INTRODUCTION

Electronic government (e-government) is one of the most frequently mentioned themes in the public sector. Since the 1990s, it has been a strategy to introduce information and communication technologies (ICTs) into government reform for facilitating the development of small and efficient government structures. Although e-government is not the panacea for all government failures, it provides a variety of opportunities to correct these failures (OECD, 1998). In addition, e-government can significantly contribute to correcting market failures by reducing the transaction costs that arise from the information asymmetry problems.

‘E’ (electronic) means digital technology that enables people to transact with anyone, at any time in any place, by using the Internet and other ICTs. It is not a goal but a tool to transform a society by enhancing efficiency, effectiveness, empowerment, and economic and social development. It can increase citizens’ participation in, and the transparency of, the policy-making process (OECD, 1999). In the last ten years, many advanced countries have responded to e-government by planning to reforming government with ICTs. The Korean government, which experienced serious government and market failures in 1990s, follows this trend.

This paper examines the present status of and future prospects for the e-government initiative in Korea (EGK) and focuses on its structure, process and expected outcomes, through reliance on participatory observation and interviews with numerous authorities concerned. This descriptive methodology produces a more fruitful output than studying e-government as an ongoing case. It seems, therefore, relevant to look at key
factors and constraints to discover the meaningful characteristics in their interactions.

EXPLANATORY FRAMEWORK

Information system development consists of pre-implementation, implementation, and post-implementation phases. Among key elements of e-government projects at the pre-implementation phase are the background and enabling environments, political desire and leadership, vision and policy goals, strategic prioritization, role players and stakeholders, reform of public administration, resource allocation, and timing. (OECD, 1995: 61-65, 2002; U.K CITU, 2000: 9-15; U.S. OMB, 2002: 11-12). Proper management of the key elements at the pre-implementation phase determines the final performance of e-government. Whereas the implementation and post-implementation phases are rather technical and routine, the pre-implementation phase is, per se, a political process that requires frequent interaction among various political, economic, bureaucratic, and cultural factors.

Government can adopt multiple options for e-government services. One benchmark study shows that advanced e-government developments are classified into four categories: demand (consultation with citizens and businesses), supply (electronic government services), change (commitment & drivers of change), and capability (enabling government infrastructure) (U.K. CITU, 2000; 2001). Two dimensions are considered in this paper. The first is the top-down vs. bottom-up approach. A top-down (macro) approach would create an overall e-government plan at the national level, then implement and diffuse it incrementally at the local level. A bottom-up (micro) approach starts, on the other hand, with individual initiatives at the local level and accumulates building blocks that result in an overall plan at the national level.

The second dimension is a demand-side (outside-in) vs. supply-side (inside-out) approach. While the former focuses on consultation with stakeholders and responsiveness to their needs and preferences in the front office, the latter involves service delivery from the perspective of officials and bureaucratic processes of the government agency in the back office. Relying upon its own priorities and environmental conditions, government can apply one of four options: (i) top-down and demand-side, (ii) top-down and supply-side, (iii) bottom-up and demand-side, and (iv) bottom-up and supply-side approaches.

In relation to the above approaches, e-government activities are usually categorized into three forms of interactions: ‘government to citizen’ (G2C), ‘government to business’ (G2B), and ‘government to government’ (G2G). G2C and G2B include transactions between external consumers and government officials in the front office, whereas G2G performs internal transactions in the back office. The former aims to enhance the quality of services to stakeholders at the input and output stages of the ‘system’ framework, whereas the latter is concerned with reengineering the internal administrative processes of an agency at the conversion stage. In summary, the demand-side approach to e-government focuses on improving government’s responsiveness to citizens in government-to-citizen (G2C) and the government-to-business (G2B) transactions in the front office, whereas the supply-side one is to improve the efficiency, effectiveness, and transparency of government-to-government (G2G) transactions in the back office. In addition to these interactions, the infrastructure for e-government is another important factor for the successful implementation of e-government.

In this paper, the key ingredients of the EGK at the pre-implementation stage are examined in order of background and enabling environments, political will and leadership, vision and policy goals, strategic prioritization, role players and stakeholders, resource allocation, and concluding remarks. In the process of examining these ingredients, the dependent characteristics of the approaches to the EGK are investigated.

BACKGROUND AND ENABLING ENVIRONMENTS

The various attempts by the Korean Government at the EGK are an inevitable response to the situation in the 1990s. While the government faced the need for public sector reform, enabling the environment for e-government on the demand-side was well established with the flourishing of ICTs.

Korea suffered from an economic crisis in late 1997, the main reason for which was the ‘development paradigm lost’, which resulted from the failure to adapt the economic and social systems to the rapidly changing environments of 1990s. This created a national consensus that urgent and fundamental reforms of four major
POLITICAL LEADERSHIP

First, in addition to providing a sense of crisis and an ideology of reform, political leadership is another factor for enacting reform in areas such as initiating e-government (Heeks, 1999: 11). The strong political desire and leadership of President Kim initiated EGK. He recognized that the adoption of e-government was an apolitical agenda to reform government. On numerous occasions, he has mentioned an e-procurement system as a method to reduce corruption by enhancing the transparency and fairness of the government procurement process. Reflecting his political determination and interest, the Presidential Special Committee of E-Government in Korea (PSCEG), co-chaired by a civilian specialist and the Senior Secretary to the President for Policy & Planning, was organized as a non-standing committee under the Office of the President. Thus the President’s staff has played a central role in monitoring and coordinating the EGK agenda. In this sense, the EGK is a typical top-down approach. It follows the precedent of the Computer Network Coordination Committee, which was established in 1987 as a non-standing committee to coordinate computerization activities of government agencies and authorized the Computer Network Diffusion and Utilization Promotion Act of 1986. The Chief of Staff to the President became the chairperson of the Committee, which was rare in light of the role and function of the President’s staff (NCA, 2000: 84-5).

President Kim has been kept informed about the regular proceedings of the EGK from the Senior Secretary and sometimes from the civilian co-chairman of the PSCEG. Regular face-to-face reports to the President have a very strong influence on the bureaucracy in a centralized administrative culture. It contributes greatly to overcoming problems that arise from the various constraints.

There were, however, some concerns that the EGK might be regarded as a “lame duck administration agenda” because Kim’s presidency ends in February 2003. The political agenda in 2002, such as local elections in June and the presidential election in December, did not seem advantageous to the completed implementation of e-government services by the end of 2002. Sharp confrontations between political parties have delayed the enactment and revision of laws and regulations in the National Assembly. The political leadership of the President and inter-party cooperation are indispensable to the successful implementation of the EGK. Fortunately,
that political issue was settled to a degree.

VISION AND POLICY GOALS

It is somewhat difficult to identify the vision of the EGK. Fortunately, that political issue was settled to a considerable degree because little about it has been published. The Electronic Government Act of 2001 stipulates that the goals of e-government in Korea are to promote productivity, transparency, and the democracy of administrative agencies, and enhance citizens’ quality of life in a knowledge-based society. The EGK has three policy objectives: enhancing government services to citizens, providing the optimal entrepreneurial climate for businesses, and improving efficiency, transparency and democracy in government administration (NCA, 2002: 7). This is akin to the aims of other developed countries. For example, the Bush Administration’s primary goals for e-government are to make it easy for citizens to obtain service and interact with the federal government, to improve government efficiency and effectiveness, and to improve government’s responsiveness to citizens (U.S. OMB, 2002).

These goals can be simultaneously visualized by the single window portal concept. The EGK aims ultimately at building a single window portal system through the government-wide information-sharing center (see Figure 1). This makes it possible to streamline data management, to contribute to information infrastructure, to support problem solving, to expand professional networks, to support domain-level action, to improve public accountability, and to foster program and service coordination beyond simply ‘digital plumbing’ (Landsbergen and Wolken, 2001: 206; Dawes, 1996). This can provide e-services to citizens, seamlessly and smoothly, 24 hours a day, seven days a week. For citizens who do not know the structure and functioning of the agency in detail, integrated services can help them gain easy access to, and make transactions with, the agency. The single window architecture can contribute to solving ‘stovepipe’ structures, in which users are required to determine among numerous websites which agency delivers the service that they are seeking (Leigh and Atkinson, 2001: 8). Therefore, e-government must be, designed to promote citizens’ access to government service organized by the type of service or customer groups rather than by agency (U.S. Office of the President, 1999; Leigh and Atkinson, 2001: 9). If they are well integrated both vertically and horizontally, hundreds of central and local agencies, public administrative bodies, and judicial and legislative branches can share information to serve citizens, businesses, and other government agencies.

The first factor considered in the EGK is the magnitude of interconnectedness of inter-agency services. This results in a significant degree of coordination of costs between agencies. If, for example, four insurance systems: health, industrial accident compensation, unemployment insurances, and national pension, which share more than half of the common information on an individual customer are interconnected, citizens can transact with the insurance agencies in an integrated way. If the systems are not interconnected, consumers have to visit each agency, each of which has different procedures and is in different places. This leads to consumer dissatisfaction and agency inefficiency. Interconnecting the four systems, however, requires coordination between the

Figure 1. Conceptual Framework of E-Government Single Window

<table>
<thead>
<tr>
<th>citizens &amp; businesses</th>
<th>cyber space government</th>
<th>real space government</th>
</tr>
</thead>
<tbody>
<tr>
<td>citizen 1</td>
<td>front office</td>
<td></td>
</tr>
<tr>
<td>citizen 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>citizen 3</td>
<td>single window portal</td>
<td></td>
</tr>
<tr>
<td>citizen 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>info sharing center</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>agency 1</td>
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<td>agency 2</td>
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<td></td>
<td>agency 3</td>
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<td></td>
<td>agency 4</td>
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</tbody>
</table>
Ministry of Health and Welfare (MHW), the Ministry of Labor (MOL), and their four affiliated agencies. In this case, coordination is only possible with inter-agency partnership prompted by strong political leadership. In addition, business processing reengineering (BPR) and information strategic planning (ISP) across agencies is a difficult, but inescapable, task. In reality, more effort has been invested in this BPR/ISP stage than system development in most projects.

STRATEGIC PRIORITIZATION

After close examination and frank discussion for three months after the establishment of the PSCEG in January 2001, eleven e-government projects were selected: four front office services to external customers, four back office services to internal customers, and three infrastructure projects for e-government (See table 1). The distribution of the e-government projects among categories is appropriate in the light of development categories in advanced countries.

The first priority was given to services to citizens with primary value chains and high process structure (Earl, 1996: 67). They are e-service for citizens (G4C, ‘government for citizens’), integrated social insurance system, e-procurement (G2B), and home tax service (HTS). As mentioned above, these systems aim to interconnect several agencies, so that the PSCEG and its task force are coordinated with the agencies. G4C is the G2C project that represents the EGK. It required coordination between the Ministry of Government Administration and Home Affairs (MOGAHA), the Supreme Court, the Ministry of Construction & Transportation (MOCT), and the National Tax Service (NTS) to share information on citizenship, land, vehicles, businesses, and taxes.

The second priority is given to back office services in government to increase administrative efficiency, effectiveness, and transparency. They are national finance system, local administration system, national educational administration system (NEIS), and personnel policy support system (PPSS). The national finance system, which includes e-bill presentment and payment (EBPP), examines the present status and forecasts future trends of all financial information for budgets, funds, taxes, and public debts. Double entry accounting and accrual audit, which are inevitably accompanied by fundamental changes in the financial administration process and practices, are to be introduced in this finance system. Policy-makers can improve their policy formulation capabilities by using integrated real-time financial information.

The third type is related to the infrastructure of the EGK. Without secure and reliable structures by e-documentation, digital signatures, and e-payment systems, no electronic transactions are possible.

E-government activities are maturing from a one-way provision of information as the simplest, to two-way communications, to transactions that include electronic payment, all the way up to seamless integration (UNDPEPA/ASPA, 2002). Eleven projects are designed to reach the most complex stage with the highest expected values by developing whole life cycle of the service, providing two-way interactions, and Internet-based transactions, which includes electronic payment. In some cases, however, only partial stages are online, and the remaining stages such as payment still dealt with offline. In addition, the e-payment system is presently

<table>
<thead>
<tr>
<th>Class</th>
<th>Project Name</th>
<th>Agencies in Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td>G2C</td>
<td>E-Service to Citizens (G4C)</td>
<td>MOGAHA</td>
</tr>
<tr>
<td></td>
<td>Integrated Social Insurance System</td>
<td>MHW/MOL</td>
</tr>
<tr>
<td></td>
<td>Home Tax Service (HTS)</td>
<td>NTS</td>
</tr>
<tr>
<td>G2B</td>
<td>E-Procurement System (G2B)</td>
<td>MPB/SA</td>
</tr>
<tr>
<td>G2G</td>
<td>National Finance System (EBPP)</td>
<td>MFE</td>
</tr>
<tr>
<td></td>
<td>Local Administration System</td>
<td>MOGAHA</td>
</tr>
<tr>
<td></td>
<td>National Education Administration System (NEIS)</td>
<td>MEHRD</td>
</tr>
<tr>
<td></td>
<td>Personnel Policy Support System (PPSS)</td>
<td>CSC</td>
</tr>
<tr>
<td>Infra-structure</td>
<td>E-Documentation</td>
<td>MOGAHA</td>
</tr>
<tr>
<td></td>
<td>Digital Signature</td>
<td>MIC/MOGAHA</td>
</tr>
<tr>
<td></td>
<td>Integrated Computing Environments</td>
<td>MIC/MOGAHA/MPB</td>
</tr>
</tbody>
</table>

Table 1. The Summary of Eleven E-Government Projects in Korea
not secure or reliable enough for people to transact online in tax payments, e-procurement, or micro billing.

ROLE PLAYERS AND STAKEHOLDERS

Multiple role players and stakeholders are involved in the EGK. Successful implementation cannot be expected without a proper mechanism for coordination among them, which then has to be followed by an empowered management system. Although proper governance structure within different levels of governments is a crucial factor in determining the success of e-government (OECD, 2001: 2), multiple agencies function at different levels of government, each of which tends to operate according to its own laws, policies and practices. This diversification has increased with the decentralization and devolution of government functions during the 1990s.

The PSCEG, which consists of 18 members: the Senior Secretary to the President for Policy and Planning, 10 Vice-ministers, and 7 civilian members, was organized in January 2001 and began its mission in February 2001, with a term to run to December 2002. Its main role is to monitor, advise, and coordinate the different agencies. The PSCEG, co-chaired by a civilian member and the Senior Secretary to the President, is believed to be the strongest advisory committee in government. Since the Vice-minister is the CIO of the e-government projects, rather than the Planning and Management Officer who is the chief information officer (CIO) in each ministry, means greater empowerment for the PSCEG. The PSCEG task force, which consists of directors of 10 ministries involved in the EGK and the seven civilian members of the PSCEG, has held regular meetings biweekly since February 2001. In the process of coordination, the civilian co-chairperson’s leadership and professional knowledge, and the citizen’s perspectives function very well in resolving conflicts among agencies. This continued vitality of the PSCEG and the task force finds its impetus in the President’s the strong commitment to the project.

At the administrative level, the Ministry of Government Administration and Home Affairs (MOGAHA), the Ministry of Information and Communication (MIC), and the Ministry of Planning and Budget (MPB) play central roles in developing and diffusing e-government services, supporting technological means, and allocating budgets. MOGAHA diffuses e-services to citizens at all government levels, while MIC promotes informatization by maintaining secure and reliable computing environments. MPB allocates budgets to e-government projects. The first collaboration among three ministries was business process reengineering (BPR) of G4C. The National Computerization Agency (NCA) provides technological and financial support for the EGK. This administrative coordination system will continue until the end of the EGK.

There are several generations of information system development: the classical functionalism, social relativism, radical structuralism, and neo humanism (Hirschheim and Klein, 1996). Among them, the socio-technical, i.e. participatory approach based upon social relativism, emphasizes intermediate and end users’ participation in system development processes. At the pre-implementation phase, the EGK has relied upon a top-down approach with active participation of the users who are being left behind. Problems, if any, are found with the service providers at the front office. They often prefer conventional service delivery methods partly because of their inability to keep up with the new technology. In addition, some senior officials do not give the e-government agenda enough attention, because they regard e-government as an information technology project rather than an initiative for government reform. A considerable number of officials expressed concerns about the EGK because of the potential for the invasion of privacy. Unions of four social insurance agencies and the Korea Teachers Union suggest postponing the implementation of the integrated social insurance and the national education information system because of the additional workload required and reductions in the government work force. According to the neo-humanistic approach, there is not enough room to negotiate their full support for e-government services. A proper incentive mechanism to gain their cooperation has to be developed to fully utilize e-government services.

From the citizen’s perspective, there are few surveys of customers’ needs and preferences. The positive responses to already implemented e-government services do not necessarily guarantee success in the future. Structural problems may cause older people who have higher incomes and could benefit from Internet-based home tax services, to use the Internet less. On the other hand, younger people who have lower incomes, and benefit less from HTS, tend to use the Internet more often. It could cause a mismatch between the demand and supply of e-government services. It is important to
find out what citizens and businesses really want from electronic service delivery and how to raise their awareness of benefits. If there is not enough input from potential users in the pre-implementation stage, then their reaction to e-services must be discovered in the post-implementation stage.

RESOURCE ALLOCATION

Human, financial, and other resources are needed for successful implementation. Human and financial resources for the EGK have been allocated in a timely and proper way. While most of the 68.7 billion won ($53million) 2001 budget was invested in BPR and ISP activities, most of the 223.2 billion won ($172million) 2002 budget was invested in system development and hardware purchases. The total budget of 291.9 billion won ($225million) comes from the Information Promotion Fund, managed by MIC and allocated by MPB. It is difficult, at this point, to judge how appropriate it was to invest that amount of money in the EGK. It is still rigidly regulated by the government budget system and audited by the Board of Audit and Inspection. There is little room for flexibility in performance-oriented multi-year budgeting beyond doing so year-by-year and agency-by-agency. This suggests one of effective new public management reform strategies.

Human resources are central to all procedures of e-government services, however they are not always managed correctly. First, bureaucratic rigidity in human resource management such as job rotation, promotion and training does not provide administrative staff with the proper motivation for constant upgrading of state-of-the-art technology. Outsourcing, one of the principles for information system development stated in the Electronic Government Act of 2001, is an option for this situation. Nowadays information system outsourcing is adopted for technical competence (Kim and Song, 2001), rather than reduction in production and transaction costs (Globerman and Vining, 1996). The precondition for outsourcing is the existence of a competitive system integration (SI) market. The SI market, however, has recently begun to concentrate on a duopolistic structure. To foster a competitive market, the government applies a rule that bidders constitute a consortium of consulting firms, large, and small & medium SI enterprises. A well-organized partnership within the consortium becomes another important factor, because agency problems from information asymmetry may exist between the government agency (a contractor as principal) and the consortium (a contractee as agent) (Lacity and Hirschmein, 1993; Globerman and Vining, 1996). This agency problem can be reduced by monitoring the staff. This must be fostered by human resource management.

In addition, frequent job rotation of public officials, which is often mentioned as one of the personnel reform agendas, is another issue to be addressed. The Senior Secretary to the President for Policy & Planning, who is in charge of the EGK, has been changed five times for twenty months since February 2001, and the Information System Management Officer of the NTS has been changed four times during the same period. Frequent rotation brings about serious problems in developing the requisite skills, securing policy consistency and guaranteeing administrative accountability. On the contrary, the Public Management Information Planning Officer of the MOGAHA and the seven civilian members have remained the same, and this contributes to the consistent progress of the EGK. Third, several agencies have requested the establishment of a new organization and the recruitment of additional administrative staff necessary to manage the new systems. The basic principle of the KSCEG is to minimize the recruitment of new workers because of the implementation of the new systems. Until now, little organizational and personnel expansion in the agencies has been observed.

Time is another important resource, not merely an independent variable. It seemed appropriate to set time-related objectives to start the EGK in February 2001. There were, however, concerns regarding the two-year project schedule. Two years of the EGK may be not enough to examine, and to prepare for, all the possible problems. Many countries, therefore, tend to implement mid-term project schedules with 5-6 years (U.K. CITU, 2000; Accenture, 2002). It was important that the deadlines for the EGK set for the end of October 2002, be observed to ensure that ‘a promise made will be a promise kept.’ The promise was kept as scheduled. Instead, unanticipated weaknesses are checked and maintained one by one in implementation stage.

CONCLUDING REMARKS

In this study, the overall structure and process, as well as the constraints and limitations of the EGK were
examined. The study shows that the EGK relies on a top-down and supply-side approach rather than the bottom-up and demand-side approaches. At the pre-implementation stage, this approach is believed to contribute much to the success of the EGK as with to other mega-projects in Korea. It needs, however, to maintain the post-implementation stage for successful diffusion, by considering demand-side factors.

E-government refers to the government’s applications of information technology to enhance access to, and delivery of, public services to citizens and other government agencies. The EGK is oriented towards a single window portal service through the government-wide information-sharing center. If it is completely implemented and followed by proper next-generation e-government projects as expected, citizens will be provided with quality services in their living rooms and at their fingertips. It will also bring about paradigmatic shifts in the conventional ways of providing public service, which in turn will bring about citizens’ positive perceptions and expectations of government.

There are unforeseen threats to successful e-government that policy-makers have to predict (OECD, 2001; U.K. CITU, 2000; U.S. OMB, 2002). The PSCEG members and government officials try to avoid any failure arising from these threats. It seems, however, natural that due to various uncertainties and constraints, e-government will be accompanied by a longer trial and error learning process than expected. If the EGK is successfully implemented, it will demonstrate a new model of practices, which other countries will set as a benchmark. The some significant issues to be considered at the next phase of the EGK are as follows:

– Sustained focus on vision and policy goals and on-going progress by the next government starting in February 2003,
– Extending interconnection of inter-agency business processes towards an integrated single window services,
– Matching government’s provider competences with users’ needs and citizens’ expectations,
– Appropriate human, financial, and physical resource management systems
– Diffusing the already-developed e-services to all levels of government and public bodies.

NOTES

1. Since its inception in February 2001, the author has participated as a civilian member of the Presidential Special Committee of E-Government in Korea. The author, however, does not represent the formal status and opinion of the Committee in this paper, but rather provides his personal perspective.
2. President Kim often cited discussions with Alvin Toffler and Masao Hideo who visited Seoul in 2000. They encouraged President Kim to initiate e-government as early as possible.
3. Among numerous laws and regulations for enactment and revision, 18 laws, 28 presidential decrees, and 71 ministerial ordinances, which are indispensable to the implementation of e-government services, were finalized for revision in the National Assembly and the Cabinet Meeting.

REFERENCES


Landsbergen, Jr., David and Wolken, Jr., George. 2001. “Realizing the Promise: Government Information Systems and the Fourth Generation of Information
Hee Joon Song earned his BA and MPA degrees from Seoul National University and his Ph.D. degree from the Wharton School of the University of Pennsylvania in 1987. He is now specializing in public policy analysis and evaluation, and e-government services. He has published about 60 papers and coauthored four books.