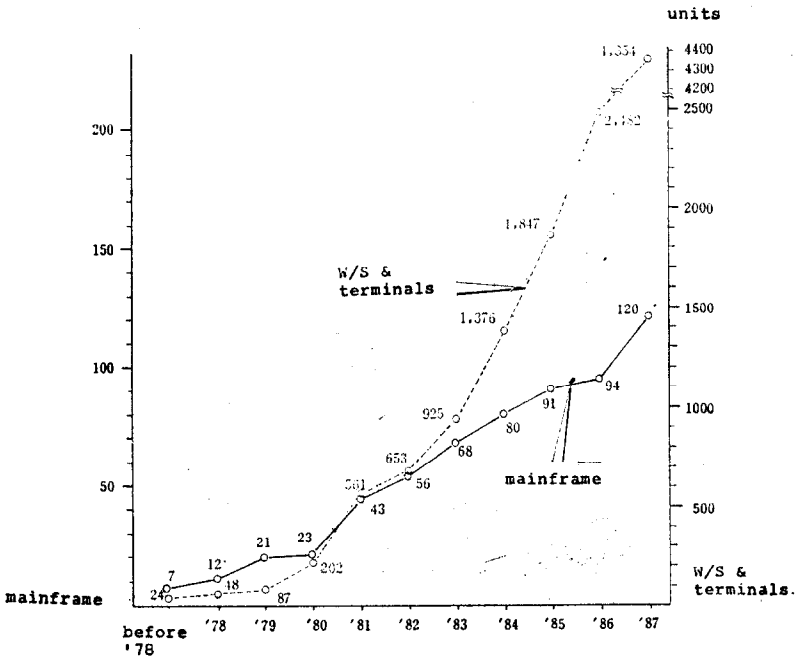
By the end of 1987, number of personnel working directly for computer systems increased to the total of 3,227 persons. 136 persons are computer system managers; 1,109 persons are computer specialists (systems analysts, programmers, and operators), and remaining personnel are key-punchers. During the two Basic Plan period, government expenditures for computerization steadily increased every year. The major portion of the budget was spent for machines and other hardware facilities. In the starting year (1978) of the First Basic Plan, government expenditures totalled approximately 7,900 million Korean Won. In the final year (1986) of the Second Basic Plan, expenditures rose to approximately 36,000 million Korean Won. In 1988, the budget estimate is approximately 40,400 million Korean Won.

〈**Fig. I.**〉 Yearly Trends of Computerization



Source: *MGA Report* (1988), p.76.

〈**Fig. II**〉 Yearly Trends of Hardware Installment



Source: *MGA Report* (1988), p. 79.

In 1983, the government launched a preparatory study for the establishment of coordinated policies on computer network systems (telecommunication network systems of computerized information management centers) of the public administration. That was when the Second Basic Plan was still under implementation. Since then on, policies on government information management systems were studied and formulated conspicuously under the "national perspective." That is to say that policy makers emphasized the fact that the government information management system is a subsystem of the national information management system, and paid special attention to the needs of coordination among various computer networks in the society.

Upon completion of the preparatory study, the government constructed a preliminary draft plan for the establishment of the National Strategic Computer Network System including the government sector computer network system, and formulated key strategies for the realization of such a network system. Subsequent guidelines dictated that the national computer network system should include five categories of networks: namely, government network (administrations network); network for finance and banking (financing network); research and education network; national defense network; and public security

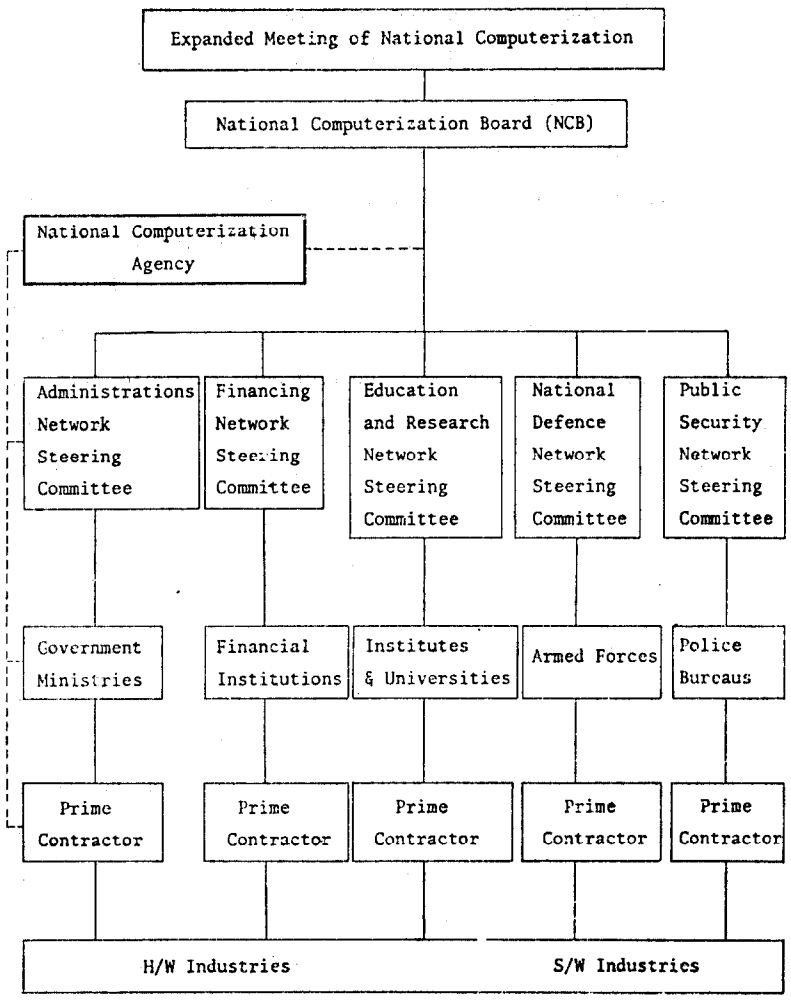
network. A kind of division of work among organizational arrangements was prescribed by the draft plan. Individual user-organizations were charged with the responsibility of developing computerized functions or jobs. On the other hand, professional organizations with expertise in computer technology were to be in charge of development of computer systems and other technical arrangements.

In 1985, the Government Computer Network System Promotion Plan was formulated. In 1987, the government reformulated this plan, i.e., the Government Computer Network System Promotion Plan and the Basic Plan for Computerization of Public Administration were merged into one coherent plan named the Basic Plan of Government Computer Network System (1987~1991) which covers governmental efforts for both computerization and establishment of networks connecting various computerized information processing centers. The major purposes of this Basic Plan are: reduction of administrative expenditures; enhancement of rationality in policy making; enhancement of expediency and precision of administrative services; and realization of smaller but more efficient government. The ultimate objective of the Plan and ensuing endeavors is to strengthen competitive statuses of our government and industry in international transactions.

The organizational arrangements for the plan implementation include the Administrations Network Steering Committee (the central committee for the development of the government computer network system), promotion task forces of the agency which is in charge of coordination of government-wide efforts of plan implementation, all the government departments and agencies jointly using information through telecommunication networks, designated business corporations engaged in overall design and operation of computer systems, and cooperative business concerns which play assisting roles in computerization of administrative functions.

In 1987, the organizational arrangements for the promotion of public sector computerization were incorporated into the national apparatus for computerization. The National Computerization Board (a presidential commission headed by a minister-level chairman) reviews and makes final decisions on major computerization policies of the nation. The Expanded Meeting of National Computerization held under the auspices of the National Computerization Board coordinates overall computerization policies of the major sectors. The National Computerization Agency (NCA) established under the supervision of the Board provides coordinative and supporting services to all the sectoral arrangements of organizations for computerization. The NCA was inaugurated in early 1987 as a public

〈**Fig. 3**〉 Organizational Arrangements for Computerization



Source: Briefing material provided by the NCA in 1988

corporation. The NCA is in charge of following missions: standardization of information processing; evaluation and auditing of computer networks; recommendation of legal arrangements; development of guidelines for technological improvements; and consultation for policy formulation.[5]

General objectives of the policies drawn in the Basic Plan of Government Computer Network System are to foster information industries of the private sector by expanding computerization and telecommunication networks in the public sector, to improve effecti-

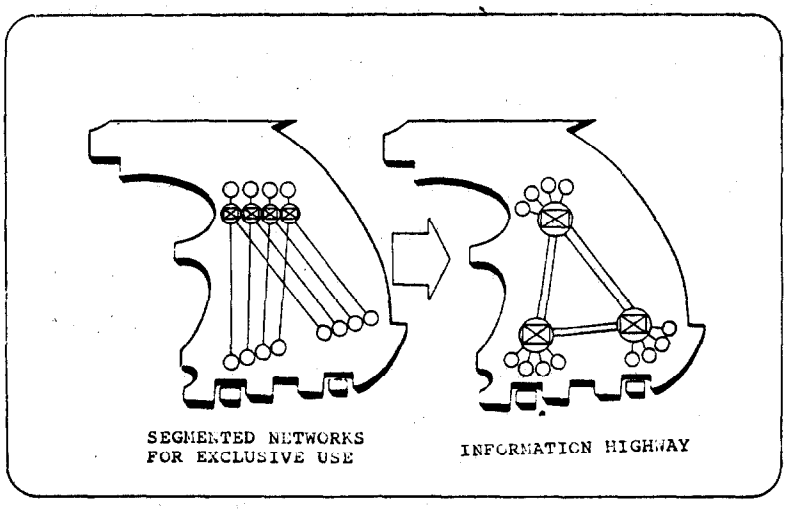
5) The NCA Bulletin (1987), pp. 1-2.

veness of administrative management and services by the establishment of coordinated network system, to effectively coordinate network development programs and computerization programs. The Plan postulated that softwares should be developed coordinatively from the nation-wide perspective integrating efforts of individual government departments and agencies. Computerization policies prescribed in the Plan are to maintain previously computerized functions, develop them continuously, and to incorporate them into the computer network program. It was decided that such criteria as dissemination effects and the scope of joint utilization of information must be applied to the selection of administrative functions to be computerized. It is required that software development should satisfy the need for standardization, and assure covenience of maintenance, safety of the information system and protection of privacy. It should also support the development of information industries. In the first phase (1986~1988) of the Basic Plan of Government Computer Network System, 5 groups of administrative functions (management of resident registration, real estate management, statistics of the economy, employment management, automobile management, and customs managements) were chosen as priority functions to be computerized. In the second phase of the plan, 11 groups of functions will be the target functions for computerization. Selection of jobs to be computerized in the phase three (1992~2000) is now under study.

For the facilitation of information flows between organizations, and for the promotion of balanced development of computerization programs throughout the government, individual organizations have been strongly advised to install standardized hardwares. Indigenous production of computers became one of the important policy emphases. Medium-scale computers were chosen for strategic development in domestic production. For the indigenous production of computers until 1991, the government plans to mobilize approximately 33,500 million Korean Won of domestic investment both public and private, and import technologies from advanced countries. The government also plans to newly install 26,000 units of multi-functional office machines by the year of 1991. Standardization of machine structures, adaptation to the user needs, and expansion of training programs on operation of those machines in user organizations have been emphasized in the process of introducing W/S machines.

The Basic Plan of Government Computer Network System adopted a new principle for the organization of telecommunication network system, which prescribes integration of national telecommunication networks. Previous practices were to build up separate networks

〈**Fig. 4**〉 Transformation of Telecommunication Network



Source: National Computerization Board, *Expanded Meeting of National Computerization* (1987), p. 51.

by individual departments and agencies for their exclusive use. The plan decided to abandon this segmented approach, and to adopt a new approach for the establishment of "information highway network system." This new approach is to integrate administrative telecommunication networks into the general public telecommunication network system of nation-wide coverage. Through this telecommunication highway, the central computer center, intermediary large-area computer centers and local computer centers of the public sector are to be interconnected.

The capital investment for priority programs of computerization and development of telecommunication networks is going to be carried on according to the "post-payment method." The designated agency, the Korean Data Communication Corporation (the prime contractor) develops and installs network facilities and systems with its own financing. The government reimburses its user charges in ten years. For the successfull implementation of the computer networks plan, the government is carrying out expanded programs of training for computer specialists and other personnel (would-be users of computer networks). The government planned to employ 1,205 computer specialists during five-year period (1987~1991). During the same period, total of about 46,000 officials are going to be trained in various computer education programs.

III. Problems of the Computerized Information Management System

About one decade of earnest efforts of computerization and computer network promotion resulted in considerable achievements and eufunctional impacts. Administrative efficiency and quality of public services have improved steadily with the progress of computerization and of information society. Promotion of computerization of the government information management system stimulated the development of computer industries and related economic concerns; it also facilitated sociocultural development.

However, errors, insufficiencies, imprudences and other unwelcome side effects accompanied successes and benefits of computerization. And, such problems or harzards as information monopolization and despotism, infringement of privacy rights, security failures of computer systems, computer crimes, increasing information discrepancies among sectors and among strata of the society, unemployment caused by rapid changes of automation and information technologies, information stress and job harzards are looming bigger with the advancement of information society and computerization.

The computerization policies and their implementation have been criticized for various reasons. The policies expressed in the basic plans on computerization and on promotion of computer network systems failed to adequately reflect ideas and needs of user organizations and long term information needs of the future. Goals of the plans were rather idealistic than realistic. Policy emphases were placed heavily upon technological side of computerization, and attention to the related systems was insufficient. Responsibilities of the plan implementation were diffused because organizational arrangements were not adequately integrated. Plan formulation and implementation failed to incorporate opinions and needs of citizens regarding such matters as disclosure of government information, participation in administrative processes, and protection of privacy. Lack of knowledge on computer systems and "computer mind" on the part of government personnel, long standing tradition of administrative procedures and working habits formed in precomputer years, legal constraints, traditional decision making methods of managers and policy makers, etc. all contributed to the insufficient and ineffective utilization of computerized information systems.

It might be said that there is a significant gap between development of hardware systems and social, administrative practices. And, the government seems not well prepared

to safeguard computer systems, and to prevent or cope with unemployment caused by computerization and automation, computer crimes, information stress and other health harzards in computerized working conditions, information resources monopoly, and sectoral imbalance caused by differential distribution of information resources.

Age old problems of the government information management system such as "extraction orientation," secretism, infringement of privacy may be aggravated.

The government information management system inherited a tradition of extraction orientation. The dimension of information dissemination and exchanges between the system and the environment has been precarious relative to the dimension of information extraction from the environment. The government has been exercising strong legal powers in extracting information from citizens for the convenience of bureaucratic ruling. It placed heavy burden upon citizens who are requested to supply or surrender factual and support information, this, in turn, resulted in long term information overload in the government. And, in the processing of information inputs, the system has not been sensitive to the demand inputs of the people. The government's capabilities of information extraction would be strengthend by computerization of information management.

A related problem is the long standing "secretism" (strong secrecy orientation) of the government information management. It can be attributable to political autocracy and "dominating-elitist-oriented" administrative system in the past, authoritarian behavior of government officials, outdated legal and procedural constraints, overemphasis of national security, etc. The main portion of the information dissemination by the government has been comprised of such information types as public relations information justifying government policies and achievements, post-policy-making information notifying results of policy making, and information for indoctrination or socialization. The government has been neither able nor eager to open up and disseminate information regarding policy issues, problems of government operations, and other pre-policy-making considerations. As in other newly industrializing societies with not-so-long history of democracy, the Korean governemt has had immature system of safeguarding and promoting the people's "right to know" the public (people's) business, freedom of expression and right to participate in government operation. Generally, participation of citizens in administrative processes has been limited and formalistic.

It seems that the concept of privacy and protection of personal information is largely foreign to the Korean people. Public consciousness of privacy right does not seem strong

or even articulate. Government officials do not seem to be sensitive to the problem of protecting citizens' privacy and their own privacy. Protection of privacy rights of the people has not yet emerged as a major policy issue. There is no integrated legal structure aimed at the protection of privacy. Overall tendencies of rather awkward confrontation with the privacy issues are due largely to a cultural inheritance of undifferentiated attitude toward public and private matters, a tradition of autocratic and domineering politics and administration, information explosion, strong inertia of traditional information management practices, haphazard collection and management of personal information, ineffective public control over government information management, and bureaucratic attitude reluctant to redress intangible infringement of civil rights.