

# ADMINISTRATIVE REFORM USING INFORMATION AND COMMUNICATION TECHNOLOGIES (ICTS) IN KOREA

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**Abstract:** The purpose of this study is to explain government efforts for administrative reform using ICTs in Korea. Especially, this study focuses on how the government informs, consults with and engages citizens using ICTs through an analysis of OPEN system in Seoul. Firstly, the political backgrounds and the institutions for constructing the e-government have been analyzed. Secondly, the OPEN system in Seoul has been analyzed. The result of this study shows that constructing the e-government as a means of administrative reform strengthens public participation and transparency in policy making process in spite of a few obstacles such as digital divide, secrecy problem.

## INTRODUCTION

Information technology in Korea has grown rapidly since the 1990s. Yearly growth rates of Internet diffusion, cellular phone subscriptions, and personal computer diffusion are 43%, 103%, and 22% respectively.<sup>1)</sup> Public relations in Korea have undergone great changes with the development of

information technologies. During the 1960s and 1970s, Korea's fast economic growth was against the backdrop of a government-driven society. Most of the general public was excluded from the public-making process. In contrast, nowadays the Korean Government is facing a new problem. An explosion of public participation in the policy-making process has become a new issue with unexpected social problems including policy delays, and continuous disputes among interest groups.

Due to widespread accessibility to personal computers, which possess on-line services or the Internet Korean people are getting plenty of information about what the government is doing and its policies. The advancement of information technology has driven people to demand better services and higher quality of life from the government, and to enjoy the right to free expression. Hence, the development of IT has enormously increased people's participation in the policy-making process, allowing them to express their opinion about their quality of life.

The Information Revolution wave has affected public administration in Korea. Every civil servant has his or her own PC and e-mail address, 74.5% of

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1) As of August 2000, there were 16.4 million internet users in Korea, according to the Korea Network Information Center(KRNIC). A phenomenal leap can be shown by comparing that number with 9.43 million in October, 1999 cited from the source of National Computerization Agency (NCA). Ministry of Information and Communication (MIC) announced that the number of broadband users in Korea reached 2.2 million on August 2000. Classified by access services, the number of ADSL subscribers and home PNA subscribers have already surpassed 1,400,000 and continues to rise rapidly. Meanwhile, the once explosive growth of cable modem subscribers slows down. Additionally, 16,000 IDs for satellite internet access service and 2,000 for B-WLL were registered as of August 2000. Demand for high speed data transmission further evolves, as the use of web-casting, video on demand and e-learning increase.

Central Government administrations have appointed their own Chief Information Officer (CIO), the rate of electronic sanctions in Central Government administrations amounts to 50%.<sup>2)</sup> All Central Government ministries and agencies as well as local governments have home pages, although their quality and contents largely vary. By connecting to these home pages, citizens and stakeholders can access public information more easily and efficiently.

Information technology and services augment opportunities for developing public participation in, and awareness of, the political process. On-line services play an important role in promoting openness of government. Concerning nation-wide information infrastructure, the Korean Government at both central and local levels has been actively experimenting with electronic democracy as a means to hear citizen's views on government policy and planning, government activities, and social issues.

The Korean Government is trying to utilize information technology to obtain high efficiency in business and strengthen citizen-government connections. The field of Information and Communication Technology (ICT) is one example in which promising practices, which include key factors and conditions contributing to transparency and democracy, can be described.

In participation of citizens in policy process, the Seoul Metropolitan Government has outstanding practices. Seoul operates an On-line Procedures Enhancement (OPEN) system to deal with civil applications. The total process from application submission to decision is open to the public. Citizens can obtain full information about the decision process via the Internet. Evaluation of this

system suggests that it is able to prevent possible corruption of public officials involved in decision-making processes.

This system enhances accessibility to administrative information by providing information on civil applications 24 hours a day via the Internet. It promotes transparency in administrative procedures and eliminates the possibility of corruption through public supervision. The effects will become greater with increasing use of the Internet.<sup>3)</sup>

The overall objective of this study is to support government efforts to strengthen public participation, transparency, democratic accountability, and policy effectiveness through an analysis of OPEN system in Seoul. The purpose of the report is to focus on how the government of Korea informs, consults with, and engages citizens using ICT. This report is written on the basis of government materials, reports from research institutes and interviews with officers and staffs in charge of e-government, and citizens.

### **Background of Political System**

For a generation, the Republic of Korea was an outstanding example of state-led economic development, but it was a bad example of democracy.<sup>4)</sup> Its proponents cited it as proof that a modernizing military regime could create popular satisfaction

2) It is a new type of system for sanction: when a staff wants a sanction of senior, he does not need to use paper document any more. He just inputs what is to be sanctioned into computer and sends it through electronic line connected to his senior, so that the senior can make cyber-sanction about it.

3) OPEN began locally and was designated by the Central Government as an advanced tool to foster innovative management in the public sector in November 1999. The outcomes of OPEN have been satisfying to citizens as well as public officers. Presently All local governments in '99-2000 introduced this system and some central governments plan to introduce this system under plans to construct e-government.

4) Korea's typical blend of high savings and investment rates, autocratic political system, exported-oriented business, restricted domestic market, government capital allocation, and controlled financial system were hailed as ideal ingredients for the strong economic growth of developing countries.(Suk. H. Kim, 2001: 50-58, "The Asian Financial Crisis of 1997: The Case of Korea," *Multinational Business Review*, 9(1)).

through rapid economic growth (R. Rose, 1999: 22 ~ 23). The place to start was with the presidency, an office which held too much power for the country's good. Although a cabinet existed, the president can rule practically alone if he decided to.

Since the introduction of free elections in 1987, Korea has been a rare Asian example of a new democracy. In 1992, Kim Young Sam became the first civilian president in more than three decades. In December, 1997 Kim Dae Jung became the first opposition party candidate elected president (R. Rose, 1999: 22 ~ 23).

Nowadays, citizens' groups and other nongovernmental organizations are demanding that the electoral process and political institutions become more transparent and accountable and that they downsize and decentralize (JaeHoon, Shim, 1999: 15 ~ 16). According to citizen's demand, Korean government changes its structure and personnel policies in order to deliver services effectively, to do so must be sure that it also reinforces fundamental democratic values (B. Guy Peter, 1997: 15).<sup>5)</sup> The current efforts of Korean government are aimed at becoming small, but efficient government.

### **Institutional Framework**

Beginning in the early 1990s, citizens and NGOs demanded easier access to public information and a greater role in decision-making. Responding to this demand, the Korean Government announced plans to construct e-government. The goal of constructing e-government focuses on better service for citizens, business, and more effective use of the Govern-

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5) But another Korean scholars point out that Korea was in the middle of a transition from a government-led economy to a market-oriented one, and from a government based on dictatorship to a more democratic system. They assert that during this transition, both government and the business sector were in need of time to implement structural changes(UK, Heo: Sunwoong, Kim, 2000: 492 ~ 597, "Financial crisis in South Korea: failure of the government-led development paradigm." Asian Survey 40(3)).

ment's information resources. E-government has four guiding principles (Cabinet Office, 2000).<sup>6)</sup> The ultimate goal of constructing e-government is to improve citizens' satisfaction and efficiency in the public policy process.

In initial stage, government informationization in Korea focuses supplier & hardware - centered such as supplying every civil servant with one PC and constructing network. National key electronic infrastructure project was a major business in '87 ~ '96 (NCA, 2000).<sup>7)</sup>

Informationization project has generated positive effects constructing infrastructure of informationization. But some perspectives criticize problems of this project.<sup>8)</sup> According to the evaluation report written by the Office for Government Policy Coordination, the government evaluates that laws and policies concerning information, citizen consultation, and active participation acts as the hardware that enables citizen-government connections to be well constructed. On the other hand, the government evaluates that these laws cannot support sufficiently the software to strengthen citizen-government connections (e. g. insufficiency of manpower for system operations).

### **E-government Implementing System**

In Korea, there are some public organizations, which handle e-government projects.

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6) (1) building services around citizens' choices (2) making government and its services more accessible (3) social inclusion (4) using information better

7) (1) Establishment of database of main administrative information such as citizen (2) registration, real estate, and vehicles (3) Development of basic informationization environment for the government such as computer and communication network (4) Establishment of national network through high-speed information network project ('95)

8) (1) Unsatisfactory use of informationization in the government innovation (2) Reduced effects due to the informationization without task re-design (3) Weak synergy effect throughout the whole government due to isolation informationization by each ministry

The Government Computer Center (GCC) in the Ministry of Government Administration and Home Affairs (MOGAHA) manages the computer network, computerizes administrative office procedures, fosters government-wide use of public information and computer facilities, provides information technology to government agencies, and disseminates administrative information to the public.<sup>9)</sup>

The Ministry of Information and Communication (MIC) is in charge of planning integrated and systematic policy to facilitate the information society and to develop the information and communication industry. The Ministry of Planning and Budget (MPB) has contributed to e-government building by way of restructuring and financial support to ministries. Each Central Government ministry has its own Chief Information Officer (CIO) to encourage officials in government to identify new ways of working in partnership with the private sector.

There are various opinions regarding the current e-government implementation system. Some criticize that separating the building of the e-government system weakens intergovernmental cooperation & partnership on e-government and results in business delays, and investment in e-government becomes duplicated (Kim, 2000). Also, the need for an e-government implementation system, covering central & local governments, and legislature is being supported.

The Commission for National Informationization was established (April, 1996) under prime minister. A working team was the Ministry of Information and Communication. The commission has been focused on infrastructure such as super highway for information. But partnership and cooperation with other related ministries was shorted for the limited leadership of the Ministry of Information and

Communication.

Recently, Sub-committee for electronic government was established (February, 2001) under Presidential Commission on Government Innovation.<sup>10)</sup> Committee aims at policy coordination and intergovernmental partnership for public administration informatization. The function of committee is to establish strategies for constructing e-government. That is to coordinate conflict among related ministries and to evaluate the result of implementing informatization programs and to make an alternative plan for government innovation by ICTs. The members of committee are civilian experts and vice-minister of ministries (Ministry of Planning and Budgeting, Ministry of Information and Communication, Ministry of Government Administration and Home Affairs, Ministry of Education).

The sub-committee for an electronic government was held the 1st conference in March 19, 2001. In 1st conference, there had been discussing about evaluating, monitoring on major businesses for an electronic government. The results of evaluation on businesses for an electronic government will be related to budget investment. Proceeding on e-government will regularly be reported the president.

### Legal Framework

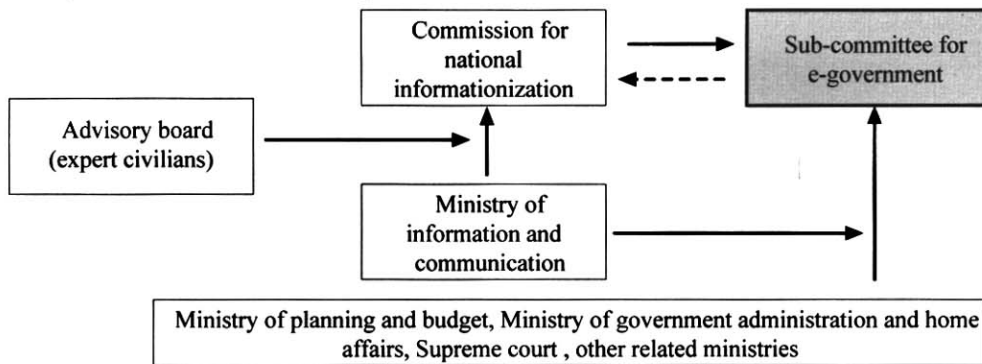
Four major laws have been adopted and e-government law is adopted.<sup>11)</sup> The four major laws are

10) Presidential Commission on Government Innovation was established for government innovation in August 2000. Working team is the Government Reform Office in the Ministry of Planning and Budget.

11) According to National Computerization Agency, in addition to 4 major acts, there are several laws concerning ITC in order to steer Korean society in the information age. In 1999, the Basic Act on Electronic Commerce and the Act on Electronic Commerce and the Act on Electronic Signature were enacted to popularized and nurture Korea's Internet assimilation. The Act on Information and Telecommunications Network use and the Basic Act on Information Promotion were revised to update the legal Internet overnance references.

9) The GCC also conducts computer-related training for public officials, its mission is to assist the government in using computer technology to achieve its goal of better service, lower costs.

**Figure 1.** The System of Sub-committee for e-government



the Administrative Procedure Act (established 1996, December 31), Act on Disclosure of Information by Public Agencies (established 1996, December 31), Basic Act on Informationalization Promotion (established 1995, August 4), and Act on the Protection of Personal Information maintained by Public Agencies (established 1996, December 31). The main objective of these laws is to uphold citizens' 'right to know' and to encourage citizen participation in the administration process. The final goals of these laws are to ensure justice, transparency, and trust of governance.

To better understand and respond to citizen demands the Administrative Procedure Act has been adopted. This law emphasizes hearing of citizens' opinion prior to administrative disposition. Public agencies should give preliminary notice to citizens before the adoption and amendment of a law to promote consultation and active citizen

participation in the government decision-making process, which could have a particular interest for citizens. It is the same for the establishment of policies and institutions, which could broadly affect citizens. Concerning such preliminary notice, any citizen can manifest his or her opinion via various channels.

To ensure citizen access to information and to promote its dissemination, the Act on Disclosure of Information by Public Agencies has been adopted. This Act describes agencies' duties concerning information disclosure, the information disclosure process, and disputes procedure.

To support the use of new information technology to strengthen government-citizen relations, the Basic Act on Informationalization Promotion has been adopted. The focus of the National Computerization Agency is based on this law. Furthermore, this law describes the utilization of various

**Table 1.** Information Laws and Objectives

Law	Objective	Target group
Administrative Procedure Act	Participation	Individual Citizens Interest Group
Act on Disclosure of Information by Public Agencies	Transparency	Individual Citizens
Basic Act on Informationalization Promotion	Information Infrastructure	Society
Act on the Protection of Personal Information Maintained by Public Agencies	Security	Individual Citizens
Act on Electronic Government	Operating System for Information	Government

information technologies such as super-high speed information and communication infrastructure. Additionally, this law promotes information technology development.

To protect personal information maintained by public agencies is the Act on the Protection of Personal Information Maintained by Public Agencies. The government administration does not have the authority to make this information public.

'Act on Electronic Government' (established 2001, February 28) promotes informationization on entire government including legislature, administrative and judicial agencies. This law includes total re-design of current document management system of approval, distribution and maintenance, redesign of administrative tasks for efficient internal administration for settlement of paperless administration. Government can also use electronic document and authentication in administrative process.

## **THE CASE STUDY- INFORMATION AND COMMUNICATION TECHNOLOGIES FOR USING ADMINISTRATIVE REFORM (FOCUSED ON OPEN IN SEOUL)**

### **Background and Concept**

The On-line Procedures Enhancement for civil application (OPEN) in Seoul Metropolitan Government was selected "Best Practice" in cabinet meeting on November 1999. After that, the Ministry of Planning and Budget and the Ministry of Government Administration and Home Affairs (MOGAHA) decided the diffusion of OPEN system. MOGAHA had developed a unitary software system in January ~ May 2000. Development of a software system had reduced duplicative budget waste in each agency. 20 pilot local governments was introduced this system in 1999, all 208 local governments in

2000. Some central governments which have many civil applications will be introduced OPEN system in 2001.

The OPEN was developed to prevent corruption in the administrative service process. Background of OPEN system is administrative practices vulnerable to corruption. "Kwan-si (acquaintanceship) culture" in oriental society is still obstructing democracy of Korea. OPEN was developed to achieve transparency in the city's administration by preventing unnecessary delays or arbitrary decisions or express fees. Among many of the civil transactions, this Web-based system allows citizens to monitor applications for permits or approvals where corruption is most likely to occur and to raise questions in the event of any irregularities being detected.

### **General Characteristics**

#### **Operation of OPEN**

In the beginning (On April 15, 1999), OPEN system started from major 26 fields for civil applications. After a year operation and technical modification of system (On March 2, 2000), 15 more areas with the potential for irregularities have had their application processes made public: 4 industry and economy related areas, 5 transportation related areas, and 6 environment related areas. From July 2000, more government functions were made public, including 20 more civil affairs functions related to citizens' daily life in areas such as sanitation, welfare construction, housing, urban planning, and fire emergency services.<sup>12)</sup> All civil

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12) Fields Covered by OPEN(Source : report in Seoul city)  
 Transportation : Assessment of influences on traffic, adjustment of taxi fares, installment and adjustment of village shuttle bus routes, settlement of city bus routes, and approval of express bus and inter-city bus terminal operations.  
 Housing & Construction : Housing construction business, approval and deliberation of construction projects, housing redevelopment projects, and city center redevelopment projects.

application documents show the name of person in charge, telephone number, an E-mail address at the bottom so that people who wish to monitor the handling process of his or her application are able to ask questions or make comments directly to the staff in charge by simply clicking the address on the document through the Internet

### Management of the OPEN

The system was designed to enable staff in charge of application permits to operate it with ease and convenience. Input data is confirmed everyday and the department who input those data is notified to correct or improve them. Computer program checks automatically whether the input of data is delayed or not. The system management is checked usually. A team is organized to check the system management. It confirms whether or not there is any omission or input delay of data, and ascertain if the data is exact, so that take measures to correct or improve them. Screen-inspection is made firstly with regard to the data documents at Internet Opening Room for Civil Appeal. Then, it confirms anything doubtful by comparing the documents

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Environment : Purchase of land for parks, waste disposal business, and approval and agency contracts.

Urban Planning : Approval of acts that will affect topography and soil, and decisions and changes in urban development plans.

Construction Work : Compensation, facility construction, changes to facility construction plans, construction technology services, and annual cost contract for facility maintenance.

Industry & Economy : Adjustment of city gas consumer rates, registration of opening and change of large-scale shops, and financial assistance to small and medium sized enterprises.

Sanitation & Welfare : Commission contract for social welfare facilities, and approval and punishment of entertainment establishments & song bars.

Fire Emergency Services : Inspection on completion of fire stations.

Miscellaneous : Payment of logistics and construction charges, and inspection of compulsory installment of art objects for buildings.

with the actual spot of work, which enables us to inspect the current work effectively. Inspection results are total 42 so far.

There awards a prize for people who input data best or visit OPEN system. Best public officials who input data were awarded-84 in 2000. Some presents will be furnished for visitors (total 231).

Publicity is made for citizen to use the system. It is made through leaflets, stickers, posters, subway train advertisement, electric signs, guide letter to use (by each district office), newspaper and broadcastings.

### How to serve the citizens

Citizens can access information on procedures of civil applications detailing which stage of the process each case has passed. As soon as a citizen files an application for a building permit, for example, government staff in charge will post the details of the received application on the OPEN site. Using any computer connected to the Internet, whether at home, work, or at the nearest district or ward office, the citizen can learn in real time whether the application has been received properly, who is currently handling and reviewing the case, when the permit is expected to be granted, and if it has been returned and if so, for what reasons.

### Resources

#### Human Resources

At first, The OPEN Development Team was consisted of 3 persons in charge of analyzing the cases and 9 program developers on February 1. 1999. Owing to prevent corruption, Audit & inspection office in Seoul city is in charge of operating OPEN system. For support, Task Force team was formed. Today, a total of 5,000 employees in 485 city departments dealing with applications have been trained to operate the system, and add and change data. Following training, ID's and passwords are assigned to allow each individual trainee to make

**Table 2.** Budgetary Resources for e-government and civil affairs administration  
(unit: US 1,000 dollar)

Fields \ Year	2000	2001
e-government	207,833	307,333
civil affairs administration	78,333	110,750

(Source: MPB Press Release, 12/08/2000)

entries at his or her department.

### Budgetary Resources

According to the Ministry of Planning and Budget (MPB), budgetary resources amounted to \$207,833,000 for constructing e-government and \$78,333,000 for civil affairs administration in 2000. And in 2001, budgetary resources amount to \$307,333,000 for constructing e-government and \$110,750,000 for civil affairs administration.

### Benefits and Drawbacks of OPEN

OPEN will greatly serve to prevent arbitrary decision and delays in administrative service process, thereby preventing corruption. Also, OPEN serves to strengthen government-citizens connection. The features of OPEN can be summarized by 4 characteristics.<sup>13)</sup>

First, The OPEN is to Strengthen government-citizens connection. Opening of internal sanction process can block public officials' overuse of dis-

cretion power and enhance the clarity of administration, which can prevent corruption. Citizen and administration become closer by connecting Internet information technology with administration. Positive and specific opening of information can satisfy the citizen's Right to Know.

Second, The OPEN is citizen-oriented. Citizens can submit civil applications and scrutinize entire civil applications process via the Internet whenever they want and wherever they are.

Third, The OPEN is securing transparency. OPEN offers full information about handling procedure of civil application. No official can sit on any case without justifiable reasons or make arbitrary decisions.

Fourth, The OPEN is preventing corruption. Free access to administrative service process eliminates the need for personal contact with officials and the paying of 'express fees'.

Despite the many benefits, some drawbacks that need to be overcome when expanding OPEN from the local level to national level should be mentioned.

The secrecy problem is a major impediment to citizens' easy access to public information. Considering the People's Democratic of Korea, disclosure of public information could be restricted.

A Korean tradition, which puts public officials above ordinary citizens, is still a grave obstacle to the success of such practices. Other difficulties we can consider are that manpower is insufficient for operating the information system, laws aiming to strengthen citizen-government connections are too ambiguous, and there is an underdeveloped mindset for the information system.

### Citizen's Responses to OPEN

There have been some actions to monitor citizens' satisfaction with the OPEN. They are question research for citizens through Internet and Korean Gallup Research.

13) OPEN was given a favorable reception domestically and internationally. (Source : report in Seoul city) Internally (domestically), OPEN was rewarded "Best Practice" by the Cabinet meeting for innovative management in the public sector in November 1999. All central ministries and local self-governing bodies introduced the system from the second half of the year 2000. Netscape rated OPEN as one of the best 10 sites in Korea. Externally (Internationally), Mayor Goh Kun explained OPEN at the 9<sup>th</sup> International Anti-Corruption Conference, held in Durban, South Africa in October 1999. The results of OPEN were evaluated highly as a means of preventing corruption.



**Question research for citizens through Internet**

The result of analysis for 1,245 visitors who made suggestions at citizen opinion section of Opening Room for Civil Appeal was following.

The first question of ‘how much do you think does the Opening Room for Civil Appeal contribute to the clarity of civil administration?’ Affirmation was 984 (84.3%) and negation was 183 (15.7%) among 1,167 respondents.

The second question of ‘how much are you satisfied with the handling of civil appeal by the staff in charge?’ Affirmation was 762 (72.3%) and negation was 293 (27.7%) among 1,055 respondents. Most citizens who answered showed positive response.

**Korean Gallup research**

According to the Korean Gallup’s question research from November 20 to December 13, 2000 for 11,525 citizens who personally experienced the handling of civil appeal by the staffs at 7 fields of public welfare in city hall and district office for last 1 year, average 49% of respondents answered that the current improperness of the staff in charge has decreased than that of 1 year before.

**Promising Directions**

As experience from the OPEN case shows, the introduction of ICT into the public sector has generated some positive effects such as transparency, efficiency, credibility, democracy, etc. OPEN was the first case in “Best Practice Briefing” on November 2. ’99. A best practice of public sector reform is reported at cabinet meetings bi-weekly. Effects of this program are to provide incentive for spontaneous reform and promote

benchmarking among government.

After best practice briefing, The Korean Government has accelerated a few projects such as “Project for informationization in local public administration” and “Single window for civil application”, to construct e-government and benefit from ICT .

**Project for Informationization in Local Public Administration**

The Korean Government initiated ‘Project for informationization in local public administration’ to raise productivity and quality of service by means of information technology in 1997. To implement the project, a fundamental plan was made in 1997, with USD125,000,000 being earmarked for investment between 1998 and 2002. In the first stage of this project, 10 fields concerning the everyday lives of citizens such as citizen ID cards, land registers, etc., were computerized. In the second stage of the above project, the Ministry of Government Administration and Home Affairs (MOGAHA) plans to construct a one-stop Internet service system by means of developing an electronic signature certification system. On completion of the project in 2002, citizens will be able to enjoy public administration services without visiting public offices.

**Single Window for Civil Applications**

When people interact with government they want to do so on their own terms. They want high quality services, which are accessible, convenient, and secure. People should not need to understand how government is organized, or to know which department or agency does what, or whether a function is exercised by the central or local governments. We need a strategy that will provide this, and cooperate in new partnerships that will

**Table 3. Percentage of the Improperness Decreased than 1 year Before**

Fields	House construction	Construction work	Fire fighting	Sanitation	Tax	Traffic administration
%	55%	52.1%	52.5%	44.4%	40.8%	49.2%

offer their services in ways that make sense to the customer. 'Single Window' contains a detailed scheme for implementation. It will rearrange current civil applications according to job, citizen, and lifecycle from the perspective of the customer, and make a map of civil application. This also provides a business portal service receiving civil applications, consulting, procedure processing of civil applications and so on. Project for Single Window is being done from October 2000 to April 2001. After project, there will be constructed Single Window system.

## CONCLUSION

As reviewed in the case study on the OPEN, ICT has dramatically affected the practice of government. The development of ICT has resulted in efficiency in government and in strengthening government-citizen connections by participation & openness via the Internet. ICT has also helped to fundamentally change the context of government. We are moving from a world of independent governments to one of a web of governance.

OPEN as it progresses will diffuse central & local government in its entirety by steps. After implementation, we can expect the culture and behavior of the Korean Government to change dramatically. OPEN has partially affected Seoul City's policy-making process. Previously most policy making was conducted by a few bureaucrats leaving room for distortions in policy-making. Now, owing to citizens' participation and the introduction of OPEN, the policy making process is becoming transparent. The benefits of OPEN affect some parts of all policy fields.

Generally, I think that information technology, more than any other tool or NGO, enables citizens to participate more actively in the decision-making process.

There are a few obstacles in the way of con-

structing e-government. Firstly, rapid development of technology is deepening the information gap and digital divide. The older generation and citizens of rural sectors are relative losers. Government investment and education for them is needed. Secondly, there is insufficient manpower in ICT in government. In overcoming the second obstacle in particular, I think that education in information for young people is necessary. This is a good remedy not only to overcome manpower insufficiency but also to alter old mindsets and bad traditions. Thirdly, when it comes to the secrecy problem, more strict criteria of secrecy will be recommended. Moreover, secret information should be classified according to these new criteria.

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