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Analysis of Digital Governance Transition in South Korea: Focusing on the Leadership of the President for Government Innovation

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Abstract: This research intends to draw implications for digital governance establishment by analyzing how the president's leadership has worked in the digital government innovation promoted in South Korea over the past 30 years. This research examines the process of digital government development in South Korea from the 1990s onwards, chronologically and in the order of presidential administrations. The analysis proceeds from the following three perspectives: the political characteristics of digital government, the presidents' leadership on government innovation through digital government process, and the composition of a strong cross and joint governmental promotion system. The implementation of digital government is not simply about a computerized government. Driving digital government means the overall transformation of government. From this point of view, to successfully implement digital governance, we must approach it from a highly political perspective. The implementation of digital government in South Korea has been continuously pursued as a national agenda. Since South Korea has a well-established high-speed information and communication infrastructure, e-Government and digital government innovation have been promoted as national agendas regardless of regime change. However, in this process, the president's leadership determined the success or failure of digital government innovation. Therefore, the most important success factor for digital government innovation is securing policy sustainability regardless of administration change.



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1. Introduction

Today, South Korea is recognized as the world's leading country in information and communication, informatization, e-Government, and digital government. Significantly, South Korea has achieved one of the most significant leaps in digital government in the last 50 years. This achievement has been due to the remarkable development of information and communication technology (ICT). As a result, South Korea ranked first in the world three consecutive times in the UN e-Government Survey in 2010, 2012, and 2014. This fruitful outcome was possible because of the establishment of ICT infrastructure that involved implementing a high-speed information and communication network in the shortest time.

However, the implementation of digital government is not to stay at the level of introducing information technology to individual administrative organizations but to redesign the administration process by using information technology and changing the administration process to pursue the transformation of the whole government. User acceptance and user satisfaction are necessary microscopically to the success of introducing information technology [1–5]. However, outcomes vary according to government institutions' institutional arrangements and organizational forms [6,7]. The prerequisites for the implementation of digital government are diverse [8–10]. In addition, government adoption and utilization of technology are also for organizational change to promote more productive information flow beyond the implementation of new technologies [10–12]. Therefore, the

implementation of digital government is not merely to introduce information and communication technology to the public sector but to pursue overall government innovation.

Moreover, this outcome can be achieved through the leadership of the top leaders, which is embodied by emphasizing the importance of government innovation that utilizes information technology in all ministries [13–16]. Therefore, the most significant success factor in implementing digital government is securing the top leaders' leadership. In addition, strategies, and action plans should be pursued [13,17,18]. As such, it is necessary to construct a robust driving system based on the leadership of the top leaders to secure the sustainability of digital government. Putting it all together, this can be understood through digital governance analysis. Why and how did South Korea become the world's top digital government leader? This research paper was prepared to find an answer to this.

This research would like to examine the process of digital government development in South Korea from the 1990s onwards, chronologically, and in the order of presidential administrations. The analysis will proceed from two perspectives of digital government projects and government innovation.

South Korea has pursued various forms of informatization, e-Government, and digital government policies based on well-established high-speed information communication infrastructure. Therefore, regardless of the changing administrations, the implementation of digital government in South Korea has been continuously pursued as a national agenda. There are many reasons for this:

1. After 2000, South Korea's information infrastructure was completed, and regardless of the administration change, digital government policies have laid the basis for national policies.
2. It is related to an exceptional cultural environment in South Korea, a social atmosphere that seeks to speed up service and administration "faster and faster." To provide such rapid administrative services, South Korean governments have been forced to implement advanced administrative services and additional digital administration.
3. This was possible because the policies of the digital government were the only policies that could hardly face opposition from the opposition party, irrespective of administration change.

Based on these circumstances, this research intends to draw implications for digital governance establishment by analyzing how the president's leadership has worked in the digital government innovation promoted in South Korea over the past 30 years.

2. Theoretical Background and Framework of Research Analysis

2.1. Government Innovation through the Digital Transition

The United Nations e-Government Survey 2020: Digital Government in the Decade of Action for Sustainable Development was published in July 2020 [19]. The 2020 Survey findings are encouraging, showing significant uptakes in digital services in different geographic regions, countries, and cities. Currently, all major countries in the world are promoting digital policies nationally in response to the era of digital transformation [20–25].

Many governments, including South Korea, allocate resources to establish e-Government and digital government [26]. Therefore, Korea has become the world's top e-Government leader in three consecutive years, from 2010 to 2014 [27–29]. In addition, many of Korea's e-Government practices have been introduced to the world as the best cases and received worldwide acknowledgment [30]. The United Nations e-Government evaluation in 2018 was ranked third in the world after Denmark and Australia [31]. The United Nations e-Government evaluation in 2020 was ranked second in the world after Denmark [19].

However, since these international comparisons are based on technology-oriented indicators, it is not easy to properly reflect the actual situation [32]. As emphasized, the introduction and use of technology by a government are also for organizational change to promote more productive information flow beyond the implementation of new technologies [11], and the performance of the digital government is political and social, it is to pursue innovation across the government, considering the overall environment of the

economy. Since the success of the Korean digital government comes from the president's leadership [33], consideration in this regard is also essential. Therefore, there is a need to emphasize the importance of governance in promoting digital government.

It is also essential to examine the degree of data openness of the central government and local governments [34]. Furthermore, it is also essential to compare and analyze digital government policies between Korea and the United States [35]. In addition, there is a need to analyze actual cases of government innovation promoted in Korea in the past [36,37]. In particular, new technologies and digital innovation are essential drivers for strengthening organizational competitiveness [38,39]. In addition, it is essential to look at the digital context of society, as information support for the management of social and social systems is based on the use of innovative technologies [40–42]. To analyze open innovation, it is also essential to identify the environmental context of each country in which the invention appeared [10,43–46].

Today, most of Korea's digital policies have been promoted from the perspective of the Fourth Industrial Revolution. Therefore, it is vital to analyze these areas in open innovation [47,48]. Furthermore, the most recent case of digital policy in Korea is expressed as a smart city policy. Therefore, it is essential to analyze these smart city policies from open innovation [49].

The primary success factors of digital government innovation derived from these theoretical discussions can be summarized from the following three perspectives.

2.2. Historical Institutional Context of Digital Government Innovation

The new institutionalism can explain the structure and process of policy with institutions as the core concept [50–52]. In other words, the theory of new institutionalism has considerable explanatory power about what determines policy. Among them, historical institutionalism is meaningful in that it views institutions as endogenous variables and explains society through institutions, focusing on the interrelationship between behavior and institutions [50–52]. In historical institutionalism, the continuity of institutions was explained by path dependency, and changes tended to be presented by punctuated equilibrium. In other words, there was a limitation in explaining the change in the system as an exogenous variable of the system. Many studies have recently constructed a model reflecting endogenous factors of institutional change [53,54]. According to this point of view, institutional constraints and the agency's strategies are significant.

Following the above perspective, this study attempts an integrated explanation in which institutional context and actor factors are linked:

- Political characteristics as an environmental factor directly affect the institutional context.
- The president plays the most critical role among actors for realizing digital government and plays a role in overcoming institutional constraints.
- Each government sector overcomes institutional constraints through interaction as actors for realizing digital government.

2.2.1. Political Characteristics of digital Government: As a Presidential Project and National Agenda

Twenty years ago, the first author researched e-Government success factors in Korea [55]. As a result of this study, it was suggested that the leadership of the supreme leader is the most important factor for the success of the e-Government. Since then, many studies have emphasized the strong leadership of top leaders as a requirement for the success of e-Government and digital government [56–58]. However, in Korea, the political aspect inherent in digital government implementation was more important than these leadership factors.

The implementation of the digital government is not simply about a computerized government. Unlike the simple computerization of the past, the implementation of digital government is a complex and challenging process. The challenges of digital governance,

such as the introduction of ICT into government and the promotion of government innovation, are agendas beyond the individual boundaries of one department, one organization, and even single legislative, administrative, and judicial institutions. The results of digital government projects also affect many ministries, citizens, and the whole country. These digital government initiatives are less likely to succeed. In particular, it is difficult for a project that dramatically changes the existing organizational structure or business practices to succeed. This is due to conflicts of interest and resistance to change rather than the technical difficulty of the project. Therefore, many studies consider the political conditions for the success of digital government [6,59]. Some studies emphasize the importance of national agendas for digital government success [6,48,60,61].

From this point of view, to successfully implement digital governance, we must approach it from a highly political perspective. In South Korea, the successful implementation of the digital government was made possible because the government's e-Government projects were conducted as presidential projects and national agendas.

2.2.2. President's Leadership on Government Innovation through Digital Government

The first item in the 'Guidelines for Successful e-Government' presented in a 2003 OECD report was 'leadership and commitment' [62]. This is because e-Government and digital government tasks require presenting a new vision, resulting in a shocking change in the organization and a high likelihood of error. In digital government implementation, the exertion of leadership is influenced by various factors and appears in various situations. Many studies point to leadership as a success factor for digital government. [13–16].

From the viewpoint of various leadership factors, the presidents' leadership on the digital government policy of the Korean government can be analyzed as follows. First of all, it is imperative to see how much interest the President expressed about informatization and digital government innovation.

In addition, it is necessary to examine how much the President recognized the importance of policies and specific projects of informatization and digital government innovation and continuously instructed and confirmed them.

2.2.3. Composition of a Strong Cross and Joint Governmental Promotion System: Committee Approach

The challenges of digital governance, such as introducing ICT to government and facilitating government innovation, are agendas that transcend the individual boundaries of a single ministry, a single organization, and even a single legislative, administrative and judicial body. Accordingly, many of the reasons for the failure of the government to introduce technology are the lack of cooperation between organizations [7,11]. Establishing an information system for one government agency should be carried out in consideration of other government agencies [63].

According to the previous administrations' circumstances, South Korea has constantly changed the digital government's implementation system. Regarding the digital government implementation policy, it is unusual in the Korean context that the committee organization was established separately from the existing government ministries. Therefore, this ICT governance practice is highly likely to continue in the future.

In this process, it was necessary to clarify the organizations involved in promoting digital government policy. This is because the functions, ranging from policy formulation, deliberation, coordination, and evaluation, were dispersed between the legislated promotion system and the actual promotion organizations, thus required coordination. Due to the recent rapid development of intelligent information technologies, convergence and collaboration among various ministries are necessary for ICT policy. Therefore, more robust ICT governance is also required.

2.3. The Framework of Research Analysis

The implementation of digital government is not simply about a computerized government. Unlike the simple computerization of the past, the implementation of digital government is a complex and challenging process. Driving digital government means the overall transformation of government. From this point of view, to successfully implement digital governance, we must approach it from a highly political perspective.

Governance is understood as to how society, organization, and government are managed and operated, but it has been defined in various ways according to perspectives [64–68]. Although a view sees governance as a network between the government and private actors [69,70], this study emphasizes the president's leadership, national tasks, and networks between government agencies. In implementing digital government in Korea, the focus is on the government having more information and expertise than most actors. When the government's policy measures are divided into nodality, authority, treasure, and organization [71], the government had all the above four policy measures to implement digital government in Korea. Among them, the role of top leadership in policy coordination is emphasized. From this perspective, some studies focus on meta-governance in which the state manages various networks [72–74].

This study attempts an integrated explanation in which institutional context and actor factors are linked. In other words, environmental factors influence the institutional context, and agencies produce policies under the institutional context. First, this study considered that political characteristics as an environmental factor directly affect the institutional context. Second, as an actor, the president plays the most critical role among actors for realizing digital government and plays a role in overcoming institutional constraints. On the other hand, each government sector overcomes institutional limitations through interaction.

The frame of analysis of the study derived based on the above discussion is as follows (Figure 1). The governance of the digital government promoted by six administrations in South Korea over the past 30 years will be analyzed from three perspectives.

- The political characteristics of digital government: as a presidential project and national agenda.
- The presidents' leadership on government innovation through digital government Process.
- The composition of a strong cross and joint governmental promotion system: a committee approach.

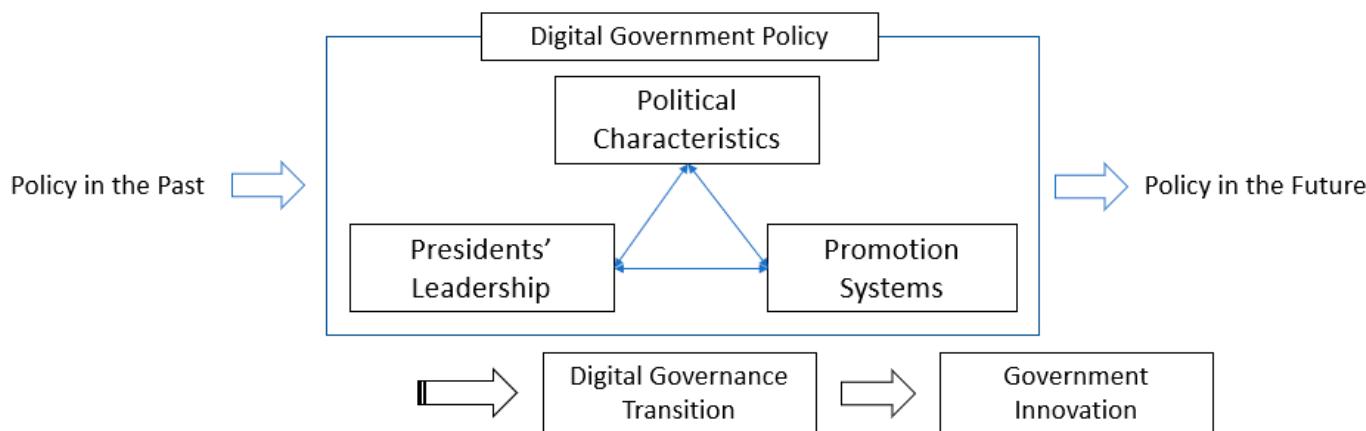


Figure 1. Research Framework.

3. Kim Young-sam Administration (1993–1997)

President Kim Young-sam promoted administrative reform and anti-corruption policies in the early days of his administration. Previously, all presidents had been from the military, so the Kim Young-sam government was the first general citizen government. The policies related to digital government during the Kim Young-sam administration can be analyzed as follows.

3.1. The Political Characteristics of Digital Government

In his inaugural address on 25 February 1993, President Kim Young-sam named the government he would lead as the ‘Civilian Government.’ This was an expression of his will to clean up the legacy of the military dictatorship in the past and open the era of democratization in earnest because he did not come from the military. Therefore, as part of the ‘New Korea Creative Movement,’ intensive reforms differentiated from the past were attempted.

Upon inauguration, President Kim Young-sam declared that he would cure the “Korean disease” and create a “new Korea,” and presented the three major tasks of national policy: eradicating corruption, revitalizing the economy, and establishing national discipline. Immediately after his inauguration, President Kim Young-sam created an atmosphere of eradicating the military culture and authoritarianism of the past and implemented measures to benefit the people.

The Kim Young-sam government adopted a small government as its policy principle at the beginning of its inauguration. It promoted the consolidation and abolition of some administrative departments, reduced organizations, and reduced senior positions. The Ministry of Posts and Communications was reorganized into the Ministry of Information and Communication, laying the foundation for a developed country in information and communication.

3.2. The Presidents’ Leadership on Government Innovation through Digital Government Process

At the time of the Kim Young-sam government, the United States was building a high-speed information and communication infrastructure, and Korea was also preparing for it. Accordingly, the Kim Young-sam government also established the Ministry of Information and Communication, enacted the Framework Act on Informatization Promotion, formed the Informatization Promotion Committee, and promoted high-speed information and communication infrastructure. Although various informatization policies were promoted, they were not upgraded to the presidential agenda, and they did not reach the stage of using informatization as a means of administrative reform. From the second half of 1996 to 1997, the informatization promotion expansion conference was held three times at the Blue House, but there are few cases where the President’s leadership was realized.

President Kim Young-sam’s speeches related to informatization can be found at the Informatization Promotion Expansion Conference held at the Blue House in the second half of his office on 14 October 1996.

“We need to strengthen our international competitiveness by improving our economic constitution and structure through informatization. Furthermore, in order to improve the quality of life of the people, it is necessary to have a comprehensive plan and continuously implement the informatization policy. Among them, we will focus on solving the problems accumulated during the industrialization of compressed growth over the past 30 years. We will reduce the gap between regions and classes by ensuring that the fruits of informatization are evenly distributed to all citizens in fields such as education, medical care, transportation, and the environment.”

(First Informatization Promotion Expansion Conference, 14 October 1996)

President Kim Young-sam presided over the First Informatization Promotion Expansion Report Conference, announced “informatization strategy for strengthening national

competitiveness,” and declared that the information and communication industry, including software and video industries, should be fostered leading industries in the 21st century.

President Kim Young-sam said, “Informatization is the most important task to raise the competitiveness of the entire country”. He emphasized, “Now is the time when people’s interest and enthusiasm for national security and economy are high, and informatization is more demanded”. ① Leading the government’s informatization practice, ② Prioritizing investment in informatization in critical areas to enhance competitiveness, ③ solving problems accumulated in industrialization, ④ nurturing software and video industries, ⑤ reorganizing the infrastructure for informatization promotion, and ⑥ promoting informatization in preparation for unification were presented. The core of this informatization strategy was focused on strengthening the competitiveness of the government, corporations, and social overhead capital to improve overall society’s efficiency and industrial competitiveness through informatization and ultimately improving the quality of life of the people.

Then, on 28 May 1997, the second informatization promotion expansion report meeting was held. The minister in charge reported the progress and future work plans for logistics, education, health welfare, and local informatization. The Third Informatization Promotion Expansion Reporting Meeting was held, and the Minister of Information and Communication reported on the performance check and evaluation of informatization and future implementation plans.

3.3. *The Composition of a Strong Cross and Joint Governmental Promotion System*

In the civilian government, the ministries in charge of informatization promotion can be divided into before and after establishing the Ministry of Information and Communication. Before establishing the Ministry of Information and Communication, in the Ministry of Posts and Communications days, the Ministry of Posts and Communication was not responsible for the information.

Eventually, after establishing the Ministry of Information and Communication in December 1994, the Ministry of Information and Communication secured the position as a department promoting information. Therefore, in the era of the civilized government, the Ministry of Information and Communication played the role of the competent department in informatization.

After establishing the Ministry of Information and Communication, various information policies previously divided into various ministries were concentrated into one department and exerted great power. As the Ministry of Information and Communication concentrated the budget and authority, top-quality public officials also joined the Ministry [42].

In April 1994, the South Korean government established the government-wide broadband information communication network committee, with the prime minister as chairperson, and institutionally supported national informatization. Until April 2009, the Information Promotion Committee coordinated ICT projects that were previously pursued by each ministry. However, due to the limited role of the prime minister in the presidential system and the difficulty of policy coordination between ministries, the functions of the committee for informatization have been inconsistent.

3.4. *Evaluation*

In today’s presidential evaluation of the Republic of Korea, President Kim Young-sam is known as a failed president. Of course, the President failed when looking only at the approval ratings in the second half of his reign. However, from the perspective of digital government innovation, it may be evaluated differently.

It cannot be denied that the informatization policies centered on the establishment of high-speed information and communication infrastructure in the civilian government were pursued with the President’s interest in various fields.

However, the promotion of informatization policy in the civilian government was not carried out in 1993 or 1994, when President Kim Young-sam took office but was intensively implemented in 1996 and 1997, the latter half of his administration. Therefore, it was not possible to secure a strong driving force.

This phenomenon is not limited to the Kim Young-sam government. After that, the Kim Dae-jung administration also actively promoted the e-Government policy in the second half of his administration. Furthermore, even in the current Moon Jae-in administration, there were no policies on digital government innovation in the administration's early days. The government is only promoting digital government innovation policies in the latter half of the administration.

This phenomenon occurs because the first half of the President's term and the second half are very different. At the beginning of his tenure, he is immersed in innovation where various stakeholders exist based on the President's strong leadership. Then, in the second half of the term, fatigue from reforms accumulates. When the presidential term turns around and the lame-duck phenomenon appears, the direction and strategy of reform are revised.

In the second half of the government, it can be seen that there are few stakeholders or politically burdensome, and pursue future-oriented informatization, e-Government, and digital government innovation.

In the end, in the Kim Young-sam administration, the informatization policy was adopted as one of the areas where the resistance of the stakeholder group was not strong at the end of his term, and overall government innovation through informatization was not pursued.

4. Kim Dae-jung Administration (1998–2002)

President Kim Dae-jung, who took office during the East Asian economic crisis in late 1997, made every effort to overcome the financial crisis at the beginning of his term. Specifically, the administration focused on restructuring measures such as financial reform and labor reform. Therefore, information policy and e-Government were not adopted as part of the national agenda earlier. However, as the hardware approach reforms that persisted for two years were exhausted, the Kim Dae-jung government turned to software approach reforms in 2000. The most essential means at this time was the promotion of e-Government. The policies related to digital government in the Kim Dae-jung administration can be analyzed as follows.

4.1. The Political Characteristics of Digital Government

The e-Government policy was promoted to the presidential agenda for the first time in the Republic of Korea during the Kim Dae-jung administration. Previously, in the Kim Young-sam government, e-Government was presented fragmentarily as a future government that could be realized when high-speed information and communication networks were built. However, the Kim Dae-jung government established a specific vision and strategy, formed a promotion system under the President's direct control, and promoted it as a presidential project.

Of course, e-Government was not actively promoted from the beginning of the Kim Dae-jung administration. The vision and strategy of Korea's first e-Government, drafted by the Ministry of Government Administration and Home Affairs in early 1998 and passed through the cabinet meeting, was not appropriately implemented in the Asian financial crisis.

Then, with the President's New Year's Address in 2000 and the New Millennium Business Report of each ministry as a starting point, the promotion of e-Government within the government began in earnest. However, as various ministries compete to build their system to promote e-Government, policies fall into a stagnant state. At the end of 2000, the Blue House realized the need for policy adjustment, and in January 2001, the Presidential e-Government Special Committee was launched.

Therefore, from this point of view, it can be seen that the full-scale promotion of e-Government in Korea began in 2001. In 2001, the promotion system was established, and in particular, since the e-Government Act came into effect on 1 July 2001, e-Government was upgraded to the presidential agenda and comprehensively promoted. And the official start was when the Special e-Government Committee was formed under the President's direct control. Therefore, for two years from 2001, the Kim Dae-jung administration promoted e-Government projects as a presidential agenda and promoted it as part of the national government agenda of government innovation [75].

As such, as the projects for the digital government were adopted as the presidential agenda, Kim Dae-jung administration gained a strong driving force, including budget support. It was able to complete the digital government projects.

4.2. The Presidents' Leadership on Government Innovation through Digital Government Process

President Kim Dae-jung promoted government innovation throughout his tenure. In this process, President Kim Dae-jung showed particular interest in the promotion of e-Government. President Kim Dae-jung believed that corruption could be eliminated through the promotion of e-Government, and through this, he believed that national competitiveness could be improved. In particular, President Kim had a great interest in improving transparency through e-Government. This was also evident in the following Presidential speech.

"Implementing e-Government is a shortcut to leading countries . . . , if we develop e-Government rapidly, we can go to the world's best country."

(Ministry of Finance and Economy briefing meeting, 15 January 2001)

"Currently, e-Government is in a state of stagnation because of a ministry selfishness If e-Government is achieved, it can become a trustworthy government without corruption."

(State Council, 5 May 2001)

President Dae-Jung Kim's strong leadership in this e-Government promotion is shown in the e-Government White Paper published by the Korean government in 2003.

"Without the President's full support for the e-Government project, the 11 major e-Government initiatives would have been unable to fulfill their goals. President Kim Dae-jung stressed the importance of creating an e-Government in his speeches and remarks to cabinet members, ministers, and the people. Every week, the President was briefed on the progress of the e-Government project. The strong support and interest shown by the President helped smooth the bureaucratic processes across agencies during e-Government Special Committee meetings. This persistent interest of the supreme ruler was the greatest power in driving e-Government projects and a source of coordination."

(Special Committee for e-Government, 2003)

After the New Millennium in 2000, President Kim Dae-jung always emphasized the promotion of e-Government when department work report in each ministry. President Kim Dae-jung had a national philosophy that e-Government would prevent corruption and strengthen national competitiveness by increasing the efficiency and transparency of government administration [37]. Based on the President's strong will to promote e-Government, each ministry recognized e-Government projects as the presidential agenda and worked hard.

In this process, for the first time, e-Government projects were conducted not as a single ministry but as a multi-ministerial project. This has a significant meaning in Korea's informatization history. By promoting these multi-ministerial linkage projects, the foundation was laid to provide faster services to the people.

One interesting fact is that Kim Dae-jung himself was a computer illiterate. President Kim Dae-jung emphasized informatization in meetings with many ministers of ministries, but he could not operate computers himself. The important thing here is that the leader

does not implement it but holds the steering wheel and sets the directions to move forward. In other words, the President's practical knowledge of ICT is not essential, and genuine leadership recognizes the importance of and supports using ICT for government innovation [32].

4.3. *The Composition of a Strong cross and Joint Governmental Promotion System*

President Kim Dae-jung emphasized that knowledge and information are the sources of competitiveness at every opportunity. Therefore, President Dae-jung Kim selected the implementation of e-Government as one of the top priorities in state affairs and supported the e-Government Special Committee's activities to promote it.

At that time, the Ministry of Information and Communication and the Ministry of Government Administration and Home Affairs were fighting for leadership over the Chief Information Officer (CIO). Therefore, at this point, the Ministry of Information and Communication and the Ministry of Government Administration and Home Affairs will settle the conflict between the ministries and follow the mediation of the e-Government Special Committee. The reason was that President Kim Dae-jung gave the authority and power to Professor Ahn Moon-seok, chairperson of the Special Committee on e-Government, concerning the promotion of e-Government.

The most critical factor in the e-Government project led by the e-Government Special Committee was the President's firm will to implement e-Government. In the Kim Dae-jung Government, e-Government projects were upgraded to the Presidential Agenda rather than individual ministries, gaining a significant driving force. President Kim Dae-jung emphasized the importance of e-Government to ministers and senior officials whenever he had the opportunity. He received a report on progress from the chief of policy planning on a weekly or biweekly basis. The President's interest in this was great, especially in the process of reconciling differences between his ministries.

Thanks to President Dae-Jung Kim's interest in e-Government and his strong leadership, the 11 major e-Government projects received adequate budget support. The e-Government Special Committee was able to induce active cooperation among ministries [76].

As a result of these efforts, President Kim Dae-jung held a meeting for the 'Report on the Completion of e-Government Infrastructure' on 13 November 2002, with all ministers from each participating ministry in attendance. President Kim announced that the 11 major e-Government initiatives were successfully executed and declared the opening of full-scale e-Government services.

Therefore, the lesson to be learned here is that rather than how well a leader knows a particular field, it is more important to admit that they do not know and hand over responsibility and authority to an expert in a particular field.

4.4. *Evaluation*

The Kim Dae-jung government, which was inaugurated in February 1998, was launched in the context of a substantial economic crisis called the East Asian financial crisis. Additionally, at that time, many countries worldwide were pushing for intensive administrative reform and government re-creation to improve national competitiveness. Therefore, this internal and external environment paradoxically created good conditions for the Kim Dae-jung administration to carry out radical administrative reforms in a wide range of areas. During 1998 and 1999, the Kim Dae-jung government promoted reforms in four areas: public reform, corporate reform (chaebol reform), financial reform, and labor reform.

However, in 2000, these administrative reforms were faced with a situation where it was difficult to proceed further due to the systematic opposition of stakeholder groups and fatigue from reform. Facing such a situation, the Kim Dae-jung administration changed its direction from hardware reform to software reform. In this process, e-Government was adopted as a means of administrative reform.

On 30 January 2001, the Kim Dae-jung government formed the e-Government Promotion Committee under the President's direct control. It established the vision and strategy for the e-Government of the People's Government on 17 May promoted 11 e-Government projects by the end of October 2002. A total of \$257 million was invested in this process. The promotion of this e-Government project improved informatization in Korea and dramatically improved the delivery system of public administration services.

In this process, the leadership of President Kim Dae-jung was demonstrated, and e-Government was promoted to the presidential agenda for the first time in Korea and successfully promoted. Various opinions for and against the neoliberal government reform of the Kim Dae-jung administration can be expressed. However, e-Government, which uses information technology to innovate administration, is evaluated as an area where significant reforms have been made without any disagreement. However, it is a disappointment that the promotion of e-Government under the Kim Dae-jung administration was promoted in the latter half of his reign rather than in the early stages of his administration.

5. Roh Moo-hyun Administration (2003–2007)

President Roh Moo-hyun had extraordinary insights into and understanding of the fields of information policy and e-Government. Therefore, the Roh Moo-hyun government started to look very different from the previous governments. From the early days of his administration, he strongly pursued information policy and e-government projects, with personal leadership. Today, South Korea has the highest position in the world in digital government because of the accomplishments of the Roh Moo-hyun administration. Its policies related to digital government can be analyzed as follows.

5.1. The Political Characteristics of Digital Government

In the Roh Moo-hyun government, government innovation and e-Government were strongly promoted. They were selected on the presidential agenda from the beginning of President Roh Moo-hyun's administration. It was difficult to secure a strong driving force in the previous Kim Young-sam government and Kim Dae-jung government because informatization and e-Government were intensively promoted in the latter half of the president's administration. Although e-Government was promoted and promoted on the presidential agenda during President Kim Dae-jung, it began in the latter half of President Kim Dae-jung's presidency. However, in the Roh Moo-hyun government, at the beginning of President Roh Moo-hyun's administration, the Presidential Committee on Government Innovation and Decentralization (PCGID) was formed under the direct control of the President, and government innovation and e-Government were selected as the presidential agenda and continued for five years in office.

In South Korea, in the presidential system with a single five-year term, the capacity to implement policies in the early and late stages of the administration is inevitably very different. Therefore, government innovation and e-Government promotion under the Roh Moo-hyun administration was incomparably stronger than that of the Kim Young-sam and Kim Dae-jung administrations in the past. The Roh Moo-hyun Government, launched on 25 February 2003, constituted the Presidential Committee on Government Innovation and Decentralization (PCGID) on 7 April as an organization directly under the President, and launched the Special Committee on Administrative Reform and the Special Committee on e-Government. The Roh Moo-hyun administration also announced a roadmap for administrative reform and e-Government, subdivided it into a five-year plan, and continued it throughout president's tenure.

During this process, President Roh Moo-hyun frequently presided over national task meetings and state task review meetings, demonstrating strong leadership in administrative reform and promotion of e-Government. Therefore, the promotion of administrative reform and e-Government in the Roh Moo-hyun government could be strongly pursued while securing sustainability, unlike the one-time policies of the past government.

Therefore, in the Roh Moo-hyun administration, the policies of e-Government were set as the presidential agenda and the national project and granted a strong driving force. As a result, the Roh Moo-hyun administration spent nearly USD 850 million from its budget for the 31 e-Government projects for 5 years. The foundation of the Republic of Korea digital government was completed and became the world's leading example today. The digital government promotion policy was almost the only way that the Roh Moo-hyun government, which had a weak political base, could overcome opposition from the majority opposition party and propel government innovation.

5.2. The Presidents' Leadership on Government Innovation through Digital Government Process

President Roh Moo-hyun had a higher understanding of ICT than any previous president of the Republic of Korea. All presidents before Roh Moo-hyun were computer illiterate, and the three presidents since Roh Moo-hyun up to now also do not have a high level of ICT knowledge. President Roh Moo-hyun had a high level of knowledge in ICT to the extent that he directly developed the work program for a lawyer's office. At the same time, he was a lawyer 10 years before becoming president. Therefore, he had been well aware of the power of ICT for a long time.

Based on this insight into ICT, President Roh Moo-Hyun strongly promoted administrative innovation using information technology, e-Government, throughout his tenure in office. The difference between the Roh Moo-hyun administration's e-Government promotion from the past is that it was very strongly pursued right after the inauguration, not the latter part of the president's term.

After President Roh Moo-hyun took office, he established the Government Innovation Decentralization Committee directly under the presidency. He formed an e-Government committee under it to promote e-Government projects as a presidential project. In the Roh Moo-hyun administration, e-Government was set on the presidential agenda from his administration. Therefore, during the five years of the Roh Moo-hyun administration, e-Government projects were strongly promoted with the President's continued interest.

In this process, President Roh Moo-hyun was directly involved in the project implementation process, not at the level of receiving reports on the results of the e-Government project. In fact, in the Roh Moo-hyun administration, a weekly e-Government inspection meeting was held under the supervision of the president. At that time, e-Government did not simply build an information system within the government, but meant the entire process of innovating the government using information technology. As reflected in the following speech, President Roh Moo-hyun pursued clean and transparent administration and anti-corruption prevention through e-Government.

"In the future, we will improve the way the public sector works, innovate business processes, and . . . It is important to naturally change the functions and organization of government. In addition, active efforts should be made to ensure clean and transparent administration through e-Government."

(National Agenda Meeting, 17 April 2003)

"It is problem to raise transparency and integrity of administration. The implementation of e-Government by Korea and the voluntary reform of public officials will be a driving force for a clean and transparent government. At the ninth meeting in 1999, Seoul's 'Online Procedures ENhancement for civil applications' was announced as an excellent case of anti-corruption. In addition, I and the Korean government will actively participate in international cooperation on anti-corruption and will cooperate with the activities of the Transparency International."

(Speech to the 11th International on Anti-Corruption Conference (IACC), 26 May 2003)

Even after becoming president, President Roh Moo-hyun was directly involved in the development of information systems. In fact, in 2004, he directly developed the Blue House's work management system as an end user. Not only that, but the Blue House

business management system was also upgraded to be used by the Ministry of Government Administration and Home Affairs at the time, and this government business management system was later used by all 48 central ministries [33].

President Roh Moo-hyun's insights and intentions toward the digital government were reflected in the e-Government projects in Korea. Korea's digital government policies achieved great results during the Roh Moo-hyun government. When President Roh Moo-hyun took office in 2003, UN e-Government ranking of South Korea had remained outside the top 10; it improved to be ranked fifth by the end of his term in 2008 and soon achieved world's top place by 2010. Therefore, the fact that the current level of digital government in Korea is the highest globally can be attributed to President Roh Moo-hyun [33].

5.3. The Composition of a Strong cross and Joint Governmental Promotion System

On 7 April 2003, the Roh Moo-hyun government established the Presidential Committee on Government Innovation and Decentralization (PCGID) under the president's direct orders. The tasks of the PCGID were to manage major innovation projects such as administrative reform, personnel administration system reform, decentralization, finance and tax systems reform, and the promotion of e-Government. Therefore, the Roh Moo-hyun administration established an e-Government professional committee under the PCGID. The Roh Moo-hyun government's e-Government promotion system changed little by little since 2003.

5.3.1. e-Government Professional Committee (2003–2005)

The e-Government professional committee, launched in mid-2003, developed the e-Government roadmap of the President's agenda that focused on 31 tasks in 10 fields and examined, evaluated, and coordinated the execution process. At the beginning of the Roh Moo-hyun administration, the e-Government professional committee was set up in parallel with four other professional committees as a secretary-level subcommittee within the PCGID. The number of civilian members of the professional committee also increased to 15, double the number of the e-Government special committee under the Kim Dae-jung administration.

However, in contrast to the past, the e-Government Special Committee secured a semi-independent position at the vice-ministerial level. It acted, but the e-Government Professional Committee had its limitations as a sub-committee level, so it could not exert strong coordination power. The reason was that the status was significantly lower than in the past in terms of operation methods and resource procurement and legal and institutional status.

5.3.2. e-Government Special Committee (2005–2007)

The First Presidential Committee on Government Innovation and Decentralization (PCGID), which confirmed and promoted the government innovation roadmap, was disbanded and the Second Committee was launched in April 2005. Therefore, the e-Government promotion system also underwent major changes. The first committee was operated centered on six expert committees including administrative reform, personnel reform, e-Government, financial taxation, innovation management, and records management. The second specialized committees for each function appeared: the Innovation Planning Committee and the Innovation Evaluation Committee.

As a result, the e-Government special committee was re-launched by upgrading the e-Government roadmap to the vice-ministerial level, taking over the roles and functions of the e-Government professional committee. The re-launch of the e-Government special committee was based on the experience of former Kim Dae-jung administration, the trends of developed countries, enormous national tax commitment to e-Government projects, and recognition of the importance of coordination among ministries and agencies.

In June 2005, a second e-Government special committee was established, including 3 deputy minister members from the Ministry of Government Administration and Home Affairs, the Ministry of Information and Communication, the Ministry of Planning and

Budget and 13 civilian members. The Office of the Presidential Secretariat also established the Innovation Management Office, which oversaw government innovation and e-Government.

Therefore, although the structure of the propulsion system seemingly had power, it had limitations in coordinating the e-Government projects among the ministries. Therefore, the Innovation Management Office intervened in January 2006 to transform the function and role of the e-Government special committee into a pure presidential advisory function. All executive functions related to e-Government projects were transferred to the Ministry of Government Administration and Home Affairs.

5.4. Evaluation

Administrative reforms of the Roh Moo-hyun administration were comprehensive and different from other previous governments. The differences between the Roh Moo-hyun administration and the previous administrations are that: The administrative reform of the Roh Moo-hyun administration was based on the strong will of innovation by the president, who was the chief executive. The government had been pushing forward the reform for five years. The participatory government's administrative reform was carried out consistently with a firm vision and a systematic roadmap. The roadmap was created by sufficiently collecting opinions from academia and private experts. In implementing them, it is suggested that an agreement was reached through discussions and the participation of stakeholders and that the public officials were the subject of innovation rather than the object of reform.

The evaluation of the Roh Moo-hyun administration's administrative reforms is markedly mixed with success and failure. However, considerable progress was made in strengthening administrative performance control and establishing a competitive system in terms of administrative reform. In addition, decentralization and localization were greatly promoted, and transparency and fairness of administration due to anti-corruption activities were remarkably improved.

The most important success factor in the administrative reform of the Roh Moo-hyun administration is that it promoted administrative innovation by realizing administrative innovation using information technology, that is, e-Government. The participatory government actively pursued administrative innovation using information technology from the beginning of its administration, resulting in the e-Government policy being adopted as the presidential agenda and promoted.

Through the promotion of e-Government, the participatory government put much effort into promoting citizens' participation in state affairs and strengthening administrative democracy. The Participatory Government expanded the e-Government infrastructure to realize an efficient government, and based on this, diversified e-Government services. Specifically, he ranked 13th in the UN e-Government ranking in 2003, when he was at the beginning of his administration, but achieved 5th in 2005, the middle of his administration.

As such, the government innovation of the participatory government can be of great significance in that it attempted a systematic approach based on the establishment of various information systems. In this process, the leadership of President Roh Moo-hyun played the most important role. Therefore, from the perspective of administrative innovation using such information technology, the Republic of Korea still owes a great debt to President Roh Moo-hyun [15].

6. Lee Myung-bak Administration (2008–2012)

The Lee Myung-Bak administration emphasized the "lost decade" with its inauguration. This meant the start of the conservative government, ending the progressive regime of the past decade. Therefore, through the regime change from a government to a conservative government over 10 years, all the past government policies were abolished. The most damaging of these was done to e-government policies. In addition, the Ministry of Information and Communication, which had played a major role in bringing South Korea to the world

level in the field of information and communications, was dismantled and the functions of the Ministry were divided into four and transferred to other ministries. In particular, the Lee Myung-bak administration banned the use of the e-Government term from the beginning and replaced it with the term “national informatization”. Therefore, government innovation using information technology disappeared and business-friendly policies emerged. The policies related to digital government in the Lee Myung-bak government can be analyzed as follows.

6.1. The Political Characteristics of Digital Government

The inauguration of the Lee Myung-bak government, which was launched in 2008, meant a change in government from a progressive government to a conservative government in Korea for the first time in 10 years. Along with the launch of the new government, the Lee Myung-bak administration abolished the Ministry of Information and Communication through government reorganization.

However, due to the abolition of the ministries that had been in charge of informatization so far, conflicts between various ministries and the problem of duplication of work became more prominent. The abolition of the Ministry of Information and Communication showed that conflicts between ministries did not disappear, but rather occurred more frequently.

During the Lee Myung-bak administration, national informatization was not selected on the presidential agenda. This can be clearly seen from the fact that national informatization was not included in the national agenda of the early years of the Lee Myung-bak administration. Furthermore, since the Ministry of Information and Communication was dismantled at the beginning of his administration, there was no system to promote national informatization properly.

Among the Ministry of Information and Communication functions, the promotion of national informatization was transferred to the Ministry of Public Administration and Security. However, as the Ministry of Public Administration and Security was not an organization that could perform an informatization control tower like the Ministry of Information and Communication in the past, confusion occurred in policy implementation.

Subsequently, in November 2009, the National Informatization Strategy Committee was formed under the President's direct control, but this too did not play a role in strongly coordinating information policies dispersed in various ministries. Furthermore, since the president did not receive periodic reports nor give instructions on the activities of the National Informatization Strategy Committee, it cannot be said that national informatization was promoted on the presidential agenda, rather only by the composition of the presidential committee.

6.2. The Presidents' Leadership on Government Innovation through Digital Government Process

First of all, the launch of the Lee Myung-bak government meant the first change in government from a progressive government to a conservative government in 10 years in Korea. Accordingly, with the inauguration of the government, the Lee Myung-bak administration defined the past 10 years as a lost decade and set out to erase the traces of the past government. In this process, the e-Government policies actively promoted by the Roh Moo-hyun administration were abolished.

The Lee Myung-bak administration promoted the national informatization policy instead of the e-Government promoted by the Roh Moo-hyun administration. In this process, national informatization was transformed into an information industry policy regardless of overall government innovation.

In particular, President Lee Myung-bak did not pay any attention to administrative reform using ICT, e-Government, or information technology. Since President Lee Myung-bak was the CEO of a large construction company, he also approached national informatization from efficiency to save the budget. Therefore, at the same time as the government's inauguration, he reorganized the government and dismantled the existing Ministry of

Information and Communication. In this process, national informatization was transferred to the Ministry of Public Administration and Security, but the ministry did not exert strong coordination power.

President Lee Myung-bak selected low-carbon green growth as a national task rather than national informatization, and from this perspective, the existing ICT was also transformed into Green ICT. This policy was also closely related to low carbon green growth that President Lee emphasized. In August 2008, when President Lee Myung-bak took office, he declared at the Korea Independence Day Celebration speech:

"Today, 60 years after the founding of Korea, I would like to present 'Low Carbon (Green Growth)' as a new vision. Green growth is sustainable growth that reduces greenhouse gases and environmental pollution. It is a new national development paradigm that creates new growth engines and jobs with green technology (GT) and clean energy. Green technology goes beyond information technology (IT), biotechnology (BT), nanotechnology (NT), and cultural industry technology (CT). Green technology will heal the problem of 'jobless growth' by creating a lot of good jobs. The renewable energy industry will create jobs many times more than existing industries. There has been a gap of wealth in the information age, but in the age of green growth, the gap will be reduced."

(National Independence Day Celebration Speech, 15 August 2008)

President Lee Myung-bak, formerly a businessman, focused on efficiency through the integration of government ministries and policies. Although the National Informatization Strategy Committee was established and operated directly under the presidency, the digital government policies were not carried out on the presidential agenda. Therefore, Lee's insights into administrative innovation and digital government using information technology were not so high. Thus, the president rarely demonstrated his leadership in government innovation using information technology during his five-year term [32].

6.3. The Composition of a Strong cross and Joint Governmental Promotion System

The Lee Myung-bak administration dismantled the Ministry of Information and Communication. It transferred the functions of national informatization to the Ministry of Public Administration and Security to integrate e-Government and national informatization. In addition, as the existing Presidential Committee on Government Innovation and Decentralization (PCGID) was dismantled, a new informatization promotion system was needed. Under the Framework Act on National Informatization, the Lee Myung-bak administration established the National Informatization Strategy Committee as a national informatization promotion system in November 2009.

By the Framework Act on National Informatization, the National Informatization Strategy Committee performs functions such as deliberation of national informatization master plans and implementation plans, adjustment of informatization policies, designation of knowledge and information resources, and prioritization of information culture development and information gap resolution projects, both in name and reality. It has the status as the highest organization for deliberation and coordination of national informatization policies.

The National Informatization Strategy Committee was established under the President's office to discuss matters related to the promotion of national informatization. The chairman co-operated with the Prime Minister and the civilian committee was appointed by the president, and the committee members were no more than 35 including the chairman.

In March 2010, the National Informatization Strategy Committee decided and promoted the 10 national informatization tasks, which expanded the scope of informatization to the general society, including education, industry, and medical care. The 10 major tasks are to build an integrated national knowledge infrastructure, lay the foundation for low-carbon green growth, foster new IT industries, advance services through IT, build next-generation information and communication infrastructure, advance e-Government,

strengthen international IT cooperation, create a safe information society, and create a digital welfare environment, and strengthening the information security system.

The National Informatization Strategy Committee was responsible for establishing and managing the national informatization basic plan and action plan while coordinating the informatization policy as a whole, and reconciling differences in opinion between ministries. To this end, each department's implementation plan was reviewed in advance and the implementation of the action plan was managed using means such as performance check. However, since the financial resources required for each project of national informatization were carried out in consultation with the budget authority, centered on the competent department, there was a limit in which strong control could not be exercised.

Various opinions can be presented about the failure of the National Informatization Strategy Committee under the direct control of the President [77,78]. However, the most important failure factor is that although the presidential committee was formed, the president's will and interest, that is, leadership, was not realized.

6.4. Evaluation

The Lee Myung-bak administration, which came to power with a "lost decade", failed to establish a proper vision and strategy concerning administrative reform. In particular, he missed the time when he could drive administrative reform due to the candlelight vigils caused by the imported beef scandal and the global economic crisis caused by the bankruptcy of Lehman Brothers in the early days of his administration. The Lee Myung-bak administration did not pay much attention to administrative reform. In fact, the Lee Myung-bak administration did not have an organization dedicated to administrative reform. Furthermore, even the existing organizations concerning corruption were integrated. As such, existing government organizations also induced consolidation in the name of integration, leading to a setback in the promotion system, that is, in the organizational aspect.

In terms of national informatization, the Lee Myung-bak administration also made various efforts to reorganize the system for promoting national informatization. The Framework Act on National Informatization was enacted by revising the Framework Act on the Promotion of Informatization. Based on this, the National Informatization Strategy Committee under the President's direct control was launched in November 2009. However, although a committee under the President's direct control was formed, the National Informatization Strategy Committee could not exercise strong coordination power because the President's interest and leadership were not supported.

In particular, the promotion of e-Government was regarded as a legacy of the past government and policies were not properly implemented. The problem with the Lee Myung-bak administration's e-Government promotion must first be found in the loss of the scope and direction of e-Government. In the past governments, since the ministries promoting national informatization and e-Government were separated, it was possible to adjust even if conflicts between ministries were provoked. However, in the Lee Myung-bak administration, the Ministry of Public Administration and Security promoted national informatization and e-Government. Hence, the two areas were mixed and difficult to distinguish. Moreover, unlike e-Government, national informatization has no choice but to pursue improving national competitiveness based on industry, so it has emerged as a domain conflict with the Ministry of Knowledge Economy, which is in charge of SW promotion and ICT industry. The conflict between these ministries resulted in policy failure because the National Informatization Strategy Committee could not coordinate.

In conclusion, the Lee Myung-bak administration failed to promote e-Government on the presidential agenda. Therefore, although it achieved the world's first place in the UN's e-Government evaluation in 2010 and 2012, it is difficult to evaluate that it was successfully implemented. As mentioned earlier, the achievements of the Roh Moo-hyun administration that were ranked first in the UN e-Government evaluation during the Lee Myung-bak administration were all reflected due to the time lag effect. Therefore,

although the evaluation of e-Government under the Lee Myung-bak administration can be viewed from various perspectives, it is clear that President Lee Myung-bak's leadership on e-Government was lacking.

7. Park Geun-hye Administration (2013–2017)

In February 2013, the launch of the Park Geun-hye administration did not involve a replacement of the political party but the inauguration of a new president from the same political party. Nonetheless, there were great changes in the field of information policy. This was due to the backwardness of South Korean politics. In other words, although the new president was elected from the same party, many national policies including information policy were replaced upon the president's personal decision and not by the political party's policies. The Park Geun-hye government changed the information policy framework established under the former Lee Myung-bak government. Regarding the promotion of the digital government, the Park government pursued new policies, laws, and governance as "Government 3.0". The policies related to digital government in the Park Geun-hye administration can be analyzed as follows.

7.1. The Political Characteristics of Digital Government

The inauguration of the Park Geun-hye government in February 2013 was not a change in government, but rather the inauguration of a president from the same party. However, many changes have occurred concerning e-Government and national informatization. First, the National Informatization Strategy Committee was dissolved. The reason for the abolition was to reorganize the committees, which the previous government had neglected.

Second, national informatization was transferred to the newly established Ministry of Science, ICT, and Future Planning. Therefore, national informatization, e-Government, and Government 3.0 policies have a distributed promotion system. National informatization is now in charge of the newly established Ministry of Science, ICT and Future Planning, and e-Government and Government 3.0 are in charge of the Ministry of Security and Public Administration, which was renamed from the Ministry of Public Administration and Security.

Third is the emergence of Government 3.0. The Park Geun-hye administration set a national vision of 'a new era of national happiness and hope' and set government goals and strategies in five major areas as a means to achieve it. She also established the Trusted Government as a means of innovation in the government's operating system to support the Five National Goals. This is to achieve the "Government 3.0 Era", which goes beyond one-way (1.0) to realize two-way government (2.0) and provides personalized information and services based on this. In addition, it was to build a competent government that leads a new future of openness, sharing, communication and cooperation, such as strengthening cooperation with the private sector and establishing a cooperative system within the government.

On 19 June 2013, the Park Geun-hye administration held a ceremony to declare the Government 3.0 Vision and announced "Promise with the People, Government 3.0". At this meeting, the Ministry of Safety and Public Administration, with the vision of 'Korea where all the people are happy', will achieve the goals of 'customer-tailored services' and 'creation of jobs and new growth engines'. The three strategies of Government 3.0, such as the 'People-Centered Service Government', and the 10 key tasks were presented [79].

However, the problem was that the concept of Government 3.0 was vague, and no one knew exactly what Government 3.0 meant. As Government 3.0 had changed the focus of the policy every year, public officials in the front-line administration were confused.

In the Park Geun-hye administration, the Government 3.0 policy was not consistent with the policy and drifted because of the wrong leadership of President Park Geun-hye. Under the guise of Government 3.0 as the president's philosophy, the tasks were newly changed every year according to the president's words and instructions, and in the process, confusion was caused at the front-line.

In conclusion, although the Park Geun-hye administration did not achieve government innovation using information technology from the viewpoint of e-Government, it contributed to data opening through Government 3.0 policy in the broad sense of digital government. However, as President Park Geun-hye was impeached and the government failed, the digital government policies including the Government's 3.0 policy could not be regarded as successful.

7.2. The Presidents' Leadership on Government Innovation through Digital Government Process

The Park Geun-hye administration never officially pursued a national task of government innovation. Moreover, President Park Geun-hye never emphasized government innovation in her official speeches. However, out of 140 national tasks promoted by the Park Geun-hye administration, 134 implemented People-Centered Service Government 3.0. As such, in the Park Geun-hye administration, government innovation was not promoted on the presidential agenda.

Government 3.0, promoted by the Park Geun-hye administration, was not a total government innovation, but opened public information and data to the public to create new jobs and provide customized administrative services. Therefore, these Government 3.0 policies cannot be evaluated as digital government innovation.

Furthermore, President Park Geun-hye rarely emphasized government innovation using ICT. The president's leadership is absolutely required for this digital government innovation, but the president did not actively communicate with ministers or public officials. President Park Geun-hye emphasized Government 3.0 as follows before her official inauguration. However, this Government 3.0 policy was not well pursued due to the confusion of concepts and whether it was different from e-Government. Then, on 30 January 2013, during the President-elect period, she discussed 'Government 3.0' in the presidential transition committee meeting as follows.

"'Government 3.0' is a concept that the government will communicate various kinds of information in real time to the people and become a 'communication government'. Government 3.0 means institutionalized system to disclose all information and knowledge to the public and to share with the people. "We will communicate with the people and look for policy direction and problem-solving methods with the people."

(Presidential transition committee meeting, 30 January 2013)

The Park Geun-hye administration officially promoted the Government 3.0 policy in June 2013. At this Government 3.0 Vision Proclamation Ceremony, President Park Geun-hye changed the government's service method through Government 3.0, but this did not mean total digital government innovation. Therefore, the president's leadership never continued to demonstrate Government 3.0 policy even after that. President Park Geun-hye's speech is as follows.

"Government 3.0 is a paradigm shift that transforms the way the government operates from the nation-centered to the citizen-centered, beyond the level of information disclosure. . . .

If I communicate with the Government through the Government 3.0 and the private sector, the central government, the local governments, and the government departments, I can find clues to solve the difficult problems of our society, and the people's lives can be greatly improved. I have confidence. We hope that through the vision declaration today, the government will be able to change our society and make our people happy and enriched by sharing their perceptions and renewing the way the government operates."

(Government 3.0 Vision Proclamation Ceremony, 19 June 2013)

Under the Park Geun-hye administration, Government 3.0 focused on job creation in the early stages, and emphasized government operative innovation through data opening in the latter half of the government. However, it did not reach the level of overall government innovation. Furthermore, although the president's leadership was exerted, such as resolving conflicts between ministries, she failed to do so, so the Government 3.0 policy

failed. From the viewpoint of leadership, it cannot be said that President Park had a strong will or insight on using ICT for government innovation [32].

7.3. The Composition of a Strong cross and Joint Governmental Promotion System

In late 2012, President Park Geun-hye said, “There are many committees under the government so that our country is called the ‘Committee Republic’.” In January 2013, the Presidential Transition Committee announced a pledge to “repeal all of the 21 Presidential Commissions except the Regional Development Committee.” However, as of June 2016, there were 549 government committees, more than 505 committees at the end of the Lee Myung-bak administration [80].

After the inauguration of the Park Geun-hye administration in 2013, Government 3.0 was in charge of the Creative Government Strategy Office of the Ministry of Security and Public Administration at that time. However, if Government 3.0 was really to pursue administrative reform and administrative innovation, it was clear that it would not be successful if implemented in the unit of government. In the second half of 2013, the Deputy Minister of Security and Public Administration suggested to the President the need for an organization dedicated to Government 3.0 more than once, but with no results.

In a situation where a dedicated organization for the promotion of Government 3.0 was not established, the Government 3.0 policy at the front line caused tremendous confusion. Facing such a situation, the Park Geun-hye administration began to consider establishing a dedicated body for the promotion of Government 3.0 in the first half of 2014. As a result, the Government 3.0 Promotion Committee was launched in July 2014. However, it had already missed the golden hour, and even after its establishment, the driving force was weakened by creating conflicting relations with other ICT-related committees and the Ministry of Government Administration and Home Affairs.

The ‘Government 3.0 Promotion Committee’ was formed on July 25, 2014, based on the enforcement of the “Regulations on the Establishment and Operation of the Government 3.0 Promotion Committee” on June 30, 2014. The ‘Government 3.0 Promotion Committee’ initially had a main committee and eight specialized committees. The expert committee was divided into general planning, customized service, cloud, information sharing and collaboration, big data, openness, change management, and local and public institutions.

The ‘Government 3.0 Promotion Committee’ has held several meetings since its establishment, and the main agenda of the meeting was the establishment, implementation, and management of core tasks with a focus on the deliberation of the ‘Government 3.0 Development Plan’, which is the main task of the committee.

However, it was also pointed out by the media that the committee was not performing its role due to the low participation rate of ex officio members. This was because the Government 3.0 Promotion Committee was established and operated by Presidential Decree and did not have the authority to evaluate ministries and projects.

This Government 3.0 Promotion Committee disappeared on 11 July 2017, after the Moon Jae-in government was inaugurated, as regulations regarding the establishment and operation of the Government 3.0 Promotion Committee were abolished.

7.4. Evaluation

The Park Geun-hye administration promoted the Government 3.0 policy with the inauguration. In the beginning, this Government 3.0 is a new government that actively opens and shares public information, removes barriers between ministries, and communicates and cooperates to secure a driving force for national tasks, provide customized services, and at the same time support job creation and creative economy, understood as an operating paradigm. This process focused on opening public data in 2013 and creating jobs in early 2014. In addition, the policy was revised to form a national design team and provide customized services to the people.

However, the most problematic part in this process was the establishment of the relationship with the e-Government. In the early days, Government 3.0 started as a new

paradigm of state management that had nothing to do with e-Government. Therefore, in the early days of the Park Geun-hye administration, it was advertised as such. Government 3.0 was packaged as a unique policy of the Park Geun-hye administration. In this process, Government 3.0 and e-Government were separated, resulting in the loss of driving force because the Government 3.0 policies did not receive the help of e-Government in the early stages. In late 2014, the Government 3.0 Promotion Committee was formed to promote convergence with e-Government, but it continued to be pursued separately.

In conclusion, the Park Geun-hye administration focused on the Government 3.0 policy, not e-Government. In the process, confusion arose between e-Government and Government 3.0 in terms of concepts and services. In the early stages of the implementation of Government 3.0, there were no visible results and no national consensus; so from 2015, the direction was revised and a strategy to parasitize the existing e-Government system was promoted. In this process, Government 3.0 changed its goal to achieve the existing three promotion strategies, service government, competent government, and transparent government, by upgrading the existing e-Government service.

In 2016, the Park Geun-hye administration claimed that Government 3.0 was government innovation, but few people listened. President Park Geun-hye's failure results from her failure to properly deal with the 2014 Sewol ferry disaster and the 2015 MERS outbreak. The president's leadership was never shown during these national disasters. In the end, the government innovation of the Park Geun-hye administration had long ended in failure.

8. Moon Jae-in Administration (2017–Present)

Moon Jae-in was elected through a presidential election in which the former president had been impeached and the presidency was unoccupied. Thus, the Moon Jae-in administration was unable to form the presidential transition committee that the other presidents all had. Instead, on 16 May 2017, the National Planning and Advisory Committee was established and began its operation. On 19 July 2017, the National Planning and Advisory Committee selected 20 national strategies and 100 national agendas and announced a five-year plan for national vision and state administration. Today, the Moon Jae-in administration is ongoing. Therefore, it is premature to evaluate the Moon Jae-in government's information policy. However, the current information policy for the digital government of the Moon Jae-in administration can be analyzed as follows.

8.1. The Political Characteristics of Digital Government

The Moon Jae-in government, launched in May 2017, was elected in a very special environment of the impeachment of the former president. Therefore, the government of Moon Jae-in was established without the presidency acquisition committee. Furthermore, it was not possible to establish a national government plan and establish a government by evaluating and taking over the existing government policies before the start of the government.

In the early days of the Moon Jae-in administration, the president's agenda was the elimination of corruption, job creation, and innovative growth. This includes balanced regional development and the degree of decentralization. Therefore, there is no government innovation in the early stages of the Moon Jae-in administration.

The Moon Jae-in government, which came to power in 2017, emphasized responding to the fourth industrial revolution rather than government innovation. Consequently, in the second half of 2017, the Fourth Industrial Revolution Committee was formed as a presidential underpinning organization. The emphasis was placed on industrial policy using ICT such as smart city policies. However, overall government innovation using ICT is not sufficiently pursued.

Then, starting in the second half of 2019, digital government innovation was promoted, but it was carried out separately without being linked to the existing government innovation promotion system. Therefore, rather than pursuing total government innovation using ICT, the Moon Jae-in government's digital government innovation focuses on

non-face-to-face identity verification and non-face-to-face service delivery in response to the COVID-19 situation.

8.2. The Presidents' Leadership on Government Innovation through Digital Government Process

The current Moon Jae-in government in South Korea was launched in a very different environment from previous governments. Specifically, President Moon Jae-in took office immediately after the sudden election because the former president was impeached. Therefore, it was not possible to organize and operate the Presidential Transition Committee, and there was no time to prepare for presidential agendas in advance.

Upon taking office, the Moon Jae-in government defined the policies of the past government as corruption, and tried to differentiate them without succeeding them. The current president, Moon Jae-in of South Korea, took office under a special situation of the impeachment of the former president. In his inaugural address on 10 May 2017, Moon Jae-in announced that he will “boldly break away from the erroneous practices of the old era. I myself as president will be renewed . . . ”. However, he did not mention anything about ICT at all. In October 2017, he organized the Fourth Industrial Revolution Commission, which is directly under the presidency, and made the following comments in the opening ceremony:

“I hope that the launch of the 4th Industrial Revolution Committee will create a blueprint for innovation growth and serve as a starting point for finding future growth engines for our economy. . . . The government has established a small venture business ministry to concentrate its national capabilities in responding to the Fourth Industrial Revolution, and the Fourth Industrial Revolution Commission, which will act as a control tower, also launched today. . . . Just as we made the information age of the 2000s an opportunity to leap into our economy, let us make the future of the era of the fourth industrial revolution. Let’s make the wave of intelligent informatization an opportunity to innovate our industry and society.”

(11 October 2017)

On this occasion, President Moon Jae-in revealed his will to grow the economy by fostering ICT industries such as AI, IoT, Big Data, autonomous vehicles, and drones. However, he did not show how ICT would connect with government innovation [32].

In March 2018, he held the Government Innovation Strategy Conference and made the following remarks.

“Compressing our government’s top priorities for innovation in one word can be said to restore the publicness of government and public service. It is to establish the relationship of the people, the government, the people, and the public office properly. I would like to emphasize that it is the foundation of government innovation that our government seeks to establish a government culture that truly exists for the people, and that is truly the public service of the people. The restoration of the public sphere of government and public service will be the stopping of corruption. Therefore, we have no choice but to start innovating from correcting past corruption.”

(First Governmental Innovation Strategy Conference Opening Speech, 19 March 2018)

In addition, President Moon Jae-in delivered a speech at the presentation of artificial intelligence national strategy and smart city national strategy. However, he did not show deep insight into ICT. Further, he has never directly addressed or emphasized the importance of digital government innovation using information technology.

In the past, President Roh Moo-Hyun held periodic meetings on the topic of government innovation using information technology and gave instructions to the ministers of relevant ministries. However, after President Moon Jae-in attended one meeting on government innovation in 2018, he has never attended a meeting again. He went further and never stressed or directed the ministers of the relevant ministries on the importance of digital government innovation.

Therefore, the Moon Jae-in Government demonstrated the problem of separately pursuing ICT and government innovation policies. This shows that President Moon Jae-in does not have a solid understanding of ICT-based government innovation nor the implementation of digital government. Therefore, it is hard to expect the current president Moon Jae-in to exert leadership related to ICT and digital government policy at the present [32].

8.3. *The Composition of a Strong cross and Joint Governmental Promotion System*

In the presidential election on 9 May 2017, responding to the “fourth industrial revolution” was one of the main issues. At that time, Candidate Moon Jae-in pledged to establish the Presidential Committee on the Fourth Industrial Revolution to promote the government-led ‘fourth industrial revolution’.

When the Moon Jae-in government was inaugurated in 2017, the National Planning Advisory Committee announced that it would launch the Fourth Industrial Revolution Committee, chaired by a civilian at the prime minister’s level. Accordingly, the Ministry of Science, ICT, and Future Planning prepared a draft of the operating regulations, and on 16 August 2017, as the ‘Regulations on the establishment and operation of the Fourth Industrial Revolution Committee’ was decided at the Cabinet meeting, the basic regulations were prepared [80].

The Fourth Industrial Revolution Committee is a presidential body that deliberates on the national strategy and policy of the Korean government and coordinates inter-ministerial policies in response to the overall changes that have come with the advent of the Fourth Industrial Revolution. On 25 September 2017, President Moon Jae-in appointed 20 civilian members, including Chairman, and the first committee began its activities in earnest.

The performance of the Fourth Industrial Revolution Committee over the past three years is being evaluated below expectations. The reason is that, contrary to the initial expectation of removing obstacles that hinder the introduction of new ICT-related technologies by using the ‘regulatory sandbox’, there were no significant achievements, such as failing to solve car sharing problems such as Uber and Tada.

However, it is a tangible result that the Smart City Special Committee established under the committee has selected and promoted the Eco Delta City of Busan and District 5-1 of Sejong City as the national smart city demonstration areas.

This is a result of the fact that the status of the promotion system was not properly established despite being an organization directly under the president. The Fourth Industrial Revolution Committee has currently not been enacted and is a temporary promotion organization, and the term of office of its members is also limited to one year. Therefore, this organization has only approached the fourth industrial revolution from a technical point of view for the past three years, and failed to link it with government innovation further from the perspective of total digital innovation.

8.4. *Evaluation*

In the Moon Jae-in administration, government innovation proceeded similarly to the previous Park Geun-hye administration’s implementation of the Government 3.0 policy. The Moon Jae-in administration presented various policies in the latter half of the government in government innovation and digital government innovation. However, only the name is digital government innovation, and it remains at the advanced level of electronic civil complaint administration service. Therefore, although the Moon Jae-in administration is not yet over, the government innovation policy is highly likely to fail. Looking at this from the point of view of policy implementation, the contents of the policy, and the structure of the implementation system, it is as follows.

In the past, the Park Geun-hye administration promoted Government 3.0 from the beginning of her administration in 2013. The focus was on data openness, and the policy was promoted centering on the existing Creative Government Organization Office of the Ministry of Government Administration and Home Affairs. Similarly, under the Moon

Jae-in government, government innovation was not pursued in 2017, but started in 2018. The government innovation strategy meeting was held in March 2018 and the government innovation strategy promotion team was formed in July 2018, more than a year after the government was launched, but it was not possible to exercise pan-government coordination power because a strong promotion system was not designed.

Just as the Government 3.0 policy of the Park Geun-hye administration in the past confused by changing the main goals every year, the government innovation of the Moon Jae-in administration has also changed its goals. In the Moon Jae-in administration, government innovation emphasized social value and citizen participation in 2018. After that, starting from the second half of 2019, digital government innovation will be promoted. However, since these government and digital government innovations were carried out in a completely separate system, they were not integrated and were promoted separately.

The Moon Jae-in government established the Presidential Committee on the Fourth Industrial Revolution immediately after its inauguration, but limited the scope of its work to industrial promotion and focused on supporting small- and medium-sized venture companies through the regulatory sandbox. However, even this failed because it did not work properly.

Of course, since the Moon Jae-in administration is a government that continues today, it will not be possible to predict the outcome prematurely. However, when evaluating the contents of the policies that have been promoted so far, it can be seen that the advancement projects of electronic civil complaint administration services are being promoted in the name of digital government innovation, not overall government innovation.

9. Policy Implications and Limitations

In this paper, the promotion of digital government innovation in South Korea over the past 30 years is analyzed from the perspective of the president's leadership. This study examines the success factors of digital government in Korea. However, technological change is happening more rapidly now than in the past. In addition, while there are views that technology will promote administrative innovation, there are many cases where there are opposing views, such as concerns about invasion of privacy. Accordingly, governance that considers the political, economic, and social environment and adjusts matters is essential.

The limitations and complementary points of this study are as follows. First, the leadership of top leaders was emphasized. Future research needs to identify the success factors of digital government more broadly, such as cooperation with the private sector other than the government sector and citizen compliance with policies. In addition, it is necessary to overcome the researcher's subjectivity by utilizing the recently developed research methodology. For example, the structure of governance can be analyzed using a network methodology. In addition, the president's speeches can be analyzed using a text mining methodology.

As a result of this study, two policy implications were drawn as follows. Since South Korea has a well-established high-speed information and communication infrastructure, e-Government and digital government innovation have been promoted as national agenda regardless of regime change. However, in this process, the president's leadership determined the success or failure of digital government innovation. Therefore, the most important success factor for digital government innovation is securing policy sustainability, regardless of administration change.

9.1. How to Secure Sustainability of the ICT Governance Regardless of Administration Change

In order to successfully implement digital government innovation, the president's leadership and the formation of a strong promotion system to support it are required. In many countries, ICT governance for digital transformation is showing continuous change. This is part of a strategy to introduce the constantly evolving ICT into the public sector. In this regard, should digital government policy be handled by the technology ministry or the innovation department? Conflicts between ministries also appear concerning the initiative

to drive digital government. Therefore, in many countries, new organizations are created and removed every time the administrations change. Korea is no exception.

Therefore, in this regard, it is important to legislate ICT Governance that leads digital government innovation. Through the legalization of ICT Governance, it is necessary to secure policies that can strongly promote digital government innovation regardless of administration change. The answer can be found in the US e-Government law. The United States enacted the e-Government Act in 2002 and created the Office of Electronic Government (OEG) within the President's OMB. Since then, it has been strongly pushing for e-Government by utilizing the budget authority of the OMB.

South Korea also enacted the e-Government Act in 2001, but failed to enact a strong promotion system like the United States. Therefore, in South Korea, whenever there is a change in government, a new ICT Governance is established and digital government innovation is promoted. Here, when the president's leadership is exercised, e-Government functions without any problems, but without the interest of the president, it does not have a strong driving force.

In South Korea, there has long been a conflict regarding a dedicated organization of e-Government between the ministries in charge of information and communication technology and the ministries in charge of government innovation. Of course, e-Government has been led by ministries in charge of government innovation rather than ICT ministries.

However, in today's digital transformation era, intelligent government using artificial intelligence technology is rapidly emerging. Therefore, many countries are announcing national strategies for artificial intelligence and promoting the transition to digital government. In this process, many policies are being promoted in a technology-oriented way. However, whether it is a digital government or an intelligent government, such a future government should be pursued from the perspective of government innovation rather than information technology.

Therefore, the most realistic alternative would be forming a higher-level government innovation committee, institutionalizing it, and legislating it, including ministries in charge of ICT and government innovation. And it will be more important for these government innovation organizations to be linked with the budget function.

9.2. Establishment of a Powerful Control Tower for Digital Government

Today, many countries worldwide are pursuing various policies and initiatives for digital government innovation [81]. These policies include visions and strategies and are driven by a variety of roadmaps and action plans. Therefore, benchmarking good strategies and visions of other countries can be a very easy task. In promoting digital government innovation, the biggest problem faced is how to construct a strong promotion system.

ICT Governance with strong coordinating power should have the power to change the introduction and use of ICT in the public sector and the work process and administrative environment of public officials [82]. Along with the installation of basic ICT infrastructure, change in public officials' perceptions, use of digital technology to change business processes within the government, provision of new electronic administrative services, open and shared administrative DB, legal, and institutional improvements are some of the key factors that are also needed. In addition, it is also important for many countries to establish the right organization for promoting the digital government.

Implementing digital government requires enormous changes across all areas of the government. Therefore, it is not possible to promote digital government policy through a single department or sub-agency. In order to accomplish such a comprehensive government transformation, a powerful Control Tower is needed to direct various ministries and coordinate tasks among them.

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