The Institutional Dimension of e-Government Promotion:

A Comparative Study on Making 'Business Reference Model (BRM)' in the U.S. and Korea

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NCDG Working Paper No. 10-001

Submitted February 6, 2010

The National Center for Digital Government is supported by the National Science Foundation under Grant No. 0131923. Any opinions, findings, conclusions, or recommendations expressed in this material are those of the author and do not necessarily reflect the views of the National Science Foundation.

I. Introduction

E-governments have been built in most countries since the Clinton administration adopted it as a strategy of 'Reinventing Government' in the early 1990s. Moreover, informational services of e-government have evolved from simply providing information and data to promoting transactions and political participation based on the use of information technologies (UN, 2008).[1] Corresponding to this expansion and evolution of e-government, international organizations such as the United Nations (UN) and the Organization of Economic Cooperation and Development (OECD), as well as global information technology (IT) consulting firms have published research papers related to e-government best practices and key success factors of e-government promotion. Based on these reports, e-government initiatives which have succeeded in one nation have been benchmarked and imitated by other nations.

However, it has been reported that the levels of e-government services as well as their overall performance, have been differentiated on a per country basis even though most countries adopting these services were in similar economic and technological environments (UN, 2008; Dunleavy et al, 2006; West, 2005; La Porte et al, 2005; 2001). Moreover, the same e-government initiatives commonly implemented have produced different outcomes in each nation. The Business Reference Model (BRM), one of the reference models of the U.S. Federal Enterprise Architecture framework is a good example of this point because it was implemented in both the U.S. and Korea, but resulted in different forms of e-government in each of the two countries.

Why do e-government initiatives which are commonly implemented to achieve similar policy goals produce different outcomes in different nations? To answer this question, this paper examines e-government policy structure, which has been regarded as one of the most important institutional arrangements for e-government promotion (European Commission, 2007; Park, 2006; OECD, 2005; Eifert and Puschel, 2004). Specifically, the legal framework, the managerial tools for coordination and control, and the organizational arrangements of the e-government policy structures of the Bush administration in the U.S. and of Roh administration in Korea are compared. Based on such a comparative analysis, this study demonstrates how different institutional arrangements of e-government policy structure influence the different outcomes of BRMs in the two nations.

Why were the BRM cases chosen for the purpose of this study? Firstly, the BRM initiatives were key projects in both nations. The BRM was considered a 'blue print' for building effective and efficient e-government in the U.S. as well as in Korea (PCGID, 2005; FEAPMO, 2003). Secondly,

[1] UN (2008) reported that the 190 nations, 99% of the UN member states, have built the homepages of government agencies and have provided diverse informational services through the home pages such as welfare, education, tourism, etc.

these cases appear to be 'critical cases' in attempting to understand the influence of institutional factors on e-government building because (1) the e-government policy structures of both administrations were fully involved in the course of making the BRMs, and (2) they are appropriate to examine the causal relations between the institutional arrangements and the policy results in that the BRMs of both nations had the same institutional origins due to the Korean government having benchmarked the U.S. BRM (Lieberman, 2001).

To enhance the validity of this comparative case study design, multiple sources of evidence were used (Yin, 2003). The various types of literature examined include newspaper articles, academic papers, and testimonies before Congress, as well as policy reports published by executive agencies, Congress, research institutes and IT consulting firms. In addition, interviews were conducted with IT experts of various fields who had been involved in the BRM projects and were working within the e-government policy structures in both nations.[2]

Furthermore, possible explanations for differing e-government outcomes from competing perspectives are explored. By examining the possibilities of the other causes such as technologies, environment and actors, we can see the powers of institutional explanations and can create a potentially comprehensive explanation.[3]

The organization of this study is as follows: In section 2, the opposing explanations of e-government outcomes will be critically reviewed. The analytical framework for e-government policy structures will be made based on new institutionalism in section 3. In section 4, the comparison of the different results of the BRM initiatives in both countries will be examined. In section 5, the e-government policy structures of the two nations and their different influence on each stage of the BRM initiatives will be analyzed. Lastly, we will examine the limitations of opposing explanations based on the analysis of the BRM cases in the concluding section of this paper.

II. The Rival Explanations for e-Government Outcomes

1. Technology-Centric Explanation

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[2] For the analysis of the U.S. BRM, 11 structured-interviews were made with professors, IT consultants supporting Office of Management and Budget (OMB) and federal agencies, and former/current civil servants who are or were working on the IT adoption in the federal agencies. In addition, 16 interviews were made with professors and researchers who have been involved in e-government research and practices, IT consultants and former/current civil servants for analyzing the Korean case. Most of the interviews in Korea were in-depth interviews.

[3] Lieberman (2001) proposed 'Rival Causes Strategy' and 'Institutional Origins Strategy' for examining causal inference from historical institutionalistic approach. In this study, selecting the BRM cases and the review of the possibility of rival explanations in this study were followed by his proposals.

Various researchers have pointed out that information, data, and information technologies are critical determinants of e-government outcomes and the overall performance of information systems. Firstly, the quality and the accuracy of data and information have been considered as critical factors (Redman, 1998; Tayi and Ballou, 1998). Mismatched data structure, imperfect database design, and improper data allocation channels were also pointed out as key factors contributing to the failure of IT systems (Ambite et al. 2002; Dawes, 1996). Secondly, technological factors such as technological interoperability (Jung, 2002), technological complexity, and emergence of new technologies (Dawes and Nelson, 1995) have been regarded as important for the success of information systems. Some researchers have shown that characteristics of legacy systems (Duchessi and Chengalur-Smith, 1998) and technological capability of IT staffs (Dawes and Pardo, 2002) are also important to the outcomes and performance of IT systems.

By stressing the importance of technological factors on e-government outcomes and performance of information systems, some research based on technological determinism says that technologies have autonomous influence on individuals, institutions, and society (Fountain, 2001: 84).[4] And technological determinism has emerged as dominant perspective in the field of e-government research (Johnes and Orlikowski, 2007; Bekker and Homberg, 2005; Snellen, 2005). From this perspective, IT adoption is not only the most important factor in successful e-government building, but also regarded as the primary driving force of all the changes in government. One of the best examples of this perspective is Alvin Toffler (1980; 1990). He argued that *the Third Wave* would bring about a new civilization with electronic revolutions staffed by 'information workers' in 'intelligent buildings' full of 'electronic offices'.

To technological determinists, e-government represents the future image of government and a 'panacea' for all the problems of government. Along these lines, they argue that IT would make government more efficient and more democratic. In addition, government based on IT would be organized in networks rather than formal hierarchies (Toffler, 1990). This perspective can also evolve further into technological utopianism which states that IT is the central enabling element of a utopian vision of public administration (Lee, 2005; Margetts, 1999: 165).

2. Environment-Centric Explanations

Environment-centric explanations emphasize environmental factors such as political, economic, social, cultural, and demographic environments of e-government and IT systems. From this approach,

[4] Technological determinism contains two kinds of deterministic views: (1) characteristics of technology and the directions of technological changes are determined with internal logic of technology or economical rationalism; (2) technologies have autonomous and inevitable influence on individuals, economic lives, and society (Fountain, 2001: 84).

the environmental factors can serve as a major force attributing to the differences of e-government policy results. Furthermore, some scholars have argued that the environmental factors can determine everything and overwhelm the impact of other factors when determining the results of information systems under environmental determinism (Kraemer et al, 1989: 9).

In fact, a content analysis of each nation's homepage demonstrates the fact that geographical, cultural, and religious backgrounds of the country influence the content of e-government services (West, 2005: 141-6). In addition, some surveys on e-government have revealed that differences in the demographical structure of a nation were a major source of different e-government usage (Taylor Nelson Sofres, 2002; 2001).

According to some statistical analysis, the levels of economic development (Hargittai, 1999; Kiiski and Pohjola, 2002; Norris, 2001: 68-94) and scientific development (West, 2005: 160-4; Norris, 2001: 88) have been pointed out as the most critical factors of e-government promotion. However, the impact of democracy, education, and cultural heritage on e-government seem to be controversial to date (Moon, Welch and Wong, 2005). According to some research, their influence was not statistically significant (West, 2005: 160-164; Norris, 2001: 88; Danziger and Anderson, 2002), and vice versa (Katchanovski and La Porte, 2005).

Another aspect of the literature from the environment-centric perspective deals with the influence of globalization on e-government. Some scholars have argued that globalization tends to bring about a convergence of each nation's system of government which thus creates a common pattern (Kettl, 1997; OECD, 1993); this statement can also include IT adoption. First, globalization generates a joint response by many governments to common policy problems. Consequently, it leads to the convergence of configurations and services of e-government. For example, in the course of tackling international drug trafficking, Interpol, the U.S. FBI, and Korean Prosecutors' Office are not only sharing information related to drug trafficking but also have tried to link their own information systems. Such behavior will bring about a convergence of the information systems of each agency (Ministry of Justice of Korea, 2001).

Secondly, the international organizations like the OECD, UN and the global IT consulting firms have impacted the e-government policy of each nation in the globalization era. Such international organizations have built the e-government research centers and have disseminated policy reports, which contain the best practice, policy reviews and analyses regarding key success factors of e-government (Eifert and Puschel, 2004; Welch and Wong, 2001). In addition, the global IT consulting firms have disseminated the best practices and policies of one nation to another by using their knowledge management networks in the course of e-government building consultation (Dunleavy et al, 2006: 254). Through these mechanisms, the best practices of one nation have been diffused to other nations which have thus led to the homogenization of e-government among nations.

3. Actor-Centric Explanations

Actor-centric explanations focus on the characteristics, behaviors and the interaction of actors related to e-government when explaining e-government outcomes. Some scholars have argued that actors' attitudes, such as adaptation and resistance to the changes in the course of the IT adoption and usage, may have a big influence upon the results of e-government and its performance. For example, Klein and Hirschheim (1983) argued that individuals may have different attitudes towards IT adoption according to their job positions and individual interests. Consequently, it is necessary to manage the conflicts of interest and to enhance the understandability of IT systems in order to achieve successful IT adoption.[5]

Another explanation based on this view is 'managerial actionalism'. From this viewpoint, the primary causes for changes of IT and its performance stem from the actions of managers because actors can exercise their own free will in choosing their actions which in turn will bring their own consequences (Kraemer et al, 1989: 14). Based on this model, Kraemer and King (1981) focused on managerial actions and managerial means, which brought computing resources into organizations and distributed them throughout. In addition, Heintze and Bretschneider (2000) pointed out that managers' leadership and their managerial behavior is critical to the successful adoption of IT.

Some studies focus on groups and organizations which participate in the e-government building process. Specifically, this kind of literature concentrates on the following issues: (1) identifying the groups which participate in the e-government building process; (2) examining the characteristics of their interactions and consequences such as policy networking, collaborations, competition and conflicts among organizations in the course of e-government building. According to research conducted by Yildiz (2005), diverse groups and organizations including politicians, civil servants, professors and researchers, IT companies, the press, NGOs and even international organizations had participated in the Turkish e-government building process. Some research illustrated and compared organizational arrangements and their subsequent division of labor for e-government policy in each nation (Park, 2006; OECD, 2005; Eifert and Puschel, 2004).

Moreover, there is various research pertaining to the conflicts, competition, and networking which takes place among government agencies and is based on their different goals and interests, in the course of Korean e-government building (Yoo and Yoon, 2005; Phang, 2002; Kim, 2001; Mo, 2000). Their participation and interaction have produced 'the politics of e-government' (Yoon, 2003)

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[5] Refer to Fountain (2001: 86-87) on the main streams and the critical comments on the research of the relationship between information technology and individual factors in the field of communications and psychology.

and they have been regarded as a critical factor in determining the different outcomes of e-government building (Dawes and Pardo, 2002; Fountain, 2001).

4. Institution-Centric Explanations

Institution-centric explanations focus on the impact that formal or informal institutions have on IT adoption or e-government building. This kind of research can be categorized into three groups as follows. The first group of this approach examines how specific institutional characteristics, such as laws and regulations, budget processes, jurisdictions, autonomy of government agencies, and contract systems, influence IT systems and e-government building (Margetts, 2006; OECD, 2005; Dawes and Pardo, 2002; Fountain, 2001; Moon 2002). These institutions can constrain and guide the actions of participants in the process of e-government building. Therefore the power of the institutions can influence the outcomes of e-government.

Second, culture, value systems and informal institutions were also paid attention to when assessing influential factors in the adoption of IT systems. According to this type of literature, the configuration and overall performance of IT systems are influenced by protocols related to information system usage, interpretation framework, and organizational culture (Perri 6, 2004; Orlikowski, 2000; Sarker, 2000; Laudon and Westin, 1986; Laudon, 1985) plus the impacts IT infrastructures and hardware. Applying 'Grid-Group' cultural framework, Perri 6 (2004) argued that the decision making which is behind IT adoption may be influenced by the various types of organizational cultures. Laudon and Westin(1986) exhibited that the operation and management of IT systems are more influenced by the culture and value systems of the organizations, which is in contrast to views that the adoption of is IT influenced by technological factors. At the macro-level, Margetts and Dunleavy (2002) argued that the idiosyncratic values and robustness in the public sector could be reasons for the e-government failures in the U.K.

The third group of this approach examines the impact of macro institutional arrangements of nations on e-government and IT policy. For example, the institutional relations between governments and the IT industry have been pointed out as being one of the factors which influences the overall performance of e-government and national information infrastructure (Dunleavy et al, 2006; Margetts, 1999; Song, 1998). In addition, some of Korean scholars have paid attention to the characteristics of the Korean state and its institutional configurations in the field of IT policy when explaining the development of e-government and the fast development of IT industry in Korea. For example, Hong (2003) and Hwang (2003) pointed out that the degree of centralization and fund raising systems for promoting the IT industry, were important factors which contributed to the success of IT policy in Korea. From a more macro point of view, Adler and Henman (2005) argued that different welfare

state regimes, such as market-oriented, network-oriented and customer-oriented, produced different characteristics of welfare information systems and supported their argument with comparative research of OECD countries. Thus the welfare information systems in the Netherlands, one of the network-oriented welfare regime countries, have more collaborative characteristics than a nation such as the U.S., which can be categorized as one of the market-oriented regime countries, although the major goals of building welfare information systems were to enhance the efficiency of welfare policy.

5. Critical Review

Previous literature from diverse perspectives is helpful when attempting to understand the causes of e-government outcomes and performance. Nevertheless, each group of explanations seems to have weaknesses. First of all, all of the explanations except for institution-centric one seem to underestimate the power of the institutional arrangements. The institutions not only serve to constrain actors in the e-government policy process and to structure the interactions among them, but also mediate the impact of information technologies and other various environmental factors (Fountain, 2007; 2001; Johnes and Orlikowski, 2007; Bekker and Homberg, 2005; Snellen, 2005; Welch and Wong, 2001). Specifically, these kinds of explanations may be limited in their ability to answer the following questions: (1) why are the same or similar technologies enacted in different forms in different countries; (2) why are e-government outcomes differentiated even in similar policy environments such as globalization; (3) why have some countries succeeded in coordinating actors in the course of e-government building while others have not.

To further illustrate my point, let me take the example of research which has been conducted on the e-government policy structure from the actor-centric perspective. From this perspective, the e-government policy structure has been defined as the organization or the groups of organizations that performs the various functions related to e-government building such as planning, decision making, implementing, evaluating, etc (Park, 2006; OECD, 2005). This kind of research is effective in identifying organizations which are involved in the e-government policy process and the division of labor among organizations in the e-government policy process. However, proponents of the actor centric argument could not clearly point out the mechanisms and tools which were used in achieving the coordination among the various organizations, which may have different interests and goals. Consequently, the actor-centric approach seems to have weaknesses in answering the following questions: (1) why differences in the level of coordination occur; (2) with what can the e-government policy structures mobilize the resources and authority for building e-government; and (3) why the structures of the relationships between organizations of different countries or, administrations in same nation, differ from each other.

To answer these questions, we need to analyze institutional factors such as legal frameworks and managerial tools which are used for coordination and control as well as organizational arrangements (Fountain, 2007; 2001; Snellen, 2005; Lynn et al. 2001). By including these factors in our analysis, we can find the mechanisms and causes that contribute to the structure of relationships between participants. Additionally we can also begin to understand what managerial tools are used for control and coordination by organizations to achieve e-government policy goals in the e-government building process.

However, the previous literature from the institution-centric explanations also seems to have following limitations. Firstly, there seems to be a lack of detailed analysis on the institutional elements which influence e-government policy results. For example, most literature which analyzes the institutional factors of e-government policy structures does not analyze comprehensively and clearly the legal frameworks and managerial tools which are complementary to each other (Kim and Lee, 1998; Wolfe, 1999; Margetts, 1996). This leads to criticisms that the causal relations between institutions and other variables in this kind of research are vague (Yang, 2003).

Secondly, methodological problems can be pointed out. The impact of the institutional arrangements on policy outcomes may be examined more clearly from cross-national comparative perspectives (Sheingate, 2001). However, the cross-national comparative research on e-government doesn't seem to be enough (Fountain, 2002). In addition, most previous cross-national comparative research on e-government is not only descriptive research which introduces e-government policy structures and e-government initiatives in different countries, but also some of them have been conducted by different researchers who adopted different analytical framework. These methodological problems may be one of the causes that lower the level of rigorousness of the institution-centric research. In conclusion, a more comprehensive analysis on the institutional arrangements from the cross-national comparative perspective should be carried out to overcome the limitations posed by previous e-government research with institution-free analytical framework and the non-comparative methodology.

III. Theoretical Background and Analytical Framework

To overcome the limitations of previous research and to answer the research question, this paper adopts new institutionalism as a theoretical background. New institutionalists have stressed that "the institutions matter" in explaining the difference of policy outcomes from the comparative perspective (Campbell, 2004; Shaingate, 2003; Hall and Taylor, 1996; Thelen and Steinmo, 1992).

1. Institutions, Policy Process, and Policy Outcomes

Institutions are defined as formal or informal rules and procedures that structure the conduct of actors (Thelen and Steinmo, 1992). Similarly, North (1990) defined institutions as sets of formal and informal rules which are accompanied by monitoring and sanctioning mechanisms that cause actors to comply with these rules.[6] From this point of view, institutional arrangements function as a structure of political struggle and policy process that contribute to different policy outcomes; this argument will be clarified in the following paragraphs.

Firstly, institutions constrain available policy alternatives (Scharpf, 2000). That is to say that the permissibility and content of policy options can be differentiated according to the institution. For example, countries differ in the range of institutionally permissible policy options. An example is the power of governments to determine wages and working hours—an option that was routinely exercised by Belgian governments in the 1980s and 1990s and available in most other countries as well, but is ruled out in Germany by the constitutional guarantee of collective bargaining. At the international level, institutions such as the Free Trade Agreement (FTA) or regulations of international organizations like World Trade Organization (WTO) can pose limitations on permissible policy options when it comes to the trade policy of each member state (Pierre and Peters, 2000).

Secondly, participants in policy process are defined and their interactions are constrained under the institutional arrangements (Timmermans, 2001; Hall and Taylor, 1996). According to the different institutional arrangements, participants in decision-making and their incentive structures, decision-making protocol, the centrality of policy decision-making, stability of political elites and the level of sharing the purposes and values of policies, can all be different. Especially, institutional arrangements can have great influence on the locations and numbers of veto points in the policy process. Thus they may lead to different policy outcomes.

Thirdly, institutions influence the adoption and the spread of policy ideas and knowledge. According to the institutional arrangements, not only width and speed but also content of the adoption of policy ideas can differ (Skocpol and Rueschmeyer, 1996). For example, there were big differences of the adoption of New Public Management (NPM) ideas and their institutionalization among the U.K., Canada, and France. The reason for the differences among those nations is that there were big differences in terms of institutional arrangements which mediated the adoption of similar NPM ideas. In detail, the NPM ideas were adopted most widely and radically in the U.K because the prime

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[6] Although different new institutionalism has defined institutions differently, there seems to be an agreement as follows: institutions are the foundation of social life. “They consist of formal and informal rules, monitoring and enforcement mechanisms, and systems of meanings that define the context within which individuals, groups and organizations, nation-state operate and interaction with each other.”(Campbell, 2004)

minister at the time, who possessed a great deal of institutionalized power, took the initiative to promote NPM reform in the U.K. However, NPM proposals were initiated by Congress in Canada, and Central bureaucracy in France. In these countries the NPM proposals were not supported by the institutionalized sources of power in the course of their adoption and spread (Saint-Martin, 2004).

Fourthly, institutional arrangements can influence the policy capacity of government (Weaver and Rockman, 1993; Skowronek, 1992). The relations between the executive and the legislature, relations between the core executive and bureaucracy, coherence, stability and autonomy of bureaucracy, etc. can all help shape the overall characteristics of policy process and the policy capacity of government.

2. Complexes of Institutions and Organizations

Institutions are no longer conceptualized as monolithic entities but as compounds composed of various elements (Orren and Skowronek, 2004; Lowndes, 1996). Along these lines, institutions are now seen as complexes whose elements are linked to one another horizontally and composed the hierarchical structure of institutions. For example, Weaver and Lockman (1993: 10-11) identified the three tiers of institutions of the state: the first tier of institutional arrangement related to the relations between executive and legislature; the second tier related to the configurations of executive branch; and the third related to the types of bureaucracy. Lynn et al (2001) argued that three-level structure of governance exists based on an institutional framework: (1) the institutional (public choice) level related to the legislations, formal authorities, the centrality of control, accountability, and the level of coordination; (2) the managerial level related to monitoring/control mechanisms including performance standards, incentives, and sanctions; (3) the primary work which is concerned with relationship between primary workers and consequences.

Among these institutional elements, there are strong relationships which are in part characterized by their complementary effects. The effect of a particular institution depends on the degree of synergy it has with other institutions (Offe, 2006). The superior institutions in this relationship have the ability to positively or negatively influence the operations of inferior institutions in the hierarchical institutional arrangements (Amable, 2000). This interrelationship among institutional elements referred to as institutional complementarities which produce different varieties of capitalism and models of production regimes (Hall and Soskice, 2001). In addition, the discussion of the complexity of institutional arrangements leads to arguments regarding the relationship between the elements. For example, there may be tensions and conflicts among institutional elements that have different characteristics and those tensions and conflicts may be one of the causes of institutional change (Orren and Skowronek, 2004).

However, stressing the powers of institutions should not mean 'institutional determinism' whereby institutions determine actions. The new institutionalists have put an emphasis upon notions that institutions just provide actors opportunities and constraints, and do not determine their actions. From this view point, the analysis of the institutional arrangements should be combined with the analysis of the action factors, such as the characteristics of the major actors, networks and organizational arrangements, ideas and incentives (Hay, 2006; 2001; Peters et al. 2005; Streek and Thelen, 2005; Katznelson, 1997). Under different institutions, the method of networking and the characteristics of organizational arrangements can be differentiated. Additionally different combinations of institutions and organizations can produce different policy outcomes (Nee and Ingram, 1998; Ikenberry et al., 1988)

3. Analytical Framework

Based on the critical review of previous research and the theoretical background of the new institutionalism, the e-government policy structure has been redefined and the analytical framework of this study built. Most of all, in this study, the e-government policy structure is defined as follows: the combination of diverse institutional arrangements which result in the coordination and control of the organizations which are engaged in the e-government policy process. Based on this definition, we can comprehensively examine the source of authority, tools for coordination and control, and the participants who are involved in e-government building process.

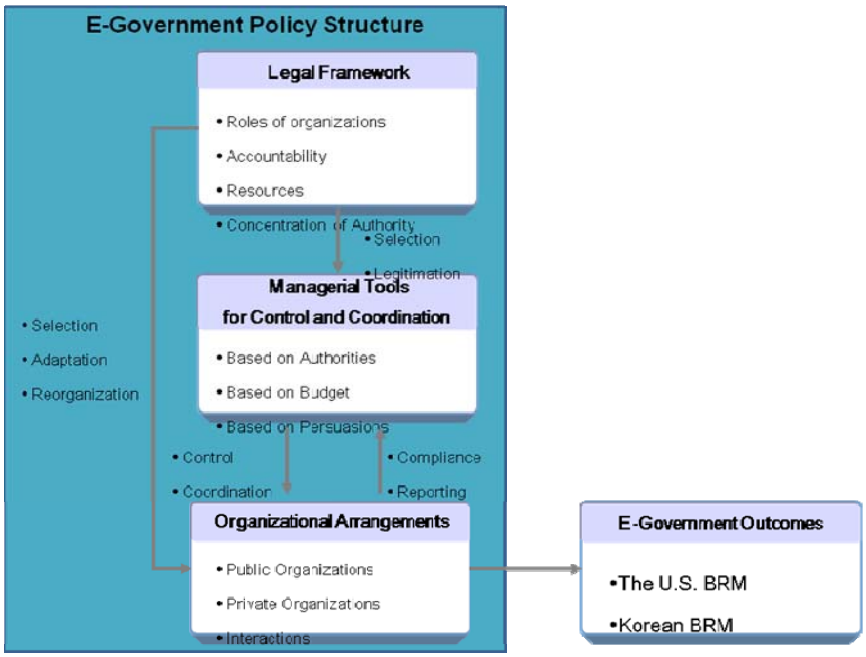
The analytical framework of the e-government policy structure has a three-tier structure as follows: (1) legal framework; (2) managerial tools for control and coordination; (3) organizational arrangements. The first tier is the legal framework for e-government building. This level is concerned with the establishment of government relations, or broad strategic alignments at the legislative level (Lynn et al. 2001). More specifically, the legal framework defines the formal roles of the organizations participating in the policy process, their accountability, and financial resources (Fountain, 2007). At this level, the degree of the concentration of authority, which is measured by the concentration of functions in rules and law related, can be determined and has been regarded as one of the main foundations of policy capacity (Skowronek, 1992).

The second tier is composed of managerial tools for coordination and control in the course of e-government building .Generally, this level is concerned with the elaboration of strategies by organizational actors (Lynn et al. 2001). This tier is grounded in the legal framework and the managerial tools are selected based on the legal framework. It is concerned with relationships between organizations, and particularly deals with the way the actions of e-government building are coordinated. These elements can contribute to making routinized, stable, and recurring modes of

behavior within legal frameworks and among organizations. So, they make their impact by lending government operations coherence and effectiveness (Skowronek, 1992). In this research, managerial devices will be identified based on Vedung (1988) as following three mechanisms: (1) authorities; (2) budgets; and (3) persuasion.

Third tier consists of organizational arrangements in e-government building. At this level, we can examine not only public and private organizations which assume the roles of e-government building, but also their interactions in the course of e-government building. The organizational arrangements are based on both formal norms such as legal framework, government contracts, and regulations. That is to say that the organizations are selected based on legal framework and, sometimes, reorganized by the legal framework. In addition, the organizational arrangements are influenced by informal social networks between professional experts and public servants in the field of e-government (Fountain, 2007). The organizations should comply with the managerial tools and procedural routines and report the results of their activities. The analytical framework of this research is illustrated in <Figure 1>.

<Figure 1> Analytical Framework



IV. Business Reference Model in the U.S. and Korea

1. The U.S. BRM

The BRM is one of the reference models of the Federal Enterprise Architecture (FEA) framework. First of all, let us define Enterprise Architecture (EA). The EA serves as a blueprint for the business operations of an organization and outlines the information and technology needed to carry out these operations, both currently and prospectively. As such, it is an information technology management and planning tool. It is designed to be comprehensive and scalable, to account for future growth needs. The EA planning represents a business-driven approach to IT management that emphasizes interoperability and information sharing (Seifert, 2006).[7] In the Information Technology Management Reform Act (ITMRA: P.L. 104-106), it is defined as "an integrated framework for evolving or maintaining existing information technology and acquiring new information technology to achieve the agency's strategic goals and information resources management goals."

The U.S. federal government has tried to adopt the EA framework to help manage its IT systems and the IT budget since the late 1980s. For example, National Institute of Standards and Technology (NIST) proposed NIST Framework in 1989 and a few federal agencies like DoE, DoD and USDA developed and adopted their own EA frameworks. In addition, the ITMRA passed in 1996, tasked agency chief information officers (CIOs) with, among other responsibilities, "developing, maintaining, and facilitating the implementation of sound and integrated information technology architecture for the executive agency."

However, the adoption of the EAs based on the ITMRA and other rules was evaluated as ineffective by the Bush administration (OMB, 2002). The established EAs in federal agencies were organization-oriented. Consequently, they were not able to be linked to each other and could not provide useful information and achieve their goals at the overall federal government level. Therefore, the E-Government Act (P.L. 107-347), passed in 2002, tasks the Administrator of the Office of E-Government with overseeing the development of EAs, both within and across agencies.

The act defined enterprise architecture as "means — (i) a strategic information asset base, which defines the mission; (ii) the information necessary to perform the mission; (iii) the technologies necessary to perform the mission; and (iv) the transitional processes for implementing new technologies in response to changing mission needs."[8] The EA in the act is a planning and managing tool used to guide federal information technology investments, with a specific focus on improving efficiency and identifying common applications that can be used government-wide. As noted by the OMB, "the purpose of this effort is to identify opportunities to simplify processes and unify work across the agencies and within the lines of business of the federal government. The outcome of this

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[7] The "enterprise," for which architecture is created, refers to either a "single organization or mission area that transcends more than one organizational boundary (e.g., financial management, homeland security)." The architecture represents a "big picture" view of how the enterprise operates and carries out its responsibilities (Seifert, 2006).

[8] 116 STAT. 2902.

effort will be a more citizen-centered, customer-focused government that maximizes technology investments to better achieve mission outcomes."[9]

By the E-Government Act, the FEA "includes (1) a baseline architecture; (2) a target architecture; and (3) a sequencing plan". In addition, it has five reference models: Performance, Business, Service Component, Data, and Technical.[10] Each of the reference models represents specific aspects of the FEA, and provides a framework, or a shared language, for departments and agencies to develop technology solutions that can be used by the federal government collectively (Seifert, 2006).

The BRM is defined as "a function-driven framework for describing the business operations of the federal government independent of the agencies that perform them and it provides an organized, hierarchical construct for describing the functions and day-to-day business operations of the federal government."(FEAPMO, 2002) The model describes the federal government's Lines of Business, including operations and services for the citizen, independent of the agencies, bureaus and offices that perform them. By describing the federal government around common business areas instead of the stove-piped, agency-by-agency view, the BRM promotes agency collaboration (FEAPMO, 2003). Moreover, by following the BRM, performance measures, government initiatives, and government agencies can be integrated as a single cross-agency initiative and the FEA reference models can be easily integrated along business lines, providing a foundation for the Component-Based Architecture design. In conclusion, "The BRM serves as the foundation for the FEA." (FEAPMO, 2003)

2. Korean BRM

The BRM and the FEA of the Bush administration were benchmarked by the Roh administration in Korea for developing the Korean BRM and 'the Governmental Information Technology Architecture (GITA)', a Korean version of FEA framework. In the initial stage of the Roh administration, there was criticism that a redundant IT investment had been made in building e-

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[9] http:www.feapmo.gov/feaHistory.asp, accessed March 10, 2008.

[10] FEAPMO (2004) defined the reference models as follows: (1) Service Component Reference Model (SRM) is "Business and performance-driven functional framework that classifies service components with respect to how they support business and/or performance objectives"; (2) Performance Reference Model (PRM) is "Standardized framework to measure the performance of major IT investments and their contribution to program performance"; (3) Data Reference Model (DRM) is "Model describing, at an aggregate level, the data and information that support program and business line operations"; (4) Technical Reference Model (TRM) is "Component-driven, technical framework used to identify the standards, specifications, and technologies that support and enable the delivery of service components and capabilities."

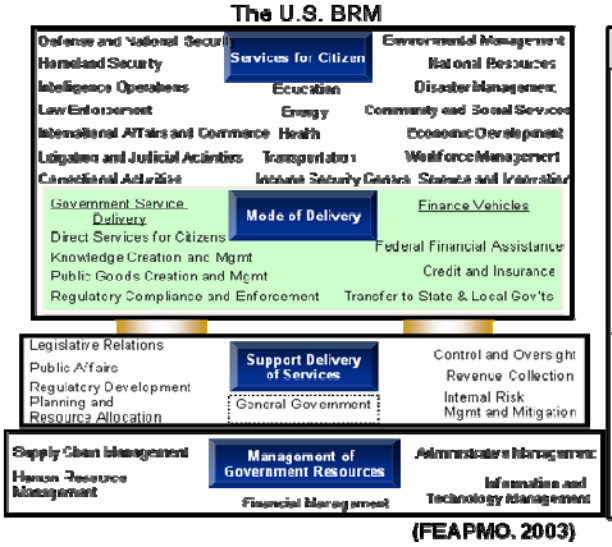
government and that the effect of e-government had been relatively low in providing citizen-centric services and enhancing government performance. It was for this reason that the level of information sharing was low and that the e-government systems were built in a 'stove-piped' style due to the fact that the links between functions of agencies were not identified and the collaboration between the agencies was facilitated through information systems (PCGID, 2005; Seo, 2004; MIC, 2003).

In tackling such problems, the U.S. BRM and the FEA were seen as good models by the policy makers in the field of e-government. In particular, the "holistic view" of the OMB's e-government policy and the 'cross-agency' functional approach of the U.S BRM were paid attention to by the policy makers in Korea.[11] Diverse forums on the EA were held and some experts in the field of IT argued that Korean government should adopt the EA framework following the U.S Federal Government model. In addition, government agencies such as National Computerization Agency translated and distributed the policy reports of the U.S. BRM and the FEA. At last, the BRM and the GITA were selected as core projects by the Presidential Committee on Government Innovation and Decentralization (PCGID) (PCGID, 2005).

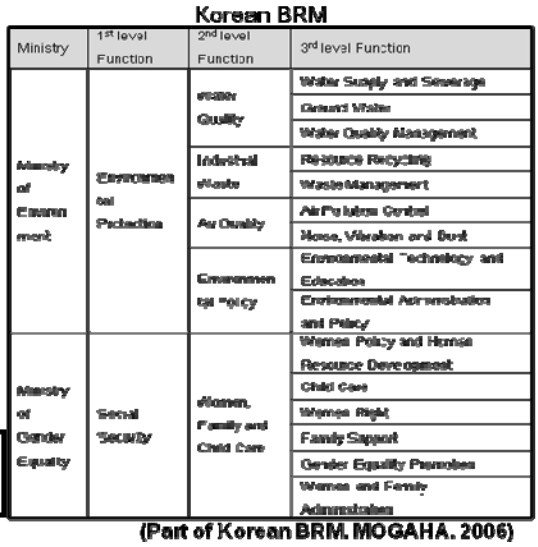
For the above reasons, the definition of the Korean BRM and its purposes were similar to those of its counterpart in the U.S. The Korean BRM is defined as "a government-wide functional map independent of government agencies for providing citizen-centric public services, driving the government innovation and enhancing the effectiveness and efficiency of e-government." (PCGID, 2005) According to the *e-Government Project Annual Report 2006*, the purpose of the Korean BRM was set as follows: (1) to promote government reform by identifying opportunities to simplify processes and to enhance the level of collaboration across agencies; (2) to provide a government-wide functional map supporting government innovation in the fields of deregulation, reorganization, personnel management, public finance, IT investment, etc.; (3) to provide a holistic functional map for reducing the redundancy of IT investment, promoting information-sharing, and establishing information systems linkage across agencies. (MoGAHA, 2007)

<Figure 2> The U.S. BRM and the Korean BRM

[11] From the interviews with the consultant and the researchers who participated in the Korean BRM project on Dec. 13, 2007.



(FEAPMO, 2003)



Ministry	1st level Function	2nd level Function	3rd level Function
Ministry of Environment	Environmental Protection	Water Quality	Water Supply and Sewerage
			Ground Water
			Water Quality Management
		Industrial Waste	Resource Recycling
			Waste Management
		Air Quality	Air Pollution Control
			Noise, Vibration and Dust
		Environmental Policy	Environmental Technology and Education
			Environmental Administration and Policy
Ministry of Gender Equality	Social Security	Women, Family and Child Care	Women Policy and Human Resource Development
			Child Care
			Women Right
			Family Support
			Gender Equality Promotion
			Women and Family Administration

(Part of Korean BRM, MOGAHA, 2006)

3. Difference between the U.S. BRM and the Korean BRM

Although the BRM initiatives started with similar goals in both countries and the U.S. BRM model was imitated by Korean policy makers, the outcomes of the projects in the both nations were different in the following respects. Firstly, in terms of the structure of the BRM, the U.S. BRM has a function-oriented structure independent of the federal agencies. As illustrated in <Figure 2> above, the current U.S. BRM has a three-tiered hierarchical structure, which consists of 4 Business Areas, 39 Lines of Business, and 153 Sub-Functions (FEAPMO, 2003). The current Korean BRM has a five-level hierarchical structure, which contains the 15 first-level functions, the 67 second-level functions and the 491 third-level functions. However, the Korean BRM has an organization-oriented structure. As illustrated in <Figure 2> above, the root category of the Korean BRM is 'Ministry'. Moreover, the levels of functions are followed by the organization structure of the ministry. That is to say that the second-level functions of the Korean BRM consist of functions which the 'bureaus/offices', the higher level of organizations in the ministry, are carrying out. The third-level of functions pertains to the function of 'divisions', which represent the lower level of organizations in the ministry.[12] (MoGAHA, 2007a) This means that the Korean government could not achieve the original goals of the BRM construction while the U.S. federal government succeeded.

Secondly, the U.S. BRM provides its users with detailed information on government functions and has a code-system for government functions and sub-functions, but the Korean version does not.

[12] Ministries of the Korean government consist of several 'bureaus' or 'offices.' In turn, there are several 'divisions' in a bureau/office. Thus, ministries, bureaus/offices, and divisions are hierarchically aligned in the organizational system of Korean government.

For example, in the U.S. the management system for the FEA, the Federal Enterprise Architecture Management Systems (FEAMS) was built. The system provides users with an intuitive approach to discover and potentially leverage business services, components, and data across the government (FEAPMO, 2003). On the contrary, there are no explanations and information about the functions of the Korean BRM, even in printed form.[13]

Thirdly, with respect to utilization and management authorities, the U.S. BRM has been managed by the Office of Management and Budget (OMB) and is used for controlling the IT investment of the federal agencies. However, the Korean BRM is managed by Ministry of Government Administration and Home Affairs (MoGAHA), whose major function was organizational management for Korean government. In addition, the Korean BRM is used as one of the sub-systems of the 'HAMONY system', one of the government-wide management information systems. (MoGAHA, 2007a)

These differences led to the divergence of the BRM adoptions and performance related to the BRM between the two countries. In the U.S., it was reported that redundant IT initiatives could be identified and the level of information sharing among federal agencies was enhanced by using the BRM. For example, the OMB found that the information systems which the Department of Education had tried to build provided similar services to the e-Grant system, one of the government-wide IT systems of the Bush administration, following the adoption of the BRM. Consequently the OMB didn't allocate resources for the system of the Department (OMB, 2002). In addition, Department of Labor, House and Urban Development Agency, and the Department of Education discovered that they provided similar job training programs for the unemployed by using the BRM. As a result, they shared related data and information among themselves and coordinated the programs of each agency (Rocheleau, 2006: 148-155).

However, it is reported that the Korean BRM was one of the reasons that the government-wide management systems based on the BRM had not worked very well and had not had its expected impact on the system. Because the BRM had an organization-centric structure, the users were prevented from finding similar programs to collaborate with and from linking programs and functions government-wide (Im, 2006). In addition, the BRM had been of little use for enhancing the level of information sharing. This was due to the fact that there is no information about the functions of the BRM available and also because of its organization-centric structure. Based on the previous reasons, it was difficult to identify the functions and organizations in which information sharing was required for better performance and higher efficiency with the BRM.[14]

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[13] From telephone interview with the public official of the MoGAHA, who was concerned with the management of the Korean BRM on April 29, 2008

[14] From the interview with the consultant who participated in the government-wide information sharing project of the next administration of the Roh administration on September 15. 2009

V. Analysis

1. Analysis of e-Government policy structures in the U.S. and Korea

1) The e-Government Policy Structure of the Bush Administration in the U.S.

(1) Legal Framework

The E-Government Act of 2002 was the major legal framework for e-government building under the Bush administration. The act prescribes the formal roles of federal agencies, resources, and their accountability for e-government building. One of the major features of the act was establishing the Office of e-Government under the director of the OMB. According to the Act, the Office of e-Government shall assist the Director "in carrying out (1) all functions management and promotion of e-government services; (2) all of the functions assigned to the Director under federal management and promotion of electronic government services; and (3) other electronic government initiatives, consistent with other statutes."[15]

The Administrator of the Office was given a great deal of the authority for building e-government such as: (1) planning authority of building government-wide strategies, promoting innovative uses of IT by agencies, and conducting capital planning with Office of Information and Regulatory Affairs (OIRA) in the OMB; (2) oversight and evaluation authority over the implementation of e-government, the development of enterprise architectures, and information security and privacy etc.; (3) budget authority of advising the Director on the resources required to develop and effectively administer e-government initiatives, overseeing the distribution of E-Government Funds, and of controlling capital planning and investment for information technology; (4) coordination authority for promoting e-government and the efficient use of IT by agencies, providing overall leadership and direction to the executive branch on e-government particularly initiatives involving multiagency collaboration, leading the activities of the CIO Council.[16] In conclusion, all kinds of authorities for building government-wide e-government such as planning, overseeing, budgeting, and coordinating were concentrated on the Office of e-Government in the OMB under the e-Government Act of 2002.

(2) Managerial Tools for Control and Coordination

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[15] 116 STAT. 2902-2903

[16] § 3602. Office of Electronic Government in the E-Government Act of 2002

A. Tools based on authority

The OMB developed several evaluation frameworks for control and coordination in e-government building. Firstly, the OMB developed the 'traffic-light' scorecard.[17] With this framework, each federal agency's e-government initiatives results as well as other President Management Agenda (PMA) had been monitored over a quarter of a year (Bruel, 2007). Each federal agency was very sensitive to the results because President Bush was highly interested in them and their improvement. In addition, the results were reported during a cabinet meeting and related to the allocation of budget for e-government initiatives.[18]

In addition, the Office of e-Government developed evaluation framework only for e-government initiatives. For example, the indexes such as (1) Adoption/Participation; (2) Usage; and (3) Customer Satisfaction, were adopted for evaluating e-government initiatives.[19] Moreover, the OMB set the mid-term performance and production baselines for each e-government initiative and had monitored whether they were achieved or not. Particularly, in order to check each agency's implementation of the FEA, the Office developed an assessment tool for agencies to evaluate their enterprise architectures and for the OMB to monitor each agency's improvement of the FEA adoption (Fountain, 2004).[20]

B. Tools based on budget

The Office of e-Government has used control and coordination tools based on budget. Firstly, the Office could utilize the 345 million e-Government Fund of the fiscal years 2002 to 2007 under the E-Government Act of 2002.[21] In the course of distributing the Fund, the Administrator of the Office should establish procedures for accepting and reviewing proposals for funding and assist the Director in coordinating resources that agencies receive from the Fund with other resources available to agencies for similar purpose."[22]

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[17] The scorecard employs a simple "traffic light" grading system to track the status and progress of each department and major agency. 'Green' means that implementation is proceeding according to the plans agreed upon with the OMB; 'yellow' means there is slippage in the implementation schedule, quantity of deliverables, or other issues requiring adjustment by the agency to achieve the initiative on a timely basis; and 'red' means the initiative is in serious jeopardy and unlikely to realize its objectives absent significant management intervention (Bruel, 2007).

[18] From the interview with the former civil servant of the OMB on July12, 2007

[19] http://www.whitehouse.gov/omb/egov, accessed March 12, 2008.

[20] From the interview with the Chairman of Industry Advisory Council (IAC) on July 13, 2007

[21] The Fund shall be administered by the Administrator of the General Services Administration, assisted by the Administrator of the Office of E-Government.

[22] § 3604. E-Government Fund of the E-Government Act of 2002

Second, the Office of e-Government strengthened its collaboration with the budget office of the OMB. The two offices held regular meetings based on the E-Government Act of 2002 and discussed the status of e-government initiatives and budget allocations for them. This collaboration provided the institutional background for the 'budget power' of the Office of e-Government. That is, the budget threats were, to counter the resistance from agencies who were against the OMB's e-government policy principles, have been used through the linkage of e-government initiatives and budget process.[23]

Thirdly, the evaluation frameworks of the e-government initiatives were linked to budget allocations. The results of the evaluations were directly reflected in the up-coming year's budget because they were carried out by the OMB. Hence the two types of the managerial tools have had a synergetic effect on performance management of e-government initiatives (Yoon & Lee, 2005).

C. Tools based on persuasion

The Office of E-government joined established committees and made new forums which were responsible for enhancing the degree of collaboration and sharing of experiences and information among federal agencies. First, the Office participated in the established committees. For example, it established a partnership with the President's Management Council (PMC) whose members consisted of high-ranking officials in federal agencies. Mr. Mark Forman, the first administrator in the Office of E-Government, let the members of the PMC participate in important decision-making processes, such as the selection of e-government initiatives, serving as representatives of each federal agency. In taking this approach, he tried to establish the political legitimacy of e-government policy.

In addition, the CIO council served as a cross-agency forum used to discuss e-government promotion. The Administrator of the Office should lead activities of the Council on behalf of the Deputy Director of Management, a chairperson of the Council according to the E-government Act of 2002. The members of the CIO council also participated in a steering committee for the Office of E-government, which was intended to enhance collaboration related to e-government policy (OMB, 2002). [24][25]

Second, the Office established new committees and forums. For example, it formed 'Portfolio Steering Committees' which served under the Administrator. The Committee members "were from agencies that make up the project teams for each of the initiatives. And the steering committees will

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[23] From the interview with the professor of computer science who had participated in the working group of an e-government initiative on June 22, 2007

[24] http://www.cio.gov, accessed March 11, 2008

[25] According to the news article of *Washington Technology* (Jan. 4, 2002), Mr. Mark Forman had invested much time and had made great efforts to keep good relations with the members of the PMC and the CIO Council.

advise agency program managers concerning their initiatives and help remove barriers to the implementation of the initiatives." (OMB, 2002) In addition, the Office set the forum for each initiative. For example, Chief Architect Forum (CAF) was newly formed by the Office to encourage chief architects of agencies to share their experiences and advise the Federal Chief Architect at the Office throughout the course of implementing the FEA.

(3) Organizational Arrangements

A. Public Organizations

Diverse public organizations had participated in the e-government building process, carrying out their own functions as illustrated in <Table 1>. In addition, the departments or the agencies which were concerned with the e-government initiatives were designated 'Managing Partners' of the initiatives. For example, the Department of Education was the Managing Partner of 'Online Access for Loans', which was one of the initiatives of the 'Government for Customers (G4C)' area. The Managing Partners took charge of supporting implementation of e-government and mobilizing resources (OMB, 2002).

<Table 1> Roles and Responsibilities of Federal Agencies

Agency	Functions
Department of Commerce(NIST)	- Establishing policies for IT standards
General Service Administration (GSA)	- Administrating E-Government Fund - Supporting CIO Council - Providing framework for interoperability of electronic signature
Office of Personnel Management (OPM)	- Analyzing the personnel needs related to IT and IRM - Identifying demand of information resource management, training, personnel needs - overseeing training methods and training on IT - assessing the training of Federal employees in IT disciplines
Office of Federal Procurement Policy (OFPP)	- Developing effective e-procurement - Supporting the innovative e-procurement policy
Office of Information and Regulatory Affairs (OIRA)	- Administrate information policy for federal government - Collaborating with Office of e-Government on e-government policy such as capital planning and investment control; the development of EA; information security; privacy; etc.
Each federal agency	- Complying with the requirements of the E-Government Act of 2002 - Ensuring that the information resource management policies and guidance established - Supporting the e-government policy of OMB and GSA

	- Developing performance measures of e-government - Avoiding diminishing access - Enhancing the accessibility to people with disabilities - Sponsoring activities that use information technology to engage the public in the development and implementation of policies and programs - Making and submitting E-Government Status Report - Taking responsibility to use or manage IT to deliver government information and services

Source: E-Government Act of 2002

The Office of E-Government assumed a leadership role for e-government building in the Bush administration. It was delegated its managerial tools via the legal framework and supported by the PMC as well as other OMB staffs, members of the CIO, CFO, and Procurement Executive and Human Resources Councils.

In order to enhance its leadership, daily management and coordination, the Office of E-Government set its organizational structure as follows. First, the Office hired four Portfolio Managers for each of the four citizen segments: G2C, G2B, G2G, and Internal Efficiency and Effectiveness (IEE). Each portfolio manager reported to the Associate Director for E-Government and IT, who was responsible for overseeing progress in the field of E-Government initiatives. To promote coordination among e-government initiatives, portfolio steering groups were formed to focus on E-Government in cooperation with other federal management councils, federal agencies, local governments and the CIO Council. The Committees also support their corresponding portfolio manager, an OMB employee, who is responsible for making government more citizen-centered through daily interaction with the managing partners who they oversee (OMB, 2002).

B. Private Organizations

The Office of e-Government institutionalized the following linkage with private sector. Through these institutionalized linkages, the Office imported the knowledge and the experiences it had accumulated regarding the adoption IT in the private sector and the policy advice it had received from the private sector as well (Saint-Martin, 2005). Initially, supporting contractors supported the policy-decision makers in the Office.[26] The members of the supporting contractors were all people with a great deal of professional expertise in IT and additionally had MBA degrees. They made contracts with the Office and had supported “everything of the Office” directly and constantly in the

[26] Major supporting contractors in the field of e-government were Booz Allen Hamilton and SRA International. From the interview with the consultants supporting the OMB on July 12, 2007

neighboring rooms.[27] Their role in the course of drafting the 'E-Government Strategy'[28] of the OMB in 2001 serves as a good example to illustrate their role in the process. They provided the methodology used in analyzing the functions and the status of IT in federal agencies, conducted surveys on the opinions of interested parties, developed a performance index of e-government initiatives, and provided policy alternatives, etc.

Secondly, the Industry Advisory Council (IAC) also supported the Office. The IAC, one of the partners of the Office, is a non-profit organization whose members number about 400 IT companies. Its goal was to share professional experiences and information in order to promote communication, and increase the degree of trust in IT among public officials and entrepreneurs in the IT field.[29] The IAC provided the best practice for IT adoption and IT governance in the private sector and research results on e-government initiatives. By forming Shared Interest Groups (SIGs), it encouraged the consultants and researchers of private IT companies to draft working papers on e-government policy on topics such as short-term and long-term policy issues like the modification of IT adoption in the private sector, strategy and governance structure of e-government policy, and reactions to the current issues of e-government policy. The papers were delivered to decision-makers of the Office and referred to in the policy process.[30]

2) The E-Government Policy Structures of the Roh Administration in Korea

(1) Legal Framework

Since the Korean government started to build e-government in earnest in the early 1990s, several laws were enacted for the construction of e-government. And different rules gave authority for e-government promotion to different ministries (Yoo and Yoon, 2005; Phang, 2002). In the Roh administration, the situation continued to be unchanged. The Framework Act on Informatization Promotion enacted in 1996 gave the authority to the Ministry of Information and Communication (MIC) and let the MIC create National Computerization Agency (NCA), one of the quasi-governmental organizations (QUAGOs), which were responsible for implementing IT policy and e-government promotion. But the E-Government Act enacted in 2001 gave the authority to the MoGAHA. In addition, the Government Organization Act, which was amended in 1999, delegated

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27 From the interview with the consultant supporting the OMB on July 10 and 12, 2007

28 The 'E-Government Strategy' contained the e-government initiatives of the Bush administration, strategy and future direction for promoting e-government, and performance indicators and milestones of e-government policy.

29 http://www.whitehouse.gov/omb/egov, accessed March 12, 2008.

30 From the interview with the chairman of the IAC on July 13, 2007

functions of government reform to the Ministry of Planning and Budget (MPB), which resulted in the MPB officials arguing that they should take charge of the e-government promotion.[31] Moreover, President Roh's Presidential Decree on the Presidential Committee on Government Innovation and Decentralization (PCGID) prescribed the PCGID should take charge of e-government promotion in particular. Based on the decree, E-Government Special Committee (hereafter Special Committee), one of the 5 special committees of the PCGID, was created and plans for e-government promotion were drafted, initiatives selected, and coordination pursued during the initial stage of the Roh administration. These measures also applied to the BRM and the GITA.

In this situation, the Korean government amended the Government Organization Act in 2004 in order to adjust government agencies' functions and authorities of e-government promotion. As a result of the amendments, the MoGAHA was put in charge of e-government promotion. In addition, the Presidential Decree was amended so that the Special Committee was changed to an advisory committee, thus causing it to lose all of its authority for e-government promotion.

However, there conflicts between the MoGAHA and the MIC persisted after the amendment of the Government Organization Act because the Act still tasked the MIC with the functions of building and managing the information technology and information policy. Based on these articles, the MIC continuously argued its authority in the technological aspects of e-government promotion.[32] Furthermore, there were no institutional changes regarding financial and organizational resources for e-government building after the amendment of the Government Organization Act. The MPB still maintained the budget authority over e-government. In addition, the MIC still maintained many of the quasi-governmental organizations (QUAGOs) in IT policy and e-government promotion such as NCA, based on the Framework Act on Informatization Promotion.

In conclusion, the diverse authorities for e-government building such as planning, implementing, technology, budget, and coordination were not concentrated and instead splintered into the several agencies. Unclear and contradictory articles of the several rules were one of the sources for the 'turf war' among agencies and that led to weakening control and coordination power in the field of e-government building (Hwang, 2006).

(2) Managerial Tools for Control and Coordination

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[31] From the interview on December 13, 2007 with the consultant who joined the e-government initiative of Kim Dae-Jung administration, the former administration of the Roh administration

[32] The President Roh tried to define the roles of the MoGAHA and the MIC as follows: the MoGAHA should take the roles of the CIO; and the MIC the roles of CTO (Chief Technology Officer) in Korean government (Song, 2004). However, his definition did not resolve the 'turf war' between the two ministries because the line between "the CIO and the CTO never got clear." From the interview with the Head of Staff of the E-Government Special Committee on May 27, 2008

A. Tools based on authority

A comprehensive e-government performance evaluation system was not established in the Roh administration. One of the reasons for this was the conflict over who should take charge of evaluations related to e-government initiatives. These conflicts were related to the ambiguity of legal frameworks. Each agency argued its own legitimacy about why it should take charge of the evaluation based on the acts which gave it the authority of e-government promotion. At last, the Special Committee carried out evaluations on 11 initiatives out of a total 31 initiatives and the MoGAHA carried out the other 20, using different evaluation frameworks (Yoon, 2007).

In addition to inter-agency disagreements, there were other reasons for the fragmentation of evaluation systems. Firstly, President Roh wanted to reform the overall evaluation system of government affairs. Over the course of the changes, the roles and responsibilities of e-government evaluation became unclear. Not only the agencies related to e-government building, but also other agencies such as the Committee of Policy Evaluation were created and it attempted to take charge of e-government performance evaluations. Secondly, we can point out the delay of drafting the plans for e-government more than expected. This consequently resulted in delays related to setting e-government evaluation systems. For these reasons, the evaluations were limited to process evaluations based on the qualitative indicators of evaluations (PCGID, 2005).

B. Tools based on budget

Overall control and coordination tools based on budget were dismantled in Roh administration. Firstly, the Informatization Promotion Fund, which had been evaluated as a coordination tool for e-government building and IT development in Korea, was abolished because of transparency problems.[33] Instead, the budget for e-government building started to come from general accounts of the annual budget (PCGID, 2005). This meant that financial discretion for control and coordination of e-government promotion was limited because the budget of general accounts is less flexible than the Fund (Song and Cho, 2007).

Secondly, the communication channels for cooperation with budget office were closed. For example, the MoGAHA, one of the main authorities for e-government promotion, didn't have

[33] The Informatization Promotion Fund was for enhancing the informatization of the government and society, building information infrastructure, and developing IT industry and R&D etc. This fund was relatively free from the control of National Assembly than general budget. That is, the discretion of the executive branch in assigning the fund to the programs was bigger than the general budget. The two administration before the Roh administration used this Fund as grants for the IT industry and the R&D for information technology. In addition, it was used for enhancing the coordination and control between the National Informatization Plans and the demand of each government agency. Each agency should follow the Plan authorized by the MIC for getting this fund (Song and Cho, 2007; Hong, 2003; Hwang, 2003).

effective communication channels with the budget office of the MPB.[34] The Special Committee also "did not exert formal/informal influence on the allocation of the budget and was not involved in the budget allocation process" (PCGID, 2005).[35] Consequently, collaboration with the MPB, the central budget agency, became increasingly weaker with the amendment of the Government Organization Act.

C. Tools based on Persuasion

The Special Committee itself was established for enhancing persuasion and coordination among government agencies, especially among the major departments related to e-government. Thus the directors of the MoGAHA, the MIC and the MPB were included as members of ministries along with members from private sector. However, the directors of the MoGAHA and the MIC were in conflict even during meetings of the Special Committee.[36] Additionally the director of the MPB had a low attendance rate.[37]

It is said that there were no other effective forums for sharing information and experiences related to e-government building among agencies. However, the Special Committee had several sub-committees which were established according service field. The team leaders were members of the Special Committee and high-ranked officials of ministries participated in the sub-committees. It was said that these sub-committees restrictively enhanced the communications and collaboration among ministries in the course of e-government building.[38]

(3) Organizational Arrangements

A. Public Organizations

Several public organizations had participated in the e-government building process. As seen in the sections of legal framework, the Special Committee, the MoGAHA and the MIC were the major actors in the process. The MPB was another important actor because it possessed budget power. In addition, other government agencies participated in e-government initiatives following the guidance

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[34] From the interview with senior researcher of the National Computerization Agency on February 6, 2008

[35] In the Kim Dae-Jung administration, the Special Committee for e-Government was actively involved in the budget allocation process and urged to assign more fund to the e-government programs. The committee exercised formal and informal influence to the budget office and let the officials in the bureau of government reform in the MPB, the members of the Committee, argued the importance of e-government to the budget office in the MPB (Special Committee for e-Government, 2003).

[36] From the interview with the Head of Staff of the E-Government Special Committee on May 27, 2008

[37] According to the analysis of the minutes of the Committee, the rates of the attendance of the directors of the MoGAHA and the MIC were 96.7 and 86.8. However, that of the MPB was 42.7.

[38] The CIO Council of Korean government was formed but it was not active. From the interview with the Head of Staff of the E-Government Special Committee on May 27, 2008

and technological advice of the Special Committee, the MoGAHA, and the MIC.

Under the ambiguous legal frameworks pertaining to what organizations should take charge of the e-government policy, there were various conflicts. Specifically, the conflict between the MoGAHA and the MIC was 'big problem' in implementing e-government initiatives (Yoo and Yoon, 2005). The MoGAHA and the MIC had tried to extend their own control and power over e-government initiatives because they believed that they would not survive in the next administration without taking charge of e-government authority.[39]

In this situation, the Special Committee did not have the authority or resources needed to control and coordinate the MoGAHA and the MIC. A large portion of the members of the Special Committee were university professors. Moreover, the number of the administrative staff was just 5 or 6.[40] Thus the characteristics of the Special Committee resembled that of a temporary organization. Hence it was nearly impossible to coordinate and mediate the conflicts between government agencies.

Moreover, the Special Committee was also in conflict with the MoGAHA. That is, the roles of the Special Committee, as the coordinator and planner of e-government policy, were in conflict with the MoGAHA's authority after the amendment of the Government Organization Act. The MoGAHA didn't accept the legitimacy of the Special Committee's authority to coordinate. At last, the Special Committee lost its authority to plan and coordinate and thus transformed into just an 'advisory committee' for e-government policy (MoGAHA, 2007).

B. Private Organizations

In Korea, many IT vendors joined the in the process of the e-government system implementation. However, their roles were limited to just system implementation and consequently they did not have influence over policy-making. One of the interesting aspects of the Korean case was the role of the National Computerization Agency (NCA), one of the quasi-governmental organizations (QUAGOs) in the IT policy field. The NCA mediated between the government and private sector. The NCA has supported policy-making by providing related knowledge and policy options and also helped with implementing IT policy. In the Roh administration, the NCA supported the Special Committee by providing staff and managing e-government initiatives (NCA, 2007).

However, with the change of the e-government policy structure after the amendment of the Government Organization Act, there were some cracks which developed between the MoGAHA and the NCA. The MoGAHA, which was the new main agency of e-government policy, did not want to

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39 From the interview with a staff of the E-Government Special Committee on May 21, 2008

40 The Committee consisted of around 20 members. 13-15 of them came from private sector, mainly universities. And the directors of the MoGAHA, the MIC and the MPB who concerned with e-government promotion joined as members of the committee. The committee was supported by 5-6 administrative staffs (PCGID, 2005).

cooperate with the NCA because the NCA was one of the QUAGOs which operated under the MIC (Yoo and Yoon, 2005) Because there had been serious conflict between the MoGAHA and the MIC, the MoGAHA did not want to work with the NCA either, and tried to establish a new QUAGO which fell under its control. These unfriendly relations between the two agencies brought about implicit problems in the collaboration between these two agencies. The MoGAHA did not accept the the NCA's support and the NCA did not provide better policy alternatives to the MoGAHA and were reluctant to follow MoGAHA's order. These conflicts prevented the knowledge and experiences of the NCA from being transferred to the e-government policy process (Song and Cho, 2007).

2. Analysis of the BRM Buildings in the U.S. and Korea

1) The BRM Building in the U.S

(1) Planning Stage

In planning stage, the FEA including the BRM was selected as an e-government initiative and plans for developing the BRM and its draft version were made. The OMB took the initiative related to making the BRM and was backed by several federal agencies. President Bush had made "Expanding E-Government" integral to a five-part Management Agenda for making government more focused on citizens and results. Consequently, the OMB formed a task force team which was charged with making plans and roadmaps for e-government building on August 9, 2001.The tasks of the team were to create an e-government strategy, to select e-government initiatives, to form an e-governance structure, and to make working plans. This task force team consisted of OMB staff members and civil servants from federal agencies and reported the E-Government strategy to the Director of the OMB on February 17, 2002 (OMB, 2002).

In the course of working, the team made and utilized "An Integrated Government-wide Business Architecture", the draft version of the current BRM, to identify the federal government functions and to find the opportunities for simplifying the federal government's business process (FEMPMO, 2002). Moreover, the task force decided to develop the FEA. The FEA, which includes the BRM, "supports all of the initiatives, will map government processes by line of business. It will develop information, data and application interface standards to eliminate redundancies and yield improved operating efficiency and effectiveness."(OMB, 2002)

However, there was skepticism and resistances over the OMB's promotion of cross-agency e-government and the FEA. The federal agencies had complaints about the OMB's position to build new cross-agency information systems because it made federal agencies consolidate their information

systems in the new cross-agency systems or cancel plans for building new information systems for their agency.[41] Especially, "the FEA covering the whole government" was ambiguous and unfamiliar to the federal agencies.[42] Some IT specialists from federal agencies were extremely cynical to the feasibility of such an initiative.[43]

However, the resistance and cynicism were not explicit because it was just in the planning stage and the federal agencies were concerned that resistance to OMB's policy would result in disadvantages in terms of budget allocations.[44] In addition, to enhance the understandability of the BRM and the FEA and to clarify issues, the OMB used various meetings and councils in the federal government. First, the OMB received approval by the PMC for its initiatives. Second, the CIO council supported the OMB's activities in addition to the government-wide forum for sharing information related toe-government policy.

In initiating the BRM and the FEA, supporting contractors and the IAC were actively engaged in the process. First, supporting contractors consisted of around 10 consultants from consulting firms, who supported several activities of the task force team. Specifically, their major means of support for the task force team were as follows: (1) raising issues about the necessity and importance of the BRM and the FEA; (2) providing the methodology for surveying the each agency's functions; (3) analyzing the linkage between the functions; (4) making the pilot BRM and adopting it to analyzing the IT systems in federal government.[45]

Second, outside of the OMB, the IAC was asked to research the FEA and the BRM which was modified for federal government, as well as to identify best practices in private sector, by the OMB.[46] For the research, the IAC formed EA SIG in which over 100 IT companies participated.[47] The working papers which contained the research findings were delivered to the OMB and referred to in carrying out the BRM and the FEA. Furthermore, the supporting contractors and the IAC were networked. For example, the consulting firms of the supporting contractors joined the IAC and actively participated in the EA SIG.

(2) Developing Stage

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[41] From the interview with the professor of computer science who had participated in the working group of an e-government initiative on June 22, 2007

[42] From the telephone interview with the CIO of the National Science Foundation (NSF) on June 29, 2007

[43] From the interview with Federal Chief Architect of the OMB on July10, 2007

[44] From the interview with the professor of computer science who had participated in the working group of an e-government initiative on June 22, 2007

[45] From the interview with the consultant who were supporting the OMB on July 10 and 12, 2007

[46] From the interview with the Chairman of Industry Advisory Council (IAC) on July 13, 2007

[47]http://www.iaconline.org/portal, assessed March 5, 2008.

The BRM was established with several sub-tasks, such as surveying and categorizing the federal agencies' functions, linking the functions between information systems of the federal government, and receiving feedback from agencies etc. As a result of these activities, the 1st version of the BRM had been unveiled in July, 2002, and it had been revised to the current version which was published in June, 2003 (FEAPMO, 2002; 2003).

The OMB took the initiative in developing stage too. This was due to the fact that the Office of e-Government was created and was given the authority to implement and oversee the development of enterprise architectures within and across agencies.[48] That is, the role of the FEA within and across agencies was outlined by laws such as the ITMRA and E-Government Act of 2002, so the federal agencies had no choice but to follow the OMB's policy directions.[49]

In order to develop the BRM and to manage the FEA initiative, the Federal Enterprise Architecture Program Management Office (FEAPMO) and the new position of 'Chief Architect' were created in the Office. The FEAPMO had taken on the roles of making and disseminating the principles and the regulations of the BRM as well as of managing the initiative.

During the implementation of the BRM, the Office established various control and coordination tools. Firstly, the Office had institutionalized the BRM in the budget process by revising OMB Circular A-11, which had regulated the budget process (FEAPMO, 2003). For example, when the federal agencies submit budget requests to the OMB, they must link IT investments in the budget requests with the code numbers of the functions in the BRM, which the IT investments would support. Through this revision, the OMB tried to discover any redundancies in IT investment on the one hand, and increase the level of usage of the BRM on the other hand. Consequently, this revision forced federal agencies to use the BRM because the federal agencies could not submit the budget requests to the OMB without using the BRM.

Secondly, the Office shared information and knowledge and tried to coordinate the activities of the FEA and the BRM through the CIO Council and other committees. For example, the 'Chief Architect Forum (CAF)' which was composed of chief architects of agencies was formed to share their experiences of architecture activities (Seifert, 2006).[50]Additionally the CIO Council formed the Architecture and Infrastructure Committee (AIC) whose purposes were as follows: "(1) to integrate OMB and CIO Council EA efforts; (2) to facilitate simpler, consistent EA taxonomy and terminology; (3) to facilitate cross-agency efforts; (4) to operationalize EA efforts and developed the principles and

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48 116 STAT. 2902, 2903

49 From the telephone interview with the CIO of the National Science Foundation (NSF) on June 29, 2007

50 From the telephone interview with the Chief Architect of the National Science Foundation (NSF) on June 29, 2007

regulations on the FEA." (FEAPMO, 2004)

The supporting contractors and the IAC supported the Office in the developing stage. Firstly, the supporting contractors supported all the activities of the FEAPMO. They joined in the development of the BRM and the FEA[51] and aided decision makers of the Office by surveying various perspectives on the BRM, finding solutions to the problems, and analyzing the status of the BRM building.[52] Second, the IAC conducted research and provided the Office with working papers regarding solutions to technical problems such as the linkage between the BRM and the budget process, as well as to alternatives on the revision of the OMB circular A-11.

(3) Adoption Stage

The BRM had been adopted by the federal government and used for managing information assets and budget allocation since June, 2003. In addition, other reference models based on the BRM were built and adopted by the agencies. And the budget process for the fiscal year of 2004 started with institutionalizing the BRM in the process (FEAPMO, 2003).

However, there were conflicts and criticisms regarding the BRM and the FEA as follows.[53] Firstly, the BRM and the FEA required the staff of the agencies to perform a great amount of paper work. The agencies then had to submit "stacks of paper as tall as a person" in following with the

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[51] Booz Allen Hamilton, one of the supporting contractors for making the BRM and the FEA, supported the FEAPMO including the production of: Five interrelated Reference Models to facilitate collaboration and communication; Detailed guidance to help federal agencies comply with FEA requirements included in OMB Circular A-11; The FEA Management System (FEAMS), an Internet-based EA tool to aid FEA analysis, maintenance, planning, and architecture development; Component-Based Architecture (CBA) and subsequent Services and Component-Based Architecture (SCBA) specifications to support the use of reusable components and services; The Solution Development Life Cycle (SDLC) methodology that creates and deploys solutions using a component-based approach; The charter and operating principles to support the Solutions Architects Working Group, which assists agencies in designing e-Gov initiatives; Communications and outreach activities. From http://www.boozallen.com/consulting, assessed on 15 August, 2008

[52] Tim Wang had worked for the Office as a member of the supporting contractors. He won award of '2007 Federal 100 Winners' from the FCW.Com for his contributions to e-government development. The FCW.Com presented the explanation for his award as follows: "Tim Wang, principal consultant at SRA Touchstone Consulting Group, provided exceptional contactor support and continuity to the Office of Management and Budget's Office of E-Government and Information Technology during a time of high turnover among key portfolio managers. Wang has worked at OMB since 2003, when the e-government initiatives were new, and he has gathered a wide range of perspectives. Although the manager positions were empty, Wang attended all portfolio meetings so that he could relay important issues to senior OMB officials to keep the office running smoothly. Wang also volunteered his expertise to OMB officials who were updating OMB Circular A-11 to improve the federal budgeting process. Wang's efforts helped organize an annual flood of information from departments and agencies. Although contractors do as they are told, "consultants do that and then some," said Tim Young, associate administrator for e-government and IT at OMB." From the above explanation, we can get hints about the concrete activities of the supporting contractors and the organizational mood of the Office.

[53] Refer to Fountain (2004) on the details of the key issues of the FEA. In this paper, the author is providing the criticisms which were found through the interviews and presentation of the civil servants who were concerned with the FEA and the BRM.

BRM and other reference models, and those activities were time-consuming and labor-consuming jobs.[54] Secondly, these criticisms generated doubt over whether the BRM and the FEA would be beneficial to the agencies and enhance the IT manageability of the federal government. Some agencies criticized the BRM, which to them existed merely to enhance the efficiency of budget control by the OMB, and not for the agencies' IT management.[55] Thirdly, conflicts existed between the BRM and other managerial tools of the OMB. The performance evaluation systems such as Scorecard system and Program Assessment Rating Tools (PART) system were agency-centered programs, but the BRM was intended for cross-agency collaborations. Therefore, the agency didn't have any incentives to follow the BRM.[56] Fourthly, some technical problems were also found. For example, it was difficult for the agency to link just one function in the BRM to IT systems, or the agency could not determine the exact function which the IT systems were charged with supporting because some IT systems pursued several purposes and supported several functions of the BRM.[57]

Responses of the Office to such resistance and criticism can be summarized by the adage "small carrots and big sticks."[58] In terms of the small carrots, the Office tried to share experiences and the knowledge of the BRM through the CIO Council and the CAF. In addition, many kinds of guidelines and case studies for using the BRM and the FEA were disseminated to the agencies. Those publications had the purpose of enhancing agencies' understanding of the BRM and FEA.

However, the big sticks were more effective than the small carrots. First of all, the office made 'The Enterprise Architecture Assessment Framework' and evaluated the agencies' EA status annually. It allowed not only agencies to rate the status of the EA, but also permitted the Office to discuss and become involved in the agencies' EA practices.[59] Moreover, the result of the assessment began to be included in the Scorecard framework from June 30, 2005.[60] Secondly, the Office used the tool of 'budget power'. On the one hand, the Office stressed the possibility of disadvantages in terms of the budget such as the use of budget suspension rights for agencies which resisted the OMB's policy direction while on the other hand they allocated other funds in exchange for accepting the OMB's

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54 From the presentation of Norman J. Jacknis, CIO of Westchester County "Digital Government: Westchester County, New York, and the Role of the CIO", hosted by National Center for Digital Government, the University of Massachusetts Amherst on April 12, 2007

55 From the interview with Federal Chief Architect of the OMB on July10, 2007

56 From the interview with Federal Chief Architect of the OMB on July10, 2007

57 In addition to this criticism and resistance from inside of executive branch, Congress checked the BRM and FEA programs through the EA maturity assessments by GAO (GAO, 2004).

58 From the interview with the consultant supporting the OMB on July 10 and 12, 2007

59 From the testimony of the Karen Evans, the second Administrator of the Office of E-Government, before the sub-committee on technology, information policy, intergovernmental relations, and the census, the U.S. House of Representative on May 19, 2004

60 From World Technology News, May 13, 2005

direction.[61]

In the adoption stage, the private partners of the Office supported the Office. For example, the supporting contractors established guidelines and provided case studies for using the BRM and the FEA. In addition, they carried out projects for calculating the Returns of Investment (ROI) of the FEA initiatives. The IAC supported the Office in its research and creation of prototypes for the Enterprise Architecture Assessment Framework.[62]

2) The BRM Building in Korea

(1) Planning Stage

In the planning stages, the Korean BRM was officially selected as one of the 'core' e-government initiatives of the Roh administration in August, 2003 (PCGID, 2005). Before officially selecting the BRM as an e-government initiative, the U.S. BRM and the FEA had been benchmarked and a pilot project for checking the feasibility of the BRM in the Korean context was carried out.

At this stage, the Special Committee took the initiative based on the Presidential Decree on the PCGID. The Special Committee created a 'roadmap' and implementation plan for e-government promotion, selected initiatives, and exercised coordination power for e-government building based on the Presidential Decree.[63]

The Special Committee established a consensus regarding model-driven e-government promotion in order to overcome the 'stove-piped' e-government and enhance the usefulness of the BRM as a model for promoting function-oriented e-government. From this viewpoint, the Special Committee defined the BRM as "a systemic model for analyzing government functions from the perspective of informatization to overcome the stove-piped systems of traditional government operations." In addition, it set the principles that all of the e-government initiatives should be carried out after building the BRM (PCGID, 2005).

In this stage, the Special Committee was supported by the NCA.[64] One example of activities performed by the NCA was translating reports published by the U.S. federal government related to the

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61 From the interview with Federal Chief Architect and consultant of the OMB on July10 and 12, 2007

62 From the interview with the consultant for the OMB on July12, 2007 and the Chairman of IAC on July 13, 2007

63 In addition to the legal framework, the strong empowerment of the President Roh was another foundation of the PCGID and the Special Committee in the field of government reform and e-government building. From the interview with the staff of the E-Government Special Committee on May 21, 2008

64 The head of the Committee, Dr. Sam-Young Seo was also the president of the NCA. Consequently, the ties between the two agencies became stronger than before.

U.S. BRM. In addition, conferences and forums on the EA and the BRM were co-sponsored by the NCA and the association of IT companies. Furthermore, the NCA carried out the pilot project for the Korean BRM. The goals of the pilot project were to check the expected problems and the effects of adopting the U.S. BRM in advance and to examine what point of the U.S. BRM should be modified to enhance the chances of success after being adopted by the Korean government (NCA, 2003a; 2003b). These activities of the NCA had been conducted in cooperation with IT specialists of private companies. For example, the pilot project's task force team was composed of the NCA researchers and consultants from IT companies.[65]

Consequently, the Special Committee wrote detailed implementation plans which stated that the Special Committee itself should manage the initiative directly and should coordinate its efforts with other agencies in the government. In addition, the NCA was to be designated a managing partner of the BRM according to these plans. This is to say that the Special Committee should make decisions and coordinate its efforts with regards to problems which would occur in pursuit of the BRM. Lastly the NCA was to also conduct research and development for the Korean BRM.[66]

However, there was skepticism and criticisms regarding the plans from other government agencies. Much of the skepticism and criticism stemmed from the MoGAHA and the MIC not fully understanding the purposes of the BRM. Moreover, the MoGAHA whose functions included those of personnel and organizational management was highly critical about the feasibility of BRM construction, pointing out that the academic professors of the Special Committee did not know the realities of the Korean government. One of the high-ranked officials of the agency said that a function-oriented structure, independent of the organization, would not be feasible in the Korean context because the Korean government had a strong organization-orientation. However, the skepticism and criticisms were not revealed openly due to the great degree of power the Special Committee possessed and strong support of President Roh on the BRM.[67]

(2) Developing Stage

The BRM was created via the BPR/ISP project from August to November, 2004 and the Implementation project from May to November, 2005. In the BPR/ISP project, the functions of the government agencies and their attributes were investigated. And then, the functions were categorized

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65 From the interview with the consultants on December 13, 2007 and the NCA researchers who participated in the pilot project on February 20, 2008

66 From the 'Detail Implementation Plan for e-Government Promotion' published by the E-Government Special Committee in March, 2004.

67 From the interview with the Head of the staffs of the E-Government Special Committee on May 21, 2008

according to a five-level hierarchical structure. At the end of the BPR/ISP project, the BRM consisted of the 20 first-level functions, 78 second-level functions, and 188 third-level functions. However, these numbers were modified during the Implementation project. After the Implementation project, the BRM was composed of 22 first-level functions, 82 second-level functions and 339 third-level functions.

Furthermore, there were changes to the content of the initiatives which were outlined by the original BRM plans. Firstly, the scope of the project was reduced. The BRM had been a government-wide model for building a cross-agency e-government. However, in the developing stages, it had become one of the sub-systems of the HAMONY system, which was a new government-wide management information system. Consequently, the original plan of 'launching the e-government initiatives after the construction of BRM' was abandoned (PCGID, 2005).

Secondly and more importantly than the first change, the categorization of the functions independent of the organizations was not realized. In developing the BRM, the functions of the agencies were simply arranged by the organizations. There were no linkages or integration of the functions and no examination about similarities between the functions carried out by different agencies**.**

In the developing stage, the MoGAHA took the initiative because it had been given the authority of e-government promotion thanks to the amendment of the Government Organization Act. In addition, the ITA Act, which had been newly enacted in December, 2005 for ITA activities, delegated the authority of building and managing the ITA of government agencies to MoGAHA. Thus, this agency was able to manage the BRM projects and had powers to accept the project results outlined above.[68]

The Special Committee was informed of the results of the BRM projects and sometimes made comments on the results of the projects. However, the Special Committee did not raise the issues very actively and the Committee's comments on the projects were underestimated and not fully accepted by the MoGAHA. After the amendment of the Government Organization Act, the control and coordination authorities of the Special Committee became much weaker than before, a problem which was enhanced by the fact that the Special Committee had no managerial tools. "It (the Special Committee) did not have financial resources for control and coordination and manpower enough to manage the BRM initiative, one of the biggest e-government initiatives." The Special Committee not only had authority, but also the tools and resources for carrying out the initiatives, unlike the expectations which were outlined during the planning stage (PCGID, 2005).

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[68] "The MoGAHA had dealt with organizational management of Korean government. Such an organization-centric perspective had been deeply embedded in the MoGAHA, and it was also reflected on the BRM structure." From the interview with the head of the staff of the E-Government Special Committee on May 21, 2008

The NCA also could not influence the construction of the BRM. Rather, its roles were constrained to the practical and detailed management of the project, such as Requests for Proposals (RFP), making contracts with companies and managing the procedures for the projects.

(3) Adoption Stage

At this stage, the BRM was adopted and spread to all government agencies via the HAMONY system from October, 2005. The MoGAHA was numerous types of authority for e-government promotion through the amended Government Organization Act and the ITA Act at this stage. In contrast, the main purpose of the Special Committee was changed to give advice to the President by the amendment of the Presidential Decree of the PCGID in January, 2006. Under this amendment, not only all the functions and the authorities of the Special Committee for e-government promotions, but also the right of recommending five of the thirteen committee members from the private sector were given to the MoGAHA (PCGID, 2005).[69]

However, the MoGAHA did not exercise any actual control and coordination power during the adoption stage in spite of the amendments of the laws. The reasons were as follows. First, the MIC and the MPB maintained their authority over the e-government policy although the Government Organization Act delegated authority to the MoGAHA for e-government promotion. The Government Organization Act also gave a role and responsibilities to the MIC in e-government policy. In addition, the MPB still maintained budget power for e-government promotion.

Second, the MoGAHA did not have actual managerial tools available for control and coordination. Due to the abolishment of the IT Promotion Fund for e-government building, the MoGAHA did not have financial resources either. Moreover, the evaluation systems of e-government initiatives had been not set up since President Roh had come to office. There were also no forums which could be used for persuading agencies or asking for cooperation with the MPB and the MIC.[70]

The spread of the BRM to all government agencies brought various coordination problems. One of the biggest tasks was the integration of the BRM and other function categorization frameworks in other information systems.[71] For example, a new financial management system, of which managing partner was the MPB, had its own function categorization system for operation related to financial

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[69] One of the reasons of the amendment of the Presidential Decree was the conflict between the Committee and the MoGAHA on some e-government initiatives (PCGID, 2005).

[70] Of course, the high-ranked officials of the MIC and the MPB were the members from government agencies of the advisory committee. But the MPB officer rarely participated in the meeting of the committee and the MIC members frequently disagree to the MoGAHA. From the interview with the staff of the E-Government Special Committee on May 21, 2008

[71] The adjustment of the function categories for the integration was carried out from October 2005 to February 2006. From the interview with the staff of the E-Government Special Committee on May 21, 2008

tasks. A new government document archive system also established a categorization framework for arranging and saving government documents. However, each categorization system followed different principles and did not match one another. Specifically, the categorization structure of the financial management system was organization-oriented with its root category being the 'ministry'. Consequently, it was expected that conflicts among the systems would emerge.

In the course of the integration, the MoGAHA could not take any initiative which led to the MPB taking the initiative instead.[72] Naturally the various function structures, including the BRM, were unified and centered upon the MPB's budget item structure, which was an organization-centric structure with a root category of 'ministry'. Moreover, all the agencies preferred the organization-centric structure to the function-centric structure.[73] Each ministry agreed with the MPB's stance because they were concerned over the MPB's budget power in the process of budget allocations on one hand. And on the other hand, the agencies believed that the organization-centric structure would be better because each ministry would secure its own turf under an organization-centric form of BRM.[74] At last, the BRM was modified again so that it had 15 first-level functions, 67 second-level functions, and 491 third-level functions post-integration.

Responding to the integration of the systems and the agencies' arguments, the MoGAHA could not exercise any coordination power. Rather, the MoGAHA gave tacit approval to the MPB's stance.[75] The Special Committee, who was the original planner of the function-driven BRM, had no authority to intervene in this matter. No committee member tried to re-establish the original purposes of the BRM and to remind the necessity of the function-driven BRM. Consequently, in the end, the BRM was changed again so as to have a more explicit organization-centric structure and more third-level functions than before being reflected the interests of the government agencies.

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72 From the interview with the staff of the E-Government Special Committee on May 21, 2008

73 In order to find out the agencies stance, surveys to the government agencies on the direction of the integration were done several times during that period. From the interview with the staff of the E-Government Special Committee on May 21, 2008

74 For this reason, most ministries strongly tried to level up their functions. For example, Ministry of Culture and Tourism argued that some of the forth or five-level functions should be the third-level functions in the revised BRM. Through it, their functions should be evaluate as more significant and would get more resources and would be better for organization expansion in the future. From the interview with the Head of the staff of the E-Government Special Committee on May 28, 2008

75 The MPB and the MoGAHA reached to the agreement to setting organization-centric BRM for following reasons: (1) building the function-oriented BRM would not be feasible in Korean context; (2) it would take too much time and too much resources; (3) it could bring strong resistance of other ministries and it would lead to the overall failure of the e-government building in Roh administration. From the answer to the author's question in the 'Policy and Knowledge Forum' about the new financial management system hosted by the Graduate School of Public Administration, Seoul National University in September, 2006

VI. Conclusion

This study examined the influence of the e-government policy structures on e-government policy outcomes through a cross-national comparative analysis of the BRM initiatives, which had been commonly implemented in the U.S. and Korea. The U.S. e-government policy structure with its concentration of authority, diverse and powerful managerial tools for control and coordination and leadership from the Office of e-Government over the federal agencies contributed to creating a function-oriented BRM in accordance with the project's policy goal.

On the contrary, the Korean counterpart suffered from the fragmented authority, ineffective managerial tools and confrontations among agencies over the course of BRM building. Consequently, the Korean government had no choice but to abandon its original plans which thereby resulted in an organization-oriented form of BRM. In addition, the numbers of the functions had been changed through the developing and adoption stage as illustrated in <Table 2>.

<Table 2> The Changes of the Numbers of the Functions through the Korean BRM making

Stages	Developing		Adoption
Projects	BPR/ISP (Nov. 2004)	Implementation (Nov. 2005)	Integration (Feb. 2006)
# of the 1st level function	20	22	15
# of the 2nd level function	78	82	67
# of the 3rd level function	188	339	491

Through the analysis of the e-government policy structures and their influence on the process of BRM initiatives, we can see 'the powers of institutions' on e-government policy structures. Based on the characteristics of institutional arrangements of the policy structures, the interactions among actors were differently structured in the course of BRM construction. In addition, the different institutional arrangements of policy structures made the control, coordination powers and activities of the private experts differentiated in the projects.

Let us now turn our attention to the power of other elements which rival explanations of e-government outcomes have focused on. Firstly, we can see the powers of the technological factors have on these cases. According to the technology-centric explanations, adopting the BRM should determinately affect cross-agency e-government and reduce IT investment redundancy. Along these lines, it was reported that the U.S. BRM facilitated information sharing among federal agencies and was helpful in detecting redundant IT initiatives (Rocheleau, 2006: 148-155; OMB, 2002).

Comparing the U.S case with the Korean case, however, we can also see the limitations of the technology-centric explanations, especially those of technological determinism. As illustrated above,

the same technology adopted in different counties resulted in different outcomes. These cases seem to be examples which support the argument that information technology is constructed and implemented by the mediation of institutional arrangements, not by the extrapolation from the outside of organizations (Bekkers and Homburg, 2005). In any event, the cases in this study seem to imply that the institutions could be one of the constraints on achieving the expected outcomes of the IT adoption and also detrimental to its performance. At this point we can assume that different institutional arrangements can bring about different outcomes and performance of IT (Adler and Henman, 2005; Snellen, 2005; Fountain, 2001).

Secondly, we also see the influence of environmental factors on the BRM. For example, changes in political environment, such as administration changes, seem to have an impact on e-government policy. The Bush administration, which had emphasized the financial management of government, brought tighter management tools and financial examination of the e-government initiatives.

When we look at things in greater detail, however, we can find that the environmental factors do not seem to have direct impact on the e-government outcomes and have same force everywhere (Lynn et al., 2001; Clemens and Cook, 1999). According to the comparative analysis of this study, the environmental factors seem to have an influence on e-government outcomes through the mediation of institutional arrangements such as the e-government policy structure. For example, the change of the administration had brought changes to the e-government policy structures following the amendment to the legal frameworks and the adoption of new policy tools in the U.S. These institutional changes resulted in the concentration of authorities in the Office of e-Government and led to the achievement of a function-oriented BRM. In Korea, however, the change of administration could not bring about the same result because it did not create the same kind of institution building. In sum, these cases appear to be examples which argue that the e-government policy environment influences e-government results through the mechanisms of institutional changes. That is to say that the institutional factors have a more direct and powerful effect on policy results than environmental factors.

In addition, it is believed that this study shows reveals some limitations related to the impact of globalization, which is another environmental factor on e-government policy outcomes. According to globalization theorists, globalization can cause the policies of one nation to be diffused to other countries and lead to a convergence of public administration systems in different nations. According to this study, however, we can reach different conclusions. As illustrated above, the BRM had been diffused beyond the borders of the U.S. and was benchmarked by the Korean government; however the results of the BRM building between the two nations were different because of the impact of different institutional arrangements. In conclusion, this study shows that the institutions are an important mediator which alters and bend the impact of globalization in the field of e-government

(Welch and Wong, 2001).

Thirdly, we can also see the actor-centric factors such as major actors who participate and interact in projects, serve as sources of resistance, and compete with each other in the BRM building process. As illustrated in this study, the 'politics of e-government' seems to be a critical and influential factor in e-government outcomes.

If we take a cross-national comparative perspective on the BRM cases, however, we can ask following questions: why the main goal of the project, which was a function-oriented BRM independent of organizations, could be achieved in the U.S. but not in Korea although similar kinds of conflicts and coordination problems commonly occurred over the course of the BRM construction in both nations? This question can lead to more theoretical questions as follows: what structurizes the politics of e-government; what creates the difference in power between participants during the course of e-government building?

To answer the above questions more validly, we should consider the institutional factors which structured the relations among actors in the policy process. According to new institutionalism, institutions influence policy capacity because they grant decision-makers authority to mobilize resources and control other participants (Weaver and Lockman, 1993). Moreover, institutions can structure relations among actors (Nee and Ingram, 1998). We could find these points in the cases of this study. For example, the coordination and powers of control of the two countries' e-government policy structures were differentiated because of the different characteristics of the legal frameworks which mobilized the resources of the main organizations and granted the authority for the coordination and control in the BRM building process. In conclusion, the different institutional arrangements of e-government policy produced different structures among the actors' relations, delegated different resources and mobilized different authorities in the e-government policy process (Fountain, 2007).

The theoretical contributions of this study are as follows. Firstly, this study contributes to broadening explanations of e-government policy results by stressing the importance of institutions, which have been underestimated by current main stream e-government research such as technological determinism and actor-centric explanation. Secondly, this study is carried out from a cross-national comparative perspective. The lack of comparative study at the level of e-government initiatives had been considered a problem of e-government research and has consequently been targeted by this study so as to possibly contribute to the advancement of e-government research from a comparative perspective.

In spite of these contributions, this study has the following limitations. Firstly, this study is limited in that it is general due to the case study design and may have internal- and external-validity. In order to overcome this limitation, adopting quantitative methods and increasing the number of

cases should be considered in future research. Secondly, this paper did not consider the institutional characteristics of the governments which the BRMs were embedded in. For example, it can be said that the public administrative system in the U.S. has been more function-oriented than that of Korea. This different institutional characteristic of the government between these two nations may be an important factor in explaining the different e-government outcomes. These limitations should present themselves as research topics for future research.

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