Analysis of a New Information Society Paradigm and e-Government Development Model: Based on Korea's E-Government Practices

Seang-Tae Kim
Graduate School of Governance, Sungkyunkwan University
Seoul, Republic of Korea

ABSTRACT

The history of humankind has sped on past the industrial society and is now on the verge of transitioning from the information society to the highly-advanced information society. Based on the development of information technology, degree of social pluralism, and the maturity of civic society, this study provides as new e-Government development models, the bureaucratic e-Government, information management-centered e-Government, participatory e-Government, and governance-type e-Government models. It also attempts to analyze in diachronic terms the four new e-Government development models by applying Korea's cases of e-Government implementation. As the top-priority tasks for the highly-advanced information society to mature, this paper provides five strategies – transforming into a 'platform-type government' for open government operation, utilization of social networks based on creativity and collective intelligence of the private sector, disclosure and sharing of public information, facilitation of smart work, and preparation of measures against the adverse impact of informatization regarding information security and personal information protection.

Keywords: e-Government; Highly-advanced Information Society; New e-Government Development Model

INTRODUCTION

Influenced by the global ripple effect from the release of iPhone in 2009 and with new information technologies spreading through in form of social networks such as the Facebook and Twitter, Korea also has witnessed a rapid development of the new highly-advanced information society, which led to great influence and change to our social spheres such as politics, administration, economy and culture, and also to our daily lives.

Especially, the government is improving to a partnership-based framework upon which individuals and the government are working together beyond bilateral participation. Demands are also increasing for e-government services to comply with the new changes in interactive services on social networks.

However, academic research on such smart technologies and social changes is non-existent, if not very weak in that only part of technological or social changes is taken to show and discuss fragmentary effect or influence.

From the comprehensive viewpoint embracing both technological and social paradigms while overcoming fragmentary thinking and difference in views, this study aims to propose a new e-government development model based on the paradigm shift in the highly-advanced information society and to explain the changes in e-government level and services and diagnose the current status by applying Korea's e-government practices in a time-series based on the new development model.

This is expected to contribute a lot in terms of academic research on e-government, along with benefits in other terms such as spread ability and applicability of the highly-advanced information society to other advanced countries and capability to develop alternative policy measures like solving adverse effects, for Korea has faster IT receptive capacity than other countries and has well-established wired and wireless Internet environment such as the broadband network.

This paper discusses the social paradigm shift, changing government roles and literature review in the following two sections and introduces the analytic framework and methodologies in section 3. Section 4 introduces application and verification of the development model in Korea's practices, and section 5 provides the conclusion and policy implications.

SHIFTS IN HIGHLY-ADVANCED INFORMATION SOCIETY PARADIGM AND GOVERNMENT ROLES

Social paradigm shift and changing government Roles

The history of human society has been marked by paradigm shifts caused by technological advances, changes in social values, and other core driving factors (Keely, 2007). In the agricultural society, a variety of methods were developed using the basic human labor to overcome natural disasters, thereby placing physical industriousness first among all other required qualities. The industrial revolution shifted the human history from the agricultural society to the industrial society. In the industrial society, technicians or skilled factory workers emerged as indispensable and under the uniform bureaucracy, these workers were forced to bear an enormous amount of labor hours. Such society, again, evolved to the information society, where the emergence of computers and communications technology led to increased significance on knowledge and information. A wide variety of knowledge and information became the core resources in the information society, while opening and sharing such resources became important social values (Drucker, 2002).

The need and strategy for preparing for the advanced information society have been recently discussed. Don Tapscott (2011) explained that the emergence of the N-generation grown up in the digital environment brought macro-wikinomics, which is the age of innovation based on collaboration and openness, or the age of networked collective intelligence.

Beccalli-Falco in GE (2011) announced that the age of smart revolution has arrived, which connects and integrates the innovative technologies in the human history such as the invention of electricity, telephones, TVs and computers. In

order to overcome the global financial crisis, Samuel J. Palmisano, then President and CEO of IBM (2008), advocated 'Smarter Planet' in the hope of making a better world in terms of energy, traffic, finance and city management by connecting humans and the environment via intelligent and networked devices or by networking various different systems. Yoon Bu-Keun, CEO of Samsung Electronics (2009) proposed, as a new paradigm, achieving digital humanism that inspires technologies with the values and emotions that naturally belong to humans.

Compared to the past information society, the highly-advanced information society can be characterized by more efficient, productive and economical social systems and processes, which are enabled by smart technologies. In addition to such increased efficiency and productivity, this society highly respects human dignity and creates values through combining technologies and other various sectors.[1]

The features that make up the future societies, including the highly-advanced information society; they can be summarized as the shift toward human-oriented values such as the emergence of smart society, collective intelligence, and open access, as scholars have stressed.

The roles and functions of governments evolve in response to the constantly changing administrative and technological environment. The evolution of IT such as the Internet, in particular, is changing the roles of the government and other public sector as well as the service provision paradigm as a whole. From the government as a 'manager' that emphasizes on legitimacy, supervision, control and efficiency, to a 'decision-maker' that focuses on disclosure, sharing and bilateral participation while making policies, and further to a 'value-creator' that stresses communication, sharing, collaboration and integration while settling conflicts and mediating different views among interest groups, the government position and roles are changing toward those of a citizens' partner.

In time, with further progress in informatization and democratic development, government websites came to be used as convenient channels of communication between the government and citizens. Citizens were not only informed of government policy undertakings and news, but they also provided feedback. They submitted their ideas and proposals while voicing complaints and addressing issues through the various government websites. By facilitating citizens' participation in public issues and government affairs, electronic media made considerable contributions toward the advancement of democracy in Korea. More recently, the concepts of Web 3.0 focusing on the personalized and customizable values and Government 2.0 Movement focusing on the social network, communication and openness are even more facilitating government interaction with the citizens and the maturity of citizen participation. Government 2.0 Movement is a new cultural initiative based in Australia, UK, and US, which calls for disclosure of the government's decision-making and enforcement process by using web 2.0 technologies, therefore leading to active participation of citizens in the process(James Gardner, et. al, 2012).

Preceding studies on theories for e-government development stages

Methodologies for categorizing e-Government by developmental stages can vary – there can be three, four, five or more than six stages and they can differ based on scholars such as Kauver or Moon, on business consulting institutions such as Deloitte or Gartner, on international organizations such as UN or OECD and on technologies or participation.

Here, we use three categorization methods – development based on the Web or Internet, development based on citizen participation, and development based on government innovation or services.

First of all, there is the set of developmental stages categorized based on the Web or the Internet - This method can be represented by the UN study, in which UN came up with five stages of e-Government evolution – emerging, enhanced, interactive, transactional, and connected – while assessing the e-Government readiness, based on how efficiently government websites express and deliver government services and information. In the 'connected' stage, the most sophisticated level, government services are requested, processed and delivered in a seamless manner, through entirely networked and integrated government organizations using web technologies. Studies by Deloitte Research (2000), Moon Shin-Yong (2001) and Cho Duk-Ho et. al. (2002), West (2004) also fit in here using this method.

The second method is categorization based on government innovation and services, as represented by the OECD study (2003). Using the model of the Australian National Audit Office, OECD categorized the e-Government into four stages according to service type or quality – they are stages of simple information provision, information provision through interaction between the government and citizens, transaction, and information sharing. It is reported that in the stage of information sharing, the most sophisticated level, simplified public administration innovates the process and at the same time increases efficiency, further leading to decrease of citizens' application procedures for government services. Besides the OECD study, this method includes studies by Kauver (1998), Layne & Lee (2001), Yoon Sang-Oh (2003), Siau & Long (2005), etc.

The third method is based on citizen participation and this is used in studies by Gartner (2000), Hiller & Belanger (2001), Reddick(2005), etc. Ramsey of IBM (2004) classified digital government into four stages or 'waves' – i) putting existing services online; ii) developing portals from the basic to the sophisticated; iii) simplifying regulations and services through information integration; and iv) government transformation – according to the ultimate goal that the government plans to achieve. The customized government achieved from government transformation offers the most integrated stage of digital government in both horizontal and vertical terms, encompassing integration of the entire value chain from internal businesses to external customer affairs toward procurement suppliers, private-sector partners and the general public.

[1] I use the term 'highly-advanced information society' as having the same meaning as the 'smart society', which is explained in detail in "Korea's Future Strategy toward the Smart Society (2011)'. In the paper, the two terms shall be used as the same.

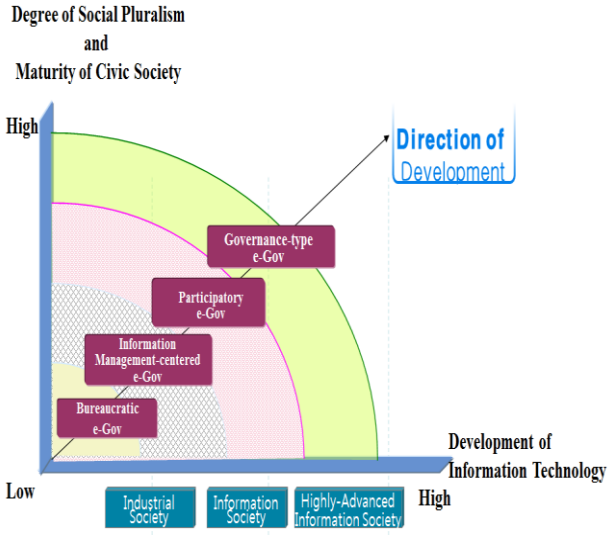
ANALYSIS FRAMEWORK FOR THE STUDY

Many studies on e-government development stages in the past have limitations in that they often deal with only part of e-government development, rather focuses on evaluation of some representative websites that are officially exposed, or recognizes the development model as a fixed framework that is unchangeable.

In this regard, a new e-government development model is suggested to comprehensively understand the technologies, services and citizen participation. The new model classifies e-government into 'bureaucratic', 'information management-centered', 'participatory' and 'governance-type' by identifying the development stages based on the social paradigm shift such as the industrial, information, and highly-advanced information societies on one hand, and identifying the changes in government roles based on the level of social pluralism and civic society maturity, both of which make up the e-government democracy, on the other hand.

The new model classifies e-government by identifying the changes in government roles based on the level of social pluralism and civic society maturity on one hand, both of which are related to e-Democracy, and identifying the development stages based on the social paradigm shift on the other hand. In terms of social paradigm shift, Korea has undergone more compact growth time-wise compared to the United States and other EU countries. Whereas the United States and EU countries have taken as long as 2 centuries to come through modernization, industrialization and informatization, Korea, since its independence in 1945, experienced the industrial society during the 1970~1980s and has entered the information

Figure 1. Analysis Framework: E-Government Development Model Based on Social Paradigm Shift



society, which is an amazing growth in such a short time of 40~50 years.

In <Figure 1>, the horizontal axis shows social paradigm shift related with IT development. Along the vertical axis are the varying levels of social pluralism and civic maturity from low to high and these levels can be classified in relation to features of e-Democracy as follows. [2]

The types of e-Government suggested here are based on the conceptual model of e-Government, which can be classified according to shifting social paradigm as follows:

The first stage is bureaucratic e-Government. This is a stage where e-Democracy is within the bureaucratic system under a very low level of social pluralism and passive civic society. In this stage, attempts are made to apply e-Democracy only to the process of decision-making within government organizations.

The second stage is information management-centered e-Government. This is a stage that can be found under a low level of social pluralism and still rather passive civic society. This stage emphasizes information disclosure to government organizations and the civic society, though in a passive way, and citizens' right to know.

The third stage is participatory e-Government. This stage can be found in an active civic society with a significant level of social pluralism. This stage focuses on facilitation of information disclosure from within government organizations to citizens and active participation of citizens in government decision-making. Bilateral communication between the government and citizens is also facilitated in this stage.

The fourth stage is governance-type e-Government. This is a stage with a very high level of social pluralism and can be found in a very active civic society. Not only government organizations but also various members of the society exchange information with each other through electronic communication means and influence transparent and democratic decision-making, all of which further facilitate communication network throughout the entire society. The governance-type e-Government is widespread in the highly-advanced information society.

In this study, attempts are made to analyze major projects and services for each stage by applying them to Korea's cases based on the e-Government development model. The time scope of this study is from the early 1990s when the term e-Government was first used in Korea and abroad to President Lee Myung-Bak administration, and the scope covers projects for bureaucratic, information management-centered, participatory, and governance-type e-Government.

ANALYSIS OF KOREA'S CASES BASED ON APPLICATION OF E-GOVERNMENT DEVELOPMENTAL STAGES

This study attempts to analyze the e-Government cases of Korea with the aim of classifying them into the bureaucratic, information management-centered, citizen participatory, and governance-type models.

Application of bureaucratic e-government model:

[2] The "Shift in Social Paradigm and e-Government Paradigm" is newly created, by reflecting the social change paradigm in the Relation Pattern of Electronic Democracy and e-Government (Kim, S. T., 2003). See Kim, S. T. (2005) for the concept definition and more details of the Relation Pattern of Electronic Democracy and e-Government.

establishment of the initial infrastructure for computerizing government affairs

The first time the term e-Government was used in Korea was around 1995, and along with the widespread use of the term, full-scale e-Government projects also started around this time. In the first place, a framework system to take full control in information and communications affairs. The Post Office was expanded and founded as the Ministry of Information and Communication and the Framework Act on Informatization Promotion was also first enacted around this time to provide the blueprint of informatization throughout Korea every five years. Upon such legal base, the 1st Master Plan for Informatization Promotion was established in 1996, which set as its first project, 'achieving small, yet efficient e-Government'. This was the first time in Korea that an e-Government policy was adopted as the national strategy. Some scholars as well as researchers in National Computerization Agency had used the term 'e-Government' around 1995 in their studies and research papers by quoting cases of other countries like the United States.

Some of the projects include the construction of the national backbone networks regarding five areas that make up the national operation framework including government administration, finance, education and research, national defense and security. The information super-highway was also established, serving as the foundation for information and communications and informatization, through the broadband network construction project that connected the entire country with optical cables. These projects paved the way for Korea to be praised as a country with the fastest speed of Internet use and penetration.

Construction of national basic database in the areas of resident registration, real-estate, and vehicles and computerization of their affairs were carried out, where the focus was on computerization, or bringing offline administrative businesses online. This time, in particular, can be seen as the starting point toward the bureaucratic informatization or the age of e-Government where the government leads the social and economic growth toward overall development of the country under the aim of urging informatization despite belated industrialization.

Application of information management-centered e-government model: establishment of the early e-government for enhancing administrative productivity

A more accurate view would be that the e-Government practices in Korea had not started until the late 1990s and in 2000 when President Kim Dae-Jung administration came up with 11 e-Government initiatives.

The goal of carrying out the 11 initiatives as e-Government projects was to continue bringing offline documents to online and ensure efficiency in government administration. In order to build a government-wide integrated computing environment, e-seal and e-signature systems were developed; to provide convenience to government workers, four systems were developed as part of the project – national finance information system, educational administrative information system, standard personnel management system, and e-approval and e-document exchange system; and to bring offline government businesses to online, local government informatization schemes were developed.

During the President Roh's administration that took off in 2002, efforts to streamline and foster information management were undertaken through 31 e-Government roadmap projects involving digitalization of the entire document processing, informatization of national/local finance information, establishment of local e-Government, e-audit framework, e-national assembly, integrated criminal justice framework, comprehensive informatization of HR management administration, informatization of foreign affairs and trade, real-time management of national affairs, extended sharing of administrative information, BRM development, etc. This period, being the transformation stage from the bureaucracy-based e-Government to administrative management based e-Government, holds significance in that attempts were made to innovate the way government worked. Electronic business processes were stabilized by transforming paper documents to electronic documents, and department-based businesses to service flow-based businesses; administrative information sharing was expanded; and business processes were re-engineered for government services.

Despite such efforts, limitations can still be found in this stage: the government still provides one-way services centered around large portals where it publicize itself unilaterally; it provides supplier-oriented services using certain methods of its own choice; there are limitations on time and place; hand-written documents and online documents are used at the same time; and the government provides back-office based services that are far different from front-office based services.

Application of participatory e-government model: maturization of e-government through increased participation of citizens

E-Government practices for citizen participation can be mainly found under the President Roh's administration that took off in 2002. Also titled the 'participatory government', the administration stressed citizen participation, and saw extensive increase in the size of council organizations of private-sector members and experts throughout the entire areas of the society including the government and administration. The mainstream e-Government projects were also the ones involving citizen participation.

Under the Roh administration, 31 e-Government roadmap projects were carried out and more than 12 e-Government projects were mainly implemented for increasing online participation of citizens; improving Internet civil services; providing comprehensive services on national safety management, national welfare information, food and drug information, job information, and national logistics information; integrating and improving construction/land/registration information; and providing Internet-based service for administrative appeals, single-window G4B service, e-trade service and support service for foreigners. Citizen participation based services no longer required personal visits or face-to-face interviews but rather facilitated online services through a single window under restrictive participation. 'Civil service innovation' has emerged as a new agenda for improving services for citizens and businesses and increasing electronic participation of citizens.

One of the examples can be the project called 'e-People' service expansion, which aims to facilitate citizen engagement in policy-making process by allowing them to file complaints, give opinions and discuss policies on a single channel. The entire central and local government bodies and 14 public

institutions are connected onto the 'e-People', where complaints and suggestions are filed and processed and the results provided for review.

There are distinct functions of 'e-People', where civil service applicants only submit requests without having to check which department is in charge of the service. Anti-corruption and Civil Rights Commission then classifies requested services and distributes them to the institutions or departments in charge. More functions that 'e-People' provides are management of public suggestions and system improvement, corruption reporting, e-hearings, policy forum agenda requests and discussions, surveys, etc.

After this system was established, the average time required in processing a simple civil application was reduced by 6.7 days, from 12 in 2005 to 5.3 in 2011, whereas for processing a complex civil application, the time was reduced by 26.8 days from 36.1 to 9.3. Moreover, for better service quality, applicants can ask for additional feedback if they are not satisfied with the first one, and rate the satisfaction level again with the additional feedback.

Application of participatory e-government model: improvement toward governance-based e-government

It can be said that the governance-type e-Government in Korea has gradually emerged since the launch of the Lee Myung-Bak administration in 2008. Many researchers are forecasting that the Internet, once a passive information repository (Web 1.0), after going through user-created and user-participating system (Web 2.0), will become an intelligent companion (Web 3.0) of humans by building the capacity to understand the meaning of stored information and argue based on the knowledge. The Web 2.0 information society, based on the core values of participation, communication and sharing, has progressed to a point where citizens can actively participate in and communicate with the government. Beyond the stage of one-way service provision from the government, the government and citizens communicate with each other and even participate altogether as partners in the policy- and decision-making process.

In response to such technological and social paradigm shifts, e-Government services are also changing. One of the examples is the 'Flood Damage Community Map' service (launched on 31st of May 2012). In the past, government institutions made schemes to prevent flood damages in the rainy season, inspected poor ground facilities, required citizens to provide against potential embankment collapse, and provided campaigns. However, now with the Flood Damage Community Map, which is a new governance-type e-Government service developed by the Seoul Metropolitan Government, citizens report on potential damage spots, upon which government workers follow procedures to solve problems. In other words, it is the interactive e-Government service that is developed by both the city and citizens. This service is available on 'Agora' page of Daum, one of the largest portal service providers in Korea, for which citizens upload information and photos of road facilities exposed to potential damage, clogged or broken drains via online such as SNS. These photos are immediately delivered, together with the map service of the locations, to government workers, who can locate the sites without having to visit in person. Reports are also received through Seoul Safety Guide App and Seoul City Twitter accounts (@seoulflood, @daumagora), which came to not only minimize flood damage or take post measures but also prevent such damage.

CONCLUSION

This study defines that the social paradigm shift caused by the new IT brought the current highly-advanced information society following the industrial and information societies, and proposes a new e-Government development model that incorporates the level of social pluralism based on e-Democracy and the maturity level of civic society. The new model classifies e-Government development into four stages – bureaucratic model, information management-centered model, participatory model, and governance-type model. The study also attempted to apply this model to e-Government practices in Korea on the flow of time.

As so far explained above, e-Government in Korea has mainly shown features of one distinct model at a time among the bureaucratic, information management-centered, citizen participatory and governance-type models. However, in some stages of development, features of both bureaucratic and information management-centered models, or information management-centered and citizen participatory models were concurrently displayed. In this case, rather than the more advanced stage coming beforehand or being apparent, the former stage developed to the next level after going through the process of maturation.

Korea is expected to experience more intensified and mature governance-type e-Government services from development of the highly-advanced information society. Such highly-advanced information society is also called the 'smart society' in Korea. The word 'smart' is an adjective having the meaning of intelligent, bright, clever, efficient in speech, and thorough in transactions, etc. However, in real life, it is combined with other words such as in smart phone, smart-learning, and smart office and is used as a practical term delivering convenience and benefits. The term 'smart society' was first introduced in Korea, because the number of smart phone users in Korea reaches 28.3 million (as of end-June 2012) and a wide variety of Internet services are used via smart phones.

Korea defines the highly-advanced information society as the 'smart society' or the 'smart government'. Instead of literally interpreting the term 'smart', it should be comprehensively re-interpreted as a new academic term that reflects perspectives of social and technological changes, introducing new meanings. The definition and concept or the maturity level of the smart society shall be left for study suggestions in the future.

We have so far analyzed the characteristics of progressing toward the smart society based on Korea's cases of e-Government development. The analysis, though started from certain cases of Korea, will be an applicable model to other countries as well, for Korea is in the leading group in terms of informatization. This model, therefore, is expected to be generally expandable and applicable to e-Government cases of other countries.

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