

**Revisiting Digital Government in Korea: An assessment of Government 24 based
on OECD Digital Government Index**

By

KIM, Youngseob

CAPSTONE PROJECT

Submitted to

KDI School of Public Policy and Management

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For the Degree of

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Committee in charge:

Professor Lee, Taejun, Supervisor



Professor Lee, Junesoo



Professor KANG Minsung Michael



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Abstract

Countries around the world, driven by the advancement of digital technology and the COVID-19 pandemic, are recognizing the increasing importance of Digital Government and actively adopting and utilizing it. They are also contemplating strategies to establish and implement differentiated Digital Government Platforms beyond the existing E-government framework. Countries, including South Korea, that are promoting Digital Government, are not only focused on the continuous development and maturity of E-government but also on seeking strategies for the implementation of Digital Government that utilize new digital innovation technologies for the benefit of their citizens.

In this context, the OECD aims to evaluate the state of Digital Government operations in major countries worldwide, with the goal of supporting their development as Digital Governments. This study investigates how South Korea achieved outstanding results in the field of Digital Government and analyzes South Korea's flagship Digital Government service, "Government 24," based on the OECD Digital Government Index, to provide policy implications for other countries.

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I. Introduction

Most people in the modern society agree that the development of information communications technology (ICT) could lead significant changes in the pattern to live including working place and real life. While the transformations are enough to make the life of the public more convenient with saving time, the government system seems to follow lately such situation of change as compared with development in ICT. Several decades ago, those people in Korea who want takes a public documentation or deal with administration work must visit administrative office like city hall in direct. Nowadays most Korean people could handle their administrative tasks in front of computer instead of visiting the office.

Such changes in the life could be shown with a variety of methods and functions to support citizen in the world, and it has only strengthened over time because, since 2020, the worldwide spread of COVID-19 has been experienced. As a result, daily life is undergoing a transformation beyond the transition to a new normal that has not been experienced before, reaching a turning point in the course of civilization. Consequently, humans can no longer engage in social life through regular and repetitive behavioral patterns that were on the same continuum as in the past. Instead, they are adapting to a new everyday life that had previously been anticipated as one of the various future societal forms: a non-face-to-face lifestyle. While the typical human way of life has historically been based on offline face-to-face relationships premised on the concepts of time and space and geographical and physical boundaries, the pandemic situation and the advancement of information and communication technology (ICT) have caused online non-face-to-face relationships to transform into a new norm of everyday life.

Countries around the world, driven by the advancement of digital technology and the COVID-19 pandemic, recognize the increasing importance of digital government and are actively adopting and utilizing it. They are also deliberating on strategies to establish and implement differentiated digital government platforms beyond the existing e-government continuum. Countries, including South Korea, that are promoting digital government are not only focused on the continuous development and maturity of e-government but also on seeking strategies for the implementation of digital government that utilize new digital innovation technologies for the benefit of their citizens. They are making policy efforts in this direction.

In this context, the OECD assesses the state of digital government operations in major countries worldwide, aiming to provide information for their development as digital governments. This study examines how the South Korean government strategically supported the development of ICT and e-government in chapter 3, and it illustrates and evaluates South Korea's representative e-government service, "Government 24," based on the OECD's assessment of digital government operations in chapter 4. Lastly, in Conclusion, it aims to propose policy implications based on the Korean's case about development and evaluation in Digital Government.

II. Literature Review

2.1 OECD Digital Government Index

OECD presented the Digital Government Index(DGI) in 2020 to illustrate the result of evaluation on the level of Digital Government. DGI was consisted 6 dimensions to figure out

the achievement of Digital Government Policy Framework(DGPF) that was developed by OECD. There are two parts in the six dimensions of DGPF as Foundational Dimension and Transformational Dimension, and concept measured to indicate the contents and methods in each dimension.

The DGPF is to identify the level of outcome on governmental activities for the people with adapting digital technologies and factors to governmental activities. While the evaluation model of E-Government had proposed by international organizations as United Nations, consulting organizations and researchers for long time, it is the only OECD framework as evaluation model for E-Government. (guKim, 2022) There are total six dimensions in the DGPF as ①Digital by design, ②Data-driven public sector, ③Government as a platform, ④Open by default, ⑤User-driven and ⑥Proactiveness.

The DGPF is roughly divided into two dimensions, Foundational Dimension and Transformational Dimension. Firstly, there are 4 lower dimensions in the foundation dimension as Digital by design, Data-driven public sector, Government as a platform, and Open by default. These are based on providing the foundation for the actualization of digital government, relating governance mechanisms, principles, and instruments to be able to reform effectively digital government. These focus on the service design and providing process about how to fulfil the needs of users with an immediate and proactive method. Secondly, there are two lower dimensions in the transformational dimension as User-driven and Proactiveness. These contain the digital technology to concentrate on needs of the people and the efforts to utilize the data based on foundational dimensions that evaluate the level of digital government. The radical purpose of digital government is to implement the more active governmental behavior as to move from providing the oriented government to identifying and preparing the needs of the

people in advance. The concept measured of six lower dimensions in DGPF are illustrated in Table.1 in detail.

Table 1. OECD Digital Government Policy Framework

Dimension		Concept measured
Foundational dimension	Digital by design	The extent to which a government leverages digital technologies to rethink and reengineer public processes, simplify or encapsulate procedures and create new channels of communication and engagement with public stakeholders for a more efficient, sustainable and citizen-driven public sector. A digital by design approach refers to deploying digital technologies from the start into governments’ efforts to modernize service delivery and adopt strategic mechanisms to ensure their coherent design, implementation and monitoring, no matter the channel services are offered.
	Data-driven public sector	The extent to which a government generates public value through the reuse of data in planning, delivering and monitoring public policies, and adopts ethical principles for trustworthy and safe reuse of data (OECD, 2019[7]). In a data-driven public sector, data are understood as enablers for designing policies and services. Data- driven governments ensure that public sector data are shared

		inside and/or outside the public sector in a trustworthy fashion, and under clear protection, privacy, security rules and ethical principles for national and public interest.
	Government as a platform	The extent to which a government provides clear and transparent sources of guidelines, tools, data and software that equip teams to deliver user-driven, consistent, integrated and cross-sectoral service delivery standards (OECD, 2020). Government as a platform approach calls for the deployment of a wide range of platforms, standards and services assisting teams to focus on user needs in public service design and delivery rather than on technological solutions.
	Open by default	The extent to which a government unites technology and data within the limits of available legislation and in balance with public interest. An open by default approach describes the extent to which data, information, systems and processes are open unless there is a compelling reason for them not to be, helping build bridges between all actors in order to collect insights towards a more knowledge-based public sector (OECD, 2019)
Transformational dimensions	User-driven	The extent to which a government becomes more user-driven by awarding to people a central role thus placing

		<p>their needs at the core of the shaping of processes, services and policies; and the right inclusive mechanisms for this to happen are adopted (OECD, 2018). Through engagement and collaborative mechanisms, policy processes, their outputs and outcomes are not just informed but shaped by the decisions, preferences and needs of citizens.</p>
	<p>Proactiveness</p>	<p>The extent to which a government has the ability to anticipate people’s needs and to rapidly respond to them so they do not even notice that services are delivered. Proactiveness builds upon the five above-mentioned dimensions and aims at offering a seamless and convenient service delivery experience to citizens as governments are equipped to address problems from an end-to-end rather than fractioned approach.</p>

Note. Adapted from *OECD Digital Government Index (DGI): Methodology And 2019 Results*, by OECD, 2020b

The DGI follows the ‘Recommendation of the Council on Digital Government Strategies’ (OECD, 2014) as the theoretical foundation of measurement index to assess the level of Digital Government. The OECD TF and main partner groups defined the lower dimensions and developed the measurement index based on the recommendation, since then these were

confirmed finally through feedbacks, survey reviews, workshops and webinars in every countries in the world

The DGI of OECD is the result of questionnaire investigation on Digital Government 1.0 that is to monitor the transition of recommendation¹ and to support to the evaluation of development process from E-Government to Digital Government. Digital Government 1.0 is to know the general situation of the reform progress on Digital Government to be aimed at the OECD member nation and principal partner nations based on Digital Government Policy Framework. It was first investigation to measure the progress on the situation of Digital Government, there were total 94 numbers of questions relating to six dimensions to evaluate Digital Government Index in the investigation.

2.2 Context of study

As the literature review, the DGI has significant means to provide measuring indicator that is able to investigate and to evaluate the preparation and strategies on materialization of digital government. However, those stakeholders who are in charge of planning and implementation in policy could encounter a difficult situation that how to match these measuring indicators. Because, while the DGI provide a brighten finish line in the digital government, there are the lack of practical activities as ever how could develop the digital government to content the needs of the citizens and what could be meaningful factors to achieve measuring points in 6 dimensions of DGPF.

¹ OECD. (2014). "Recommendation of the Council on Digital.

From this perspective, this study attempts to adduce the practical activities to investigate a case of Digital Government in Korea. The case of Korean government could be reasonable instance due to Korea is one of the most vigorous nations in digital government domain to build on cutting edge of Information Communication Technology (ICT) and the highest rate of users in the internet in the world, and Korea is the top of country in the world in the first evaluation of OECD DGI in 2020 as well. In addition to this, I also investigate Government 24 that is a representative digital government system in Korea for suggestion of the practical factors to provide from digital government to the people with regard to six dimensions of OECD DGI.

III. The public policy and Digital Government in Korea

3.1 The economic growth of Korea and ICT policy

In 1960~80, there was dramatically increased in Korean economy growth from the poorest nation in the world, which had been a powerful impetus to drive on the unified aim in the information communications technology (ICT) in 1990s. Because there were a plenty of the successful achievements in the centralized economic policies, these experiences led another policy to focus on ICT based on a consensus which is an aspiration to be leading group in the sector of ICT in the world. When it comes to ICT policy in Korea, Chung(2020) argues that Korea could be a leading country in the digital government in the world due to implementation of nation-directed ICT policies from the 1990s. In the early 1990s, there was a change in the main stream on industrial atmosphere in the leading countries such as USA and UK, to move on information-oriented industry, and it brought to invest enormous capital to ICT area to enter

information society. Because there needs to vast capital to prepare ICT industry consisting of technology and infrastructure such as internet cable, communications technology and human resource. According to the changed world stream, Korean government also spread out the public policy to build modernized communication infrastructure and to lead ICT industry through establishing the public enterprise with advancement on ICT technology. Korean government had significant example to fulfil the public policy successfully on Korean economy with serval public centralized investments in the past, based on as mastery experience, it could bring to confident step to prepare and implement a five-year nation ICT plan. These were sufficient to make supply to grow domestic ICT industries in Korea, since then those ICT industries who had core competencies contribute to build a virtuous circulation, promoting the advancement of ICT infrastructure and information-oriented society,

Many companies have negative aspects to invest their finance to ICT technology. As for ICT, there are required considerable investment of time and capital to develop its technology for the commercialization. Therefore, it is hard to enter this field as second mover because of limitation of investment and the uncertainty of success. In fact, while there were the number of companies to challenge ICT named venture business in 2000s in the world, several company among them could survive from harsh war in ICT to enjoy a pleasure of winner with enormous wealth. Thus, it needs to support these companies from government. For example, in Korea, Korea Telecome (KT) was initially public enterprise to be established by Korean government in 1981. After successful privatization in 2002, KT is now one of leading companies not only in Korea, but also in the world to develop first 5G technology in the world. It means KT will be able to expect an enormous amount of parts in 5G market as technology leader, putting Huawei in China, Samsung could be expected considerable profit as supplier to KT.

In addition, according to National Informatization 20th anniversary report(2014), Korean ICT industries could play significant role as three aspects to overcome International Monetary Fund(IMF) crisis in the late 1990s. First of all, the implementation of public policies in ICT which were invested continuously and powerfully could provide a foundation for domestic demand and manufacturing in Korea. Secondly, during the period of IMF crisis, there was soaring the rate of growth on the ICT industry, bringing the increase in employment and export. Lastly, information-oriented society could ensure the efficiency and transparency of nation to overcome financial crisis with sustainable economic development based on innovation and creativity.

3.2 The ICT innovation and needs of the people

Korean government played the leading role in the principal information technology policies for last 30 years. With development of technology in ICT field, one of the most significant change is a convenience in the real life. People do not must visit a bank to transfer from their account, and a city hall to get issued their resident registration. Not only that people do not have to wait public transportation for long time because of estimate system which inform the arrival time to the citizen on of public transportation such as subway and bus. While it is true that the people's life has been convenient like these, they want to use more simply and a variety of functions in their life.

Recently, Korean government has reflected positively these requests from the public to implement several policies as "Smart". The term "Smart" originally comes from the acronym "Self-Monitoring, Analysis, and Reporting Technology" but smart technology goes beyond just the normal sending and receiving of information and the traditional turning things on and

off. Instead, it offers the people much more interaction and control, which is always connected, through the use of the Internet, smart phones, smart cars, Internet of Things (IoT), and other smart devices.

Such situation is easily seen in the leading countries in digital society with similar terms. While it could be different word to explain according to their environment, it is quite similar the basic concept and direction to pursuit among them. And there are required a cutting edge of ICT technologies in this stage such as artificial intelligence (AI) and Big Data and Internet of Things (IoT) in the government aspect.

3.3 The governmental activities forward Digital Government

Nowadays, Korea is one of the most leading countries in Digital Government in the world due to Korean government prepared and implemented actively the ICT policy since 1990s. The purpose of e-government is to efficiently implement electronic processing of administrative tasks, thereby enhancing the productivity, transparency, and democracy of administration, with the aim of improving the quality of life for the citizens (Ministry of the Interior and Safety, 2017). E-government is a government that utilizes information and communication technology, reforms the way administrative tasks are handled, enhances the efficiency and productivity of administration, and provides citizens with prompt and high-quality administrative services (Ahn, M. S. 2001). In these view, when There appeared a new ICT factor in the Korean society such as Asymmetric Digital Subscriber Line (ADSL) and E-government, Korean government has positively reflected in the ICT policy with making the comprehensive plan and enacting related act based on the needs of the citizens and researchers.

Furthermore, such government activities have a continuity on the organization and policy regardless of change of main governments in Korea. In December 1994, Ministry of Information and Communication was reshuffled from Postal Service Ministry to react actively at digitization and to develop the information and communications industry in Korea. This organization is connected to Ministry of Science and ICT until the present to manage from postal business to science and ICT. In addition, Korean government enacted a ‘Framework Act on Informatization Promotion’ to accelerate the national informatization, and it was altered a ‘Framework Act on Intelligent Informatization’ in December 2020 to stipulate requirements as a fund for preparation and performance of intelligent informatization. These institutional frameworks could be sustained for approximately 30 years to provide institutional continuity on ICT in Korea.

Table 2. The Significant Governmental Activities according to ICT Factors

Year	ICT Factors	Significant Governmental Activities
1993~1997 14th president (Kim Young- sam)	World Wide Web (WWW), Computerized Bulletin Board System (CBBS), Supercomputer, Asymmetric Digital Subscriber Line (ADSL)	- (1994.02) Introducing Supercomputer in the public sector - (1994.12) Reshuffling from Postal Service Ministry to Ministry of Information and Communication - (1995.03) Making the comprehensive plan to establish the high-speed information communication infrastructure for information base - (1995.06) Enacting Framework Act on Informatization Promotion - (1996.01) Preparing Informatization Promotion Fund - (1996.06) Establishing the basic plan for promoting informatization - (1996.09) Operating national administration network in

		<p>high-speed</p> <ul style="list-style-type: none"> -(1997.10) Introducing Electronic Document Management System (EDMS) in the government
<p>1998~2002 15th president (Kim Dae-jung)</p>	E-government	<ul style="list-style-type: none"> - (1999.02) Introducing the public certificate - (2000.01) Emphasizing the powerful information nation in New Year Address in the new millennium - (2001.03) Enacting the first E-government Act in the world - (2002.10) Exceeding the number of members 10 million of high-speed internet - (2002.11) Achieving the 11 tasks for E-government - (2002.11) Launching Government for citizen system
<p>2003~2007 16th president (Roh Moo-hyun)</p>	Government for citizen (G4C)	<ul style="list-style-type: none"> - (2003.04) Organizing Committee on Government Innovation & Decentralization under a presidential advisory body - (2003.08) Announcing E-government Roadmap - (2003.11) Introducing Business Management System in government - (2003-2005) Advancing Government for citizen system - (2003-2007) Pursuing the 31 tasks for E-government - (2007.09) Holding a ceremony for complete E-government
<p>2008~2012 17th president (Lee Myung-bak)</p>	Smartphone, Hacking, Personal information	<ul style="list-style-type: none"> - (2008.02) Abolishing the Ministry of Information and Communication - (2008.12) Holding proclamation ceremony for vision on national information - (2009.11) Organizing Committee on National Information Strategy - (2009.12) Launching Minwon 24 system - (2010.01) Achieving the first rank in the world in the evaluation on UN E-government

		<ul style="list-style-type: none"> - (2010.07) Having business report to president on pursuit policy for Smart Work - (2011.03) Announcing pursuit plan for Smart E-government
2013~2017 18th president (Park Geun-hye)	Hyperfast broadband	<ul style="list-style-type: none"> - (2013.04) Establishing the Ministry of Science, ICT and Future Planning - (2013.06) Holding proclamation ceremony for vision on Government 3.0 - (2014.06) Achieving the first rank in the world in the evaluation on UN E-government for 3 years in a row - (2014.07) Organizing Committee on pursuit of Government 3.0 - (2016.04) Announcing comprehensive plan for E-government 2020 - (2016.04) Launching Government 24 system - (2017.03) Announcing basic plan for Intelligent Government
2017~2021 19th president (Moon Jae-in)	Artificial Intelligence (AI), Big Data, Cloud	<ul style="list-style-type: none"> - (2017.07) Launching the Ministry of Science and ICT - (2017.09) Organizing Presidential Committee on the Fourth Industrial Revolution - (2017.11) Holding the ceremony for the 50th anniversary of E-government - (2018.06) Introducing Single Sign On(SSO) in public system - (2019.10) Announcing the pursuit plan for Digital Government Innovation - (2020.06) Announcing the development plan for Digital Government Innovation - (2020.10) Achieving the first rank in the world in the evaluation on the OECD 2019 Digital Government Index - (2021.02) Expanding private digital signature in public

		system
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Note. Reproduced from *Korean E-Government's 50-year history*, by Ministry of Public Administration and Security, 2017

In 1996, the first 'Basic Plan for Promoting Informatization' was established, aiming to prepare for a leap into an advanced ICT nation. This plan focused on 10 main tasks for ICT promotion, early development of high-speed information networks, and building the foundation for the ICT industry.

As the ICT environment underwent significant changes in 1997 due to the IMF economic crisis in Korea and the shift towards a knowledge-based economy, there was a demand for policy adjustments and enhancements. In March 1999, the "Cyber KOREA21" vision was formulated to achieve the vision of creating a creative knowledge-based nation.

Subsequently, in April 2002, the "e-KOREA VISION 2006" was established, taking into account global trends and the need to enhance the ICT skills of the entire population. In December 2003, a modified version of the third plan, titled "Broadband IT KOREA VISION 2007," was introduced, aligning with the new government's vision. Additionally, in 2006, the "u-KOREA Basic Plan" was developed to accelerate the realization of a ubiquitous society in line with rapid technological advancements.

During the Kim Dae-jung administration, the Electronic Government Act was enacted in 2001, and a special committee for the electronic government, directly overseen by the President as part of the Presidential Agenda, was established.

In the subsequent Roh Moo-hyun administration, efforts were made to promote government innovation and decentralization from the early days of its tenure. The government selected 31 key tasks for the Electronic Government and actively pursued them. As a result, South Korea achieved the top ranking in the UN E-Government Survey for three consecutive years in 2010, 2012, and 2014.

With the widespread use of the internet and the expansion of ICT throughout society, the limitations of existing policies focused on promotion and dissemination became apparent. Issues such as hacking and personal data breaches highlighted various societal challenges related to IT usage, leading to new demands in the field of ICT policy.

To address these fundamental issues and adapt to the paradigm shift from promotion to utilization of ICT, the Lee Myung-bak administration formulated the "Fourth Basic Plan for National Informationization (2008-2012)" in December 2008. This plan aimed to realize a progressive knowledge-based information society characterized by creativity and trust.

During the Park Geun-hye administration, there was a growing need to redefine and transition the role of ICT in overcoming long-term global economic challenges and increasing uncertainties. With ICT integrated into all aspects of society, the focus shifted towards harnessing the creativity and imagination of the people combined with ICT to solve societal issues and create new value. In December 2013, the "Fifth Basic Plan for National Informatization (2013-2017)" was established, with a focus on realizing a creative economy and a happy Republic of Korea. Additionally, the government actively pursued the "Government 3.0" policy during this period.

Subsequently, during the Moon Jae-in administration in December 2018, efforts were made to maximize the opportunities presented by the Fourth Industrial Revolution and ensure

that all citizens could benefit from intelligent innovation. The "Sixth Basic Plan for National Informatization" was formulated to outline the vision for national informatization for the next five years. This plan aimed to expand the role of intelligent information technology, including artificial intelligence, big data, and cloud computing, with a goal of increasing the proportion of information projects using these technologies. The plan also aimed to provide personalized intelligent services in areas such as healthcare, welfare, and education, as well as apply intelligent technology to crime prevention, disaster prediction, and fine dust management. Furthermore, it sought to activate the data economy through support for data construction, open data, storage, distribution, analysis, and utilization across the entire data lifecycle, ultimately increasing the utilization rate of big data by companies until 2022.

IV. The development of Digital Government in Korea: Case of Government 24

4.1 The Initial Government 24(Minwon 24)

Most government employee in community service center in 1980s had to spend quite a lot of time to issue a public document such as a copy of the resident registration and authentication certificate of personal seal impression. First, they had to search where is the original document in the storage and to copy that document, making a check list who copy this document. Second, they had to prepare the two types of government's seal and stamp to assure the official validity of the document. Finally, they had to confirm that the document is accorded with the request of the people and take the money from requestor for the payment. There were always crowded with such requests in front of a reception desk in the community service center and the task was one of the most important assignments in the public service areas.

There was innovation in the public service in 1990s with ICT technology, introducing personal computer and printer. Though there remained manual tasks in the public service due to a lack of computerization on administrative documents, most public employees could be riddance from burden to issue the public documents with computerizing system, clicking the computer mouse on the chair. The change was remarkable in the public service areas with advancement of computing technologies in 2000s, and the initial Government 24 was launched eventually in 2010 named Minwon 24.

Minwon 24 was the public service based on online to be operated by Korean government that wherever those all people who want public request could be available always to gain the information, application, inspection and issue on the computer monitor without visiting administrative agency. Minwon 24 was a compound words to consist of Korean words as Minwon, means public request, and number as 24, means 24 hours. In the past, G4C(Government for Citizen) was used for a moment before 2010, it was changed to make easier to remember for citizen through public contest in 2010.

Table 3. Main achievements of Minwon 24

Period	Achievement
2000.11. ~ 2001.05.	Establishment for innovation plan for people-oriented public request service(BPR/ISP)
2001.11. ~ 2002.12.	Building and making up projects for Government for citizen(G4C) system
2003.06. ~ 2003.12.	Building project for public request system based on internet in Government for citizen(G4C)
2003.09. ~ 2004.05.	Previous project for advancement to expand G4C system (BPR/ISP)

2004.12. ~ 2005.09.	First phase in the system building project for public request system based on internet and for expansion of sharing administrative information
2005.12. ~ 2006.08.	Second phase in the system building project for the expansion of G4C system
2006.10. ~ 2007.05.	Third phase in the system building project for the expansion of G4C system
2007.07. ~ 2007.12.	The project to change an equipment for G4C system
2009.06. ~2009.12.	First phase in the development project for G4C system
2010.05. ~ 2010.11.	Second phase in the development project for G4C system
2010.08	The change of service name from G4C to Minwon 24
2008.01. ~ 2020.11.	The project to maintain the system for Minwon 24
2020.11	Close Minwon 24 service to integrate with Government 24 service

Note. Reproduced by the author

4.2 The New Government 24

Korean government significantly developed the design on Government 24 service, consolidating the menu that those people who want to use government services could access to the service in anywhere and whenever in 2018. There were two innovations on the menu from initial to new version. First, the new Government 24 had provided an integrated service focused on the application menu from composed the governmental services, the governmental subsidy and the policy information. Second, the homepage design was innovated to make to easy access to the favorites service as composing a screen. Furthermore, there was two significant developments on the environment to access to the service. The change on logging method in

the web service is one of the developments. In the past, there was used only authentication certificates to print an official document such as a copy of the resident registration. Nowadays, there is supported to login the service through a mobile fingerprint identification without authentication certificates. Another advancement in the service is to support mobile environments. Those who want to issue the electronic document log in the mobile with the mobile fingerprint identification or financial certificate and make electronic storage in Cloud. The electronic document in Cloud is protected with encryption system as Block Chain and is always to print for 90 days with the process of identification. As a result, according to ‘2022 e-Government Service Usage Survey Report’(NIA,2023), among South Korean citizens aged 16 to 74, 99.1% have used e-government services provided by the government.

Table 4. The main tasks in Government 24 in each developing projects

	Project	Main tasks
2016	The first development step in phase 1 of the integrated service system in administrative service	<ul style="list-style-type: none"> ■ Integration of User Interface between Governmental Portal and Public Service 24 ■ Expansion in the type of customized service ■ Function strengthening in user-centered search ■ Design of connection with other administrative services
2017	The second development step in phase 1 of the integrated service system in administrative service	<ul style="list-style-type: none"> ■ Integration and connection between the customizing counter for the beneficiary and the working counter of public official in Public Service 24 and others ■ Connection demonstration with other administrative services

2018	The first development step in phase 2 of the integrated service system in administrative service	<ul style="list-style-type: none"> ■ Switch and application for standard system environment in Government 24 ■ Expansion in the connection with other administrative services
2019	The second development step in phase 2 of the integrated service system in administrative service	<ul style="list-style-type: none"> ■ Improvement of function in convenience service for the public ■ Consultation on connection and integration for implementation plan in Government 24 ■ Expansion in the connection with other administrative services
2020	The third development step in phase 2 of the integrated service system in administrative service	<ul style="list-style-type: none"> ■ Connection with policy information, distributing and providing from the governmental web sites ■ Expansion and advancement in the customized service focused on life cycle ■ Establishment of the Information Strategy Planning(ISP) to expand the customized service for the beneficiary ■ Switch of Government 24 at each step caused by the close of Public Service 24 ■ Expansion in the connection with other administrative services
2020	The first development step in the customized service for national subsidy in Government 24	<ul style="list-style-type: none"> ■ Establishment of the integration management system on the benefit service for central department ■ Establishment of the customized information system for central department service ■ Connection with qualification and supply-demand information for customized guidance for central department service ■ Handling and managing on on-line request for

		central department service
2021	The second development step in the customized service for national subsidy in Government 24	<ul style="list-style-type: none"> ■ Establishment of the integration management system on the benefit service ■ Expanded establishment of the customized information system on the benefit service ■ Establishment of the application and reception counter through on-line and off-line
2021	The first development step in the foundation of connection service for customizing real-life in Government 24	<ul style="list-style-type: none"> ■ Development of one-stop service ■ Expand of connection service and the switch that off-line application is e-enabled ■ Deletion of Plug-in software
2022	The third development step in the customized service for national subsidy in Government 24	<ul style="list-style-type: none"> ■ Completion of the integration management system on governmental benefit service for public agency, small business owner and others ■ Expand of the customized information service on national subsidy ■ Establishment of the one-click service to request at once based on on-line request platform ■ Expand of switching the service from off-line to on-line ■ Expanding Establishment of the integrated reception counter based on the internet
2022	The second development step in the foundation of connection service for customizing real-life in Government 24	<ul style="list-style-type: none"> ■ Development and expand of the new one-stop service ■ Expand of connection service and the switch that off-line application is e-enabled ■ Enhancing convenience for user in Government 24 ■ Spreading service platform for Digital

		Government ■ Expand of Application service in mobile phone
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In Governmental service, there are the total of approximately 1,000 integrated services to apply and to print connected with central administrative agencies, public agencies and local governments. In addition, it is available to access to appropriate the services based on life cycle from infants to senior citizens according to the matching criteria in approximately 90,000 services. Not only that, there is shortcut menu to recommend the service in the main page based on the users age and favorite, to know they could apply what kinds of the governmental services though the web page.

When it comes to Governmental subsidy, it is customized service for user and user's families to provide a cash, goods in kind and voucher from central government, local government and public government. There are approximately 10,000 services in the government subsidy, the users could apply the services with the several personal information such as resident area, age, gender and earning section. When the users select their personal information on the webpage one by one, there will be shown the appropriate results from the matching service with governmental subsidy.

Table 5. Comparison of service in Minwon 24 and Government 24

Service	Minwon 24	Government 24
Information on the public request	<ul style="list-style-type: none"> ■ Guide the public request to make easy to access the information wanted. ■ There were the general information, field-specific information and information by index in searching method. ■ There were approximately total of 5,000 the public requests in the service, and the user could get information such as agency, cost, necessary documents, period, law system about the public request. 	<ul style="list-style-type: none"> ■ Guide the public request to make easy to access the integrated information and service to divide 3 sectors as services, governmental subsidy and policy information. ■ Design the service page to carry out in a process among searching, confirmation, application and issue. ■ In governmental services, it provides the total of approximately 1,000 integrated service to connect with each agency, and the total of approximately 90,000 information on the service of central administrative agency, public agency and local administrative agency.
Application the public request	<ul style="list-style-type: none"> ■ Users could apply approximately total of 1,800 the public request in online service. ■ According to the public request, some results could get by post, and others could print the result in direct. 	<ul style="list-style-type: none"> ■ In governmental subsidy, there are the total of approximately 10,000 available services from central administrative agency, local administrative agency and public agency as cash, goods in kind and voucher.
Inspection the public request	<ul style="list-style-type: none"> ■ The service for the people who could open total of 22 the public requests such as land register and resident registration. 	
Issue the public request	<ul style="list-style-type: none"> ■ The service to print the result of public request within few minutes that the people apply in the services always, even foreign 	<ul style="list-style-type: none"> ■ In policy information, it is available to access integrated

	<p>countries.</p> <ul style="list-style-type: none"> ■ The service provides to print approximately total of 500 public documents such as land register, resident registration and certificate of disability. 	<p>public information in governmental agencies such as the policy information in the field, the organization structure of government, the web/mobile page of government, the administrative committee, the news of local administrative agency and the information of public contest.</p>
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Note. Reproduced by the author

4.3 The evaluation and of Digital Government in Korea

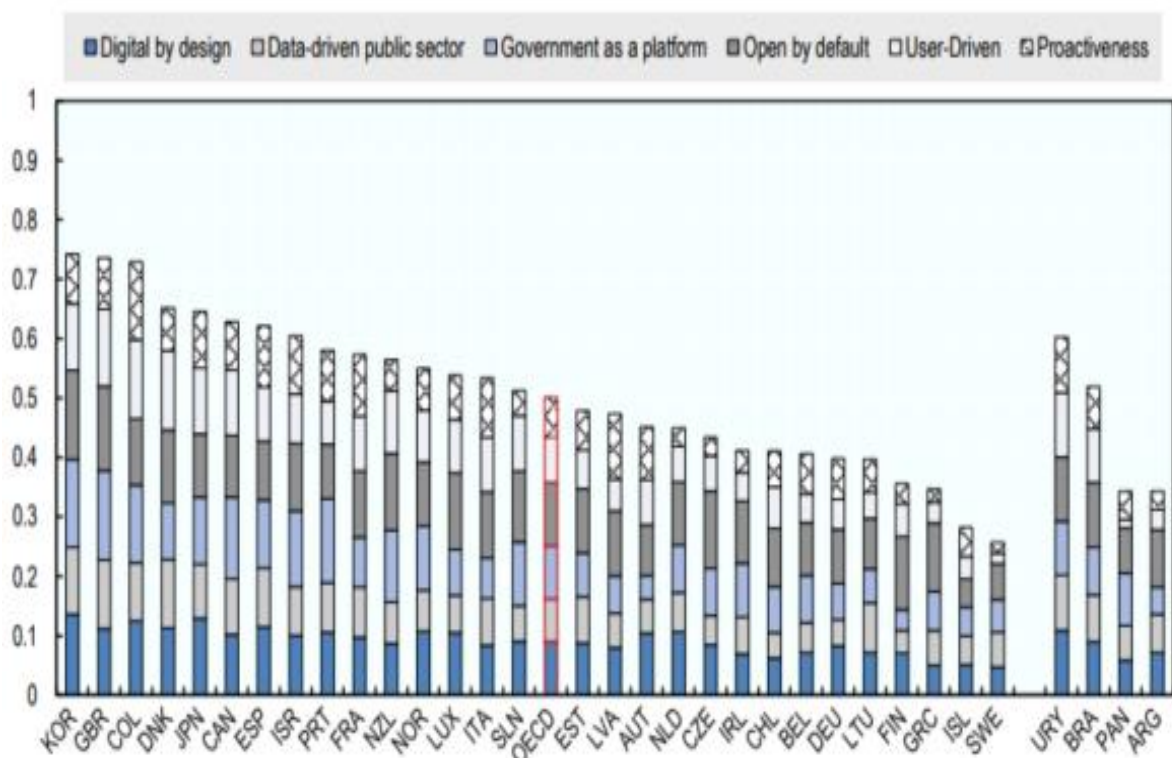
According to the Ministry of the Interior and Safety (MOIS, Minister Chin, Young) in October 2020 announced that the Korean government ranked first on the 2019 Digital Government Index (DGI) launched by the Organization for Economic Co-operation and Development (OECD)

This evaluation result clearly demonstrates that South Korea is leading the global transition to digital government, as evidenced by its consecutive top rankings in various international indices. South Korea ranked first in the "OECD 2019 Open Government Data Index," first in the "2020 UN E-Government Development Index," second in the "2020 UN E-Participation Index," second in the "2020 IMD (International Institute for Management Development) Digital Competitiveness" among countries with a population of over 20 million, and first in the "2020 Bloomberg Digital Transformation Index."

The "OECD Digital Government Index" is a metric introduced in 2020 to measure the digital transformation level and maturity of member countries. It evaluated 33 countries (29 members and 4 non-members) over a two-year period from 2018 to 2019 across six evaluation criteria.

According to the OECD report, South Korea achieved the top overall score in the digital government assessment, scoring 0.742 out of a possible 1 point, followed by the United Kingdom at 2nd place with a score of 0.736.

Figure 1. The OECD Digital Government Index Composite Results



Note. Adapted from OECD Digital Government Index(DGI) Methodology and 2019 Results, by OECD, 2020.

Nowadays, Government 24 is undoubtedly a representative service of Korea's E-government, continually improving based on the demands of the public. Therefore, presenting South Korea's evidence evaluated in the six evaluation criteria of the "OECD Digital Government Assessment" and analyzing the case of Government 24 can serve as a good example for government officials who may be unsure of how to apply and plan for the OECD Digital Government Index.

Table 6. Overview the Korea's Digital Government in OECD Digital Government Index

	Drivers	Achievements	Challenges
Digital by Design	A government designed in a digital manner	The government's production and innovation of public services based on digital principles	The preparation of planning in advance to establish information system
Government as a Platform	Creating an ecosystem of guidelines, tools, data, standards, and common components	The efforts to change institutions and administrative procedures through active communication with citizens	To realize the Digital Platform Government, efforts are underway to establish the Digital Platform Government Council directly under the President

<p>Open by Default</p>	<p>Making government data and policy-making processes accessible to the public for engagement</p>	<p>Breaking down barriers between departments and efforts to develop an integrated linkage system</p>	<p>Considerations on how sensitive data, such as personal information, can be utilized through anonymization and similar methods</p>
<p>Data-driven Public Sector</p>	<p>Data as a strategic asset and involves the implementation of governance structures to harness its potential in creating public value</p>	<p>The utilization and standardization of data for public service and efforts to create an expandable environment</p>	<p>Guidelines for maintaining data produced by individual agencies at the intergovernmental level, including strategies for standardization and data quality</p>
<p>User-driven</p>	<p>The role of people's needs and convenience in shaping processes, services, and policies</p>	<p>The information that provided actively on major government policies and services</p>	<p>The efforts to made to encourage the exercise of citizens' right to information disclosure and promote public agencies' obligation to disclose information through the operation</p>

			of the Information Disclosure Act
Proactiveness	The government's and civil servants' capacity to anticipate people's needs and respond promptly	The personalized services tailored to individual users' needs based on their login information, guiding them to frequently accessed services by age, gender, and life cycle	The "AI Government" project as a representative project of the Korean New Deal

Note. Reproduced by the author

- **Digital by Design**

- **Definition:** Refers to a government designed in a digital manner, where digital is an essential transformation element integrated throughout the policy process. It requires the establishment of clear leadership along with effective coordination and execution mechanisms.
- **Drivers:** This concept involves the establishment of clear leadership within an organization, coupled with effective coordination and enforcement mechanisms. Its goal is to transform "digital" into more than just a technical aspect, making it an integral element for reimagining and restructuring public processes,

streamlining procedures, and creating novel avenues for communication and engagement with the public.

- **Achievements:** South Korea secured the 1st place in this evaluation category. It was highly evaluated for the government's production and innovation of public services based on digital principles.
- **Case:** Government 24 provides more than 10,000 civil services, such as issuing resident registration certificates and passports, through simple online applications and issuance with digital authentication.
- **Challenge:** To establish information systems, a structured approach is mandated by law. This approach includes identifying the strategic information requirements within the organization through an Information Strategy Planning (ISP), describing business activities and their related data areas, providing an integrated framework for information system development, and creating an integrated information system plan for implementation. And, the Information System Master Plan (ISMP) is legally required to solidify these steps in the detail.

- **Government as a Platform**

- **Definition:** Government plays a platform role by providing clear and transparent guidelines, tools, data, and software, enabling user-centric, seamless, and cross-sector integrated services.

- **Drivers:** This strategy revolves around creating an ecosystem of guidelines, tools, data, standards, and common components. These resources empower teams to prioritize user needs in the design and delivery of public services.
 - **Achievements:** South Korea ranked 1st in this evaluation category. It was highly evaluated for its efforts to change institutions and administrative procedures through active communication with citizens.
 - **Case:** Government 24 offers fingerprint authentication and QR code mobile login for mobile users, as well as 24/7 public consultation through interactive chatbot services.
 - **Challenges:** To realize the Digital Platform Government, efforts are underway to establish the Digital Platform Government Council directly under the President. This council will deliberate and coordinate key policies related to the Digital Platform.
- **Open by Default**
 - **Definition:** This evaluation assesses the efforts of the government to contribute to the public good and achieve knowledge-based administration by disclosing government-held data, information, systems, processes, and more
 - **Drivers:** This approach emphasizes making government data and policy-making processes, including algorithms, accessible to the public for engagement, while respecting existing legal boundaries and finding a balance between national and public interests.

- **Achievement:** South Korea ranked 2nd in this evaluation category. It was highly evaluated for breaking down barriers between departments and efforts to develop an integrated linkage system.
- **Case:** Government 24 provides access to various policy information from 12 agencies and 4 policy portals, allowing citizens to view approximately 600,000 original documents in the form of press releases, policy news, research reports, publications, and more.
- **Challenges:** Considerations on how sensitive data, such as personal information, can be utilized through anonymization and similar methods are essential in data utilization.

- **Data-driven Public Sector**

- **Definition:** It involves reusing data when planning, delivering, and monitoring policies, adopting rules and ethical principles to ensure trusted and secure data reuse. Data is managed as a strategic asset for creating public value and providing agile and responsive public services.
- **Drivers:** This principle recognizes data as a strategic asset and involves the implementation of governance structures to harness its potential in creating public value. This is achieved through the planning, execution, and monitoring of public policies and services, all while adhering to ethical principles and regulations to ensure safe, trustworthy access, sharing, and reuse of data.

- **Achievements:** South Korea ranked 3rd in this evaluation category. It was highly evaluated for the utilization and standardization of data for public service and efforts to create an expandable environment.
 - **Case:** South Korea operates under the "Act on the Promotion of Public Data Use" and opens various forms of public data held and managed by central government, local governments, and public institutions to the public, allowing the creation of new data values. Government 24 offers services for applying and viewing public data.
 - **Challenges:** Guidelines are needed for maintaining data produced by individual agencies at the intergovernmental level, including strategies for standardization and data quality. It is also essential to provide guidance on creating metadata that enables easy identification of the various types and formats of data held by individual agencies.
- **User-driven**
 - **Definition:** Government responds to people's needs and convenience in the process, services, and policy formation.
 - **Drivers:** This principle centralizes the role of people's needs and convenience in shaping processes, services, and policies. It promotes the adoption of inclusive mechanisms to facilitate this involvement.
 - **Achievements:** South Korea ranked 4th in this evaluation category. While information on major government policies and services is actively provided,

there is still room for improvement in terms of creating channels for citizen participation.

- **Case:** In 2018, Government 24 hosted the "Open Communication Forum" to allow citizens to participate directly in the revision of major services. Citizens could experience and provide feedback on the revised major services from a user perspective.
- **Challenges:** Efforts are being made to encourage the exercise of citizens' right to information disclosure and promote public agencies' obligation to disclose information through the operation of the Information Disclosure Act. Additionally, proactive disclosure and full-text disclosure initiatives aim to provide information that citizens desire and need in advance.

- **Proactiveness**

- **Definition:** A proactive approach predicts people's demands and responds quickly to them while avoiding the need for cumbersome data and service provision processes.
- **Drivers:** Refers to the government's and civil servants' capacity to anticipate people's needs and respond promptly. This ensures that users are not burdened by cumbersome processes related to service delivery and data management.
- **Achievements:** South Korea ranked 12th in this evaluation category. There is room for improvement in terms of proactively providing services that citizens desire.

- **Case:** Government 24 provides personalized services tailored to individual users' needs based on their login information, guiding them to frequently accessed services by age, gender, and life cycle.
- **Challenges:** In July 2020, the South Korean government successfully launched the "AI Government" project as a representative project of the Korean New Deal, aiming to leap into a digital government that proactively provides personalized services to citizens based on login information.

Overall, Korea's achievements in OECD DGI illustrate its commitment to building a highly efficient and citizen-centric Digital Government to match the needs of the people forward enjoying their more convenient life with the most advance technology.

V. Conclusion

5.1 Research summary and implications

South Korea achieved rapid economic development in the 1980s and 1990s, which laid the foundation for significant national investment and cultivation of Information and Communication Technology (ICT) in the following years. As a result of these efforts, South Korea emerged as one of the most advanced nations in the world in terms of ICT development in the 2000s. This progress had a profound impact on the daily lives of Korean citizens, particularly in the field of public services.

In the past, processing administrative tasks and requests required physical visits to relevant government agencies and identity verification through cumbersome procedures, consuming individuals' time and personal resources. However, today, Korean citizens could easily access necessary public services anytime and anywhere using not only personal computers but also smartphones due to ICT advancements. These achievements received international recognition, with Korea ranking first in the OECD Digital Government Index in 2020 and consistently securing the top spot in the UN E-Government Assessment for three consecutive years, solidifying its global leadership in e-government.

The primary focus of this paper is to investigate how Korea achieved outstanding results in the field of E-government and analyze Korea's flagship E-government service, "Government 24," based on the OECD Digital Government Index, to provide policy implications to other countries. The research findings highlight several policy roles that contributed to Korea's remarkable success in E-government:

(A) Government-Led Planning and Execution: The Korean government actively invested in essential elements such as plans, strategies, infrastructure, policies, regulations, and governance to enable the development of e-government. This proactive approach allowed Korea to achieve significant results within a relatively short timeframe, serving as a valuable reference for other nations.

(B) Active Adoption of Technology and Concepts: The Korean government embraced new technologies and concepts in the ICT field, leading investments in these areas. Recognizing the importance of rapidly adopting new and vital information technology and infrastructure, Korea established a national framework to foster ICT innovation. This effort

included the formation of expert groups, the development of strategies and policies, and other proactive measures.

(C) Integration of Systems and Services: Korea proactively adopted a strategy of integrating public services, leading to the development of flagship services like "Government 24." By consolidating various public services that were previously provided separately by different agencies, Korea enhanced citizens' convenience. This integrated approach garnered high satisfaction and support from the public, enabling a prompt and effective response to citizens' demands.

These factors collectively contributed to Korea's remarkable achievements in e-government and established it as a global leader in the field.

5.2 Significance and Limitations of Research

With the advancement of ICT technology and the widespread use of smartphones in contemporary society, there is an increasing need for digital transformation across various sectors. Governments worldwide are also intensifying their efforts towards digital transformation in response to this demand. According to the Second Basic Plan for E-Government (Ministry of Public Administration and Security, 2021), major countries globally, including Germany with its Digital Strategy 2025 (2016), Australia's Digital Transformation Strategy 2025 (2018), the United States' Federal Cloud Computing Strategy (2019), and Japan's Digital Government Execution Plan (2019), are actively pursuing digital transformation as a fundamental national strategy. Their focus revolves around digitizing public services, expanding cloud infrastructure, and similar initiatives.

Within this international trend, the examination and presentation of Korea's E-government case provided in this study can serve as an invaluable reference for countries that are in the early stages of establishing their e-government systems. It is anticipated that the developmental process and service evaluation, as elucidated in this research, can effectively prepare and guide e-government initiatives in other nations.

However, there are several caveats to consider when applying Korea's case to other countries. Firstly, the geographical characteristics of Korea should be acknowledged. One of the key success factors scrutinized in this study is Korea's proactive investment in ICT infrastructure. Nonetheless, this advantage emanates from Korea's relatively compact land area, approximately 10.04 million hectares, ranking 109th globally. Consequently, in Korea's case, establishing a nationwide ICT infrastructure network may be feasible with relatively modest investments. Nevertheless, in larger countries with extensive territories, the cost-effectiveness of ICT infrastructure development necessitates careful deliberation.

Secondly, not all information policy initiatives in Korea have yielded unequivocal outcomes. Korea has implemented a plethora of policies pertaining to information technology, e-government, and digital government innovation over the past three decades. However, not all these policies have achieved significant success. This underscores the imperative of persistent governmental efforts and effective policy implementation in the realm of information technology, e-government, and digital government innovation. It is crucial to recognize that attaining noteworthy results from specific policies or plans can be a formidable task, and the application of Korea's case should be approached judiciously, taking these limitations into account.

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