Chapter 6

Digital Government in the Republic of Korea: Evaluation and Challenges

Inkyo Cheong
Jungran Cho

1. Introduction

The foundations for 'Korea's economic miracle' were built in the 1960s (Seth, 2013). Although the country was poor, support for education and training from the United States (US) resulted in a significant amount of outstanding talent – from statisticians to economists and engineers. The Government of the Republic of Korea (henceforth, Korea) promoted a systematic economic development policy in the 1960s. It focused on improving the efficiency of public administration by enhancing its information processing capabilities in policymaking decisions. Noting that government research and management were needed to allocate scarce productive resources efficiently, Korea began using a computer named IBM 1401 on 24 June 1967 for the population census.[1] The IBM 1401, a mainframe computer commercialised by IBM in October 1959, was the best-selling computer at the time, comparable to the Ford Model T. Government officials became aware of the advantages of computerisation while formulating economic development plans in the 1970s, and later recognised that administrative computerisation was a decisive factor in improving administrative efficiency, with accurate data and statistics. In 1978, an administrative computerisation pilot project was promoted, and a portion of the national budget was invested in administrative computerisation although the country was poor and depended on foreign aid.

Korea ushered in the era of e-government in the 1980s and expanded its scope substantially in the 1990s and 2000s. Following the success of e-government, Korea entered the era of digital government with the conspicuous development of the digital economy.[2] The digitalisation of government activities is expected to play an important role in government services to the people and the development of the economy. Although evaluation results may vary depending on the criteria, Korea's e-government and digital government system generally obtains high evaluations from international organisations such as the United Nations (UN) and the Organisation for Economic Co-operation and Development (OECD).

Koreans are accustomed to fast processing in private services such as banking, telephony, and electricity, in addition to public administration. With the establishment of the digital government system, most public services can also be applied for and provided via the internet or smartphones. With a tap on a smartphone screen, people can communicate with government agencies and many complaints can be solved. Similar services are provided in other countries, but in Korea, the range of digital service application is wide, and the service provision speed is fast. Due to these factors, Korea is highly regarded internationally in the field of e-government and digital government.

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[1] To promote the development of e-government by informing the public about the excellence and convenience of e-government and raising its international status, 24 June was designated e-Government Day, and a commemorative ceremony has been held on 24 June every year since 2018.

[2] Definitions of the digital economy vary, but what they have in common is that they are new business models based on the internet and digital technology. The digital economy implies that all economic activities are based on the internet. e-Business is synonymous with the digital economy. Since it is based on the internet, it is possible to run a business with a small number of people, and economic activities (e.g. technology development) are carried out quickly. Consumption patterns are also being diversified and specialised through online shopping, and product information via the internet or e-marketplace has been diversified.

Digitalisation can provide a new growth engine for the Korean economy. Korea entered the world's top 10 economies (based on the gross domestic product (GDP) data of the World Bank)[3] in 2022 thanks to export-led growth of traditional industries, but its growth potential has been weakening over the last decade. Korea believes that it can expand its growth potential through a rapid transition to a digital economy. Efforts are being made to transition to the digital economy, but the country is experiencing slow progress. The smart factory support project is a typical example. Smart factories use information and intelligence technologies such as cloud computing, big data, artificial intelligence (AI), and the internet of things (IoT) to improve productivity and the flexibility of production. Smart factories can also contribute to job creation by encouraging reshoring of Korean companies operating abroad, and are central to the government's Fourth Industrial Revolution plan. Korea should not be complacent about the success of its e-government and should extend digitalisation beyond government to its major industries.

Korea has extensive literature on e-government, but little on digital government. In some literature, the two terms are used interchangeably. This may be because the concept of digital government has only recently been established and is still in the research stage. Digital government tends to be developed based on e-government, and the concept of digital government is not fixed yet in Korea, although several large-scale projects are under way to transform e-government into digital government. This chapter evaluates the development of digital government in Korea. Section 2 presents the effects of digitalisation by reviewing related reports and papers, and Section 3 presents the development process of e-government and digital government in Korea. Section 4 evaluates Korea's e-government and digital government, and Section 5 presents challenges and tasks for the continuous development of digital government in Korea.

2. Impact of Digitalisation and Digital Government

2.1. Impact of digitalisation

Digital technologies have changed almost all aspects of the day-to-day interactions amongst people, business, and the government. For consumers, digital technology has brought lower prices, more options, and better information, but also new potential risks. Businesses may face disruptive changes brought about by digital technologies. Innovators and fast adopters of new technologies may thrive, but other businesses may struggle to adapt to the digital economy. For governments, digital technologies trigger large-scale changes ranging from regulatory design to service delivery. Digital transformation and commercialisation are becoming increasingly important to governments and businesses (Australian Productivity Commission and New Zealand Productivity Commission, 2019).

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[3] Refer to the analysis of the Top 15 Countries by GDP in 2022 (Global PEO Services, n.d.).

The development of digital technology has completely changed the industry landscape. A typical example of a change in the industrial structure due to digital transformation is in audio-visual services such as broadcasting and media. Most countries impose many regulations and restrictions on the services because broadcasting and media greatly influence the way of thinking and living patterns of the people. However, due to the development of information and communication technology (ICT), big tech companies such as YouTube, Netflix, and Google have taken over these services around the world, either by technically bypassing national regulations or through the exertion of US government influence to change them in some cases. In the 21st century digital era, data are emerging as one of the critical production factors – along with land, labour, and capital. Digital transactions have been growing faster than traditional business. The digital economy grew at an average annual rate of 5.2% per year from 2005 to 2019 in the US. Some 9.6% of US GDP in 2019 was created by the digital economy, accounting for 7.7 million US jobs, which is equivalent to 5.0% of total US employment (US Congressional Research Service, 2021).

Today, digital technology has become a part of everyday life, and digital government services have increased the efficiency and convenience of citizens. This allows everyone to communicate freely with public authorities and access the necessary information with a few clicks. Drop-down menus and easy-to-fill online forms are becoming commonplace, instead of filling out paper documents and waiting in lines for long periods. Smartphones can access the services they need at any time, enabling governments to reduce labour costs and encourage collaboration within departments.

The internet contributes to the cheap dissemination of information flows between countries and reduces trade costs. ICT improvements facilitate price advantages amongst countries and improve mechanisms of cooperation between importers and exporters. The reduction of fixed costs in trade lowers the barriers of entry to the market and expands trade through extensive margin (exports of new products) rather than intensive margin (more exports of the same item). The digital economy has contributed to the fragmentation of international trade and global value chains (GVCs). The fragmentation of GVC production depends on digital connectivity, creating production efficiencies across international borders (Pomfret, 2021).

Physical goods are costly to store and transport to consumers, whereas digital products are easily portable and transported with almost zero marginal costs because they store electronic copies of the originals. This dramatically lowers shipping and trade costs, especially when digital products are replacing physical versions (Quah, 2003). Data can be copied without loss of fidelity at a relatively low cost (Shapiro and Varian, 1998), and can have a non-rivalry (non-contention) property (using one person without disturbing another) (Duch-Brown, Martens, and Mueller-Langer, 2017). These properties allow larger production runs and higher consumption than would be possible or cost-effective as a physical product (Australian Productivity Commission and New Zealand Productivity Commission, 2019). However, there is no such thing as a free lunch. Although the digital world can bring many advantages, serious side effects include privacy violations and infringement of intellectual property rights.

Digital technology is part of the Fourth Industrial Revolution, distinct from the primary (steam engine), secondary (electrical energy), and tertiary (ICT-based) industrial revolutions (Schwab, 2016). Digital technologies have transformed the way information is produced, accessed, and used by combining technology and human capabilities in unprecedented ways through AI, deep learning, big data analytics, and other technologies (Schäfer, 2018). Digital companies collect significant amounts of data on service users through their business platforms. In addition to the sale of simply processed data, the data collected are used for various purposes such as improving service quality and targeting advertisements for higher revenue.

Companies with new business models, armed with digital technology, can drive out incumbents from the market. New technologies, such as digital photography, can cut prices to virtually zero. With a digital camera or smartphone, you can take as many pictures as you want without consideration of cost, as the marginal cost of photography has dropped to a negligible level. Twenty years ago, 80 billion photos were taken worldwide per year, but this rose to 1.6 trillion in 2015. In addition to the price reduction, improvements include waste reduction, photo quality, and ease of editing (Varian, 2016). On the other hand, KODAK, which had dominated the global photographic film market for the previous century, went bankrupt and many film labs closed.

New businesses will affect the interests of existing businesses. Due to such interaction, government regulations come into play. These regulations are often closely linked to policies on digital government. The Australian Productivity Commission and New Zealand Productivity Commission (2019) pointed out the conflict between digital innovation and existing regulations. Digital transformation is in conflict with many existing regulatory regimes. Technology can make progress at a faster rate than regulators can manage. It creates new products and services that are not managed by current rules and practices, or where the responsibilities of multiple systems may work against new businesses. Many government organisations are chasing new business models in the digital world, which can create an unequal competitive arena for incumbents and new entrants. The costs of regulations that are not compatible with new digital businesses can impede the entry of innovative goods and services to the market. Conversely, new entrants often take advantage of regulatory loopholes to grow unhindered by regulations that incumbents must comply with. The digital economy continues to present new challenges for regulators, but traditional principles for good regulations remain relevant. The regulatory framework should be technology-neutral and reviewed regularly.

2.2. Literature on digital government

Although e-government and digital government are often used interchangeably, their meanings are quite different. Whereas e-government focuses on ICT (internet, telecommunications, IT services, related hardware, and software) used to realise government goals, digital government refers to a comprehensive digital system to better serve citizens and the private sector. e-Government includes computerisation and networks of procedures, documents, and services to improve governance using information exchange technologies. Digital government refers to a set of effective mechanisms for improving the management and organisation of government services from the viewpoint of service consumers. Digital government improves the transparency of government services, and civil servants are obliged to be more accountable for the services they provide.

e-Government is a system that allows individuals, companies, and public officials to access large-scale public information collected under certain guidelines, and use it for business or public policy purposes. Digital government has broader implications than e-government. It is the use of ICT solutions by governments to provide online services to the public, as well as facilitating interactions amongst different stakeholders and improving the inclusiveness of public policy and decision-making. It increases transparency in public services and enables open and user-centric approaches and operational innovations beyond e-government services that set up ICT-based procedures. Digital government refers to the overall administrative process involved in providing open and efficient services to the public through digital technologies. Digital government transformation goes beyond simply putting forms online: it means assessing the needs and interests of users and improving services accordingly. In other words, a two-way service improvement system is operated in consideration of users' responses.

Research results on the economic feasibility of digital technology are also applied to government activities. Digital government in public governance that integrates the effectiveness of the availability and quality of data as well as the technologies used in the public sector can be seen as essential aspects of innovation, co-production, transparency, and public value creation (Gil-Garcia, Dawes, and Pardo, 2018). Luna-Reyesa and Gil-Garcia (2014) stated that digital technology and ICT can facilitate government transformation (institutional transformation) taking place. Noting that it is not easy to confirm this transformation empirically, they presented the theory of co-evolution of technology, organisational networks, and institutional devices in government transformation.

The realisation of digital government facilitates the growth of the digital economy, but the coverage of the digital economy in the context of digital government will not be the same as the digital economy in the business sector (OECD, 2014), although this is a missing gap in the related literature. Definitions of the digital economy range from a narrow focus on the ICT sector to a broader definition that includes other sectors integrated with digital technologies (Zhang and Chen, 2019). Public authorities may use electronic technology to provide and request necessary information from other government

departments, businesses, or individuals. The ease of data transfer between departments will facilitate collaboration amongst the agencies. Digital government services include any process that the government provides online. The adoption of digital technology makes it easy for all citizens, regardless of where they live, to access government information and request the services they need, as long as they are connected online. Moreover, as the internet network and facilities improve, the services that governments provide will increase due to network effects (Yun, 2020).

Although we are witnessing the growing importance of the digital economy, there are significant differences in digital trade policies amongst the world's major countries. This point is related to digital government policy. As digital transformation has turned an astronomical number of transactions into machine-readable data, collected and stored data become the basis of a new business – big data. Here, data management rules and institutions are critical for the development of the data business. Entering the era of the digital economy, two extreme cases are in competition. The US is advocating freedom for digital trade, while China is adhering to digital sovereignty. Because international rules on digital trade have not been established, conflicts between international law and national sovereignty are emerging (Office of the US Trade Representative, 2021).

3. Korea's e-Government and Digital Government

3.1. Overview of the development of e-government

The Government of Korea has paid high attention to administrative efficiency. Korea promoted national informatisation using ICT as a national development strategy. In the late 1970s, a pilot project for administrative computerisation was carried out, and in the 1980s, the foundation for e-government began to be laid. In the 1990s, Korea established and implemented an e-government promotion plan.

In line with the development of computer technology, Korea has established and implemented e-government goals in four stages, as summarised in Table 6.1. First, in the 1970s and 1980s, one of the main policy goals of ruling governments was to increase administrative efficiency by computerising administrative tasks. Second, from the late 1980s to the 1990s, the government attempted to establish the National Basic Information System by connecting the central and local administrative agencies with a network through the expansion of information and communication networks. The basis for computerisation, transmission, and common use of tasks amongst various administrative agencies was prepared and gradually implemented.

Table 6.1. **Development of Korea's Major e-Government Projects**

Period	Details and Progress of e-Government
1970s–1980s	Introduction of computers and computerisation of basic administrative tasks
1980s–1990s	National Basic Information System Project
1990s–2000s	Launch of nationwide networking for informatisation
2000s–2010s	Advancement and spread of e-government

Source: KIPA (2020).

Third, in the 2000s, Korea advanced the e-government service by building a national backbone network and completing administrative computerisation. With the enactment of the Electronic Government Act in 2020, efforts to realise the goals of e-government, such as efficiency, democracy, and transparency, have been spurred. To develop e-government systematically, Korea has implemented several projects and programmes according to the stage of technological development, which are summarised in Table 6.2. Public officials who were accustomed to documents and manual work opposed such programs. Computer education and training were provided to public officials to reduce resistance to the use of information technology in their administrative work. With capacity building of public officials and the enactment of laws, administrative computerisation and the introduction of e-government in Korean public institutions was promoted, although it was not successful in all cases.

Table 6.2. **Key Periods in the Korean e-Government Process**

Period	Period	Period	Details and Progress of e-Government
1970s– 1980s	Computerisation of basic administrative work	• Introduction of computers and computerisation of government affairs	• Master Plan for the Computerisation of Administration (First and Second)
1980s– 1990s	National Basic Information System Projects	• Construction of information and communication infrastructure through the establishment of a national backbone network. Resolving the problem of information linkage due to overlapping investment and insufficient standardisation between ministries • Promotion of computerisation, automation, and informatisation of the entire national society in preparation for the information society • Fostering the information industry	• Act on Expansion of Dissemination and Promotion of Utilisation of Information System (NBIS Act) • Establishment of basic plans for each of the five areas

Period	Period	Period	Details and Progress of e-Government
1990s– 2000s	Launch of nationwide networking for informatisation	• To expand the national infrastructure in preparation for the 21st century, the government built an information highway that can transmit information such as voice, data, and video as well as multimedia information that appears through the convergence of information technology.	• Master Plan for Promoting Informatisation
2000s– 2010s	Establishment of basic infrastructure of the e-government	• Efficient promotion of national informatisation • Strategic fostering of the information and communication industry • Innovation in the public sector through e-government	• Electronic Government Act

Source: KIPA (2020).

3.2. Transition to digital government

As digitalisation progressed after 2010, the government pursued a transition from e-government to digital government. Korea's transition to digital government has been smooth, due to its high capacity in e-government. The country has been recognised for excellence in the UN E-Government Survey since 2010. Since the early 2000s, 11 large-scale national e-government projects, various roadmap projects of government and public institutions, and the integration of more than 16,000 information systems have been promoted.

The OECD (2014) concluded that digital government creates additional value for public services through reviews of policies and programmes and service provision via digital technology. It added that digital government depends on an ecosystem that connects everything and supports the production of and access to data, services, and content through interactions across governments. When the concept of the Fourth Industrial Revolution was presented at the World Economic Forum Annual Meeting at Davos in 2016, Korea established a digital strategy for the public sector. Initially, the goal of the strategy was to increase administrative efficiency and improve public convenience, but it has been changed to expanding the value of services in the public sector. The goal was upgraded to re-establish the relationship between the people and the government by enhancing people's access to the public sector via ICT.

Although the government considered transitioning to digital government in 2017, the concept of digital government was not clear and the infrastructure needed to be improved. It was also difficult for the public to understand the difference between e-government and digital government. In the end, although the government was aiming for digital government, it decided to use the term e-government at that time. In October 2017, the Ministry of the Interior and Security (MOIS) designated 24 June e-Government Day to raise public awareness of e-government through the revision of the Electronic Government Act. The aim was to share the achievements of e-government, which had established itself as Korea's global brand, and to solidify its status as a world-leading country in the field of e-government. The results of a comprehensive e-government evaluation have been announced annually at a commemorative ceremony since the first e-Government Day on 24 June 2018. The date was chosen because 24 June is the day the Statistics Bureau of the former Economic Planning Board installed Korea's first computer in 1967 and started its operation. The government invested in an expensive mainframe computer in 1967 despite the prevailing poverty. There was a lot of trial and error, but Korea subsequently experienced rapid growth. It advanced in all areas of administration and civil affairs by using ICT and networking infrastructure, giving it a competitive edge globally. Korea's e-government, which started with a single computer, developed rapidly over the next 50 years and has emerged as a world-recognised e-government powerhouse.

In 2018, Korea decided to pursue digitalisation of the public sector, i.e. digital government. It considered digitalisation an effective mechanism to spur innovation in the public sector and enhance national competitiveness. Digitalisation is expected to be an effective means for maximising 'social impact', by forming new institutions and communication structures for interacting with various actors while strengthening the role of people in the public sector (Table 6.3). It was decided to spread digitalisation within government organisations to act as a factor inducing government innovation and changes in the way government works. Digitalisation was adopted to increase the efficiency of the public sector, with an end-to-end method that transcends organisational boundaries, and to increase citizens' satisfaction with public sector services. As digital government develops and matures, the provision of public services is expected to improve by adapting to the flexible environment, which will increase the public's trust in the government according to the National Information Society Agency (NIA, 2018).

Table 6.3. Transition Towards Digital Government

e-Government => Digital government		
Source of works	Issues raised by people and public officials	Automatic detection of issues and problems → automatic suggestion of solutions
Policymaking	Government-led policy management	Policymaking led by the people (evidence-based, data-informed policymaking)
Field administration	Focusing on simple business	Solving complicated and complex problems
Service approach	management processes	Collaborative production of qualitative and emotional services
Service content	Focusing on quantity and efficiency	Daily life stages of the life cycle
Delivery	Online and mobile channels	Demand-based multiple online and offline channels

Source: MOIS (2019).

3.3. Recent developments

Digital government emerged as one of the hottest issues in the official debate of Korea's presidential election in March 2022. Although significant data are collected and stored automatically while performing administrative tasks or providing services to the public, it was argued that the government has not optimised its use of such data in improving its services. Some candidates argued that they should switch to a digital platform government from e-government. Candidate Seok-ryeol Yoon,[4] who was elected Korea's 20th president in this election, advocated a system in which the government could pre-empt people's needs using AI technology based on big data and provide the corresponding services. e-Government is a supplier-oriented policy system in which public officials decide on and implement policies, but digital platform government is a user-oriented policy based on big data. The objective of digital platform government announced during the Korean presidential election in 2022 is to improve the ongoing digital government project. Candidates' explanations of digital platform government were not very different from those of digital government. In the end, regulating digital platform drew criticism for being used as a political slogan.

Recent digital government-related policies in Korea evolved as follows. First, in 2020, the government declared its intention to improve the perception of public services by accelerating the digital transformation. MOIS and NIA, the leading agencies for digital transformation, held a ceremony to celebrate the third e-Government Day and announced that they would share the achievements of digital government and present the mid- to long-term policy direction to the public. In 2020, the convenience of digital government in people's daily lives following the coronavirus disease (COVID-19) pandemic was evaluated, and its results were reflected in the mid- to long-term policy directions of the Second E-Government Basic Plan to be pursued until 2025 (MOIS, 2020a).

Second, after the decision to promote digital government, public services were diversified or improved to make them more user-friendly. For example, Korea has decided to accelerate the introduction of mobile IDs to expand non-face-to-face services. The mobile civil servant ID was introduced in 2020 as a pilot project, and the mobile driver's licence was added in 2021. Korea also increased the number of documents online in 2021, such as the certificate of family relations, which ordinary citizens can apply for and download free after their identity is confirmed. In addition, people can search for personal information held by public institutions and download it directly from government servers or banks.

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[4] Presidential candidate Yoon announced his intention to provide digital government at the People's Power Party (Yeouido, Seoul) on 2 January 2022, saying 'I want to change the Korean government into a digital platform government. This is a government tailored to the people based on digital technology and big data. The reason for promoting a new digital platform government is, first, to accurately identify and service what the people want based on scientific data, not people. Second, it is for the government to provide services first to the people who have not been able to find their rights because they did not know how. Third, it is to ensure that all citizens receive fair and honest service, regardless of whether they have an acquaintance with public officials'.

Korea introduced the My Data service, whose anonymised data can be easily transmitted to others for business purposes. This has enabled the development of a new data industry, which provides a variety of personalised services in finance, medical care, and employment.

The government also accelerated innovation in providing digital services to people. In 2021, the app of the Kukmin Bisu (national secretary)[5] function was expanded to provide notifications for various activities, such as health check-ups under the national medical insurance system, national scholarship applications for university students, and tax information for taxpayers. All government subsidies and services were integrated into a single 'Government 24' portal to make it easier to check information and submit applications. In line with the digitalisation trend, 11 call centres of central ministries and 156 call centres of local governments and public institutions are being integrated into one call centre. Registered complaints are designed to be processed automatically following digital government guidelines.

Third, the government expanded the availability of data for business use and for promoting public–private cooperation. The government also improved the entire process of data availability and utilisation from the user's point of view, and to build the foundations for creating new industries such as autonomous driving and digital healthcare.

Fourth, the government expanded the digital infrastructure of the public sector. By converting the government communication network from a wired network to a 5G wireless network, it supported rapid business processing and on-site administration. The training/education curriculum for public officials was reorganised so that all civil servants could participate in digital government innovation and engage in digital transformation. The process of nurturing experts in public office necessary for new technologies, such as AI and data analysis, was also expanded.

Finally, in recent years, Korea has taken a whole-of-government approach to transition from an information society to an intelligent society. Based on e-government capabilities, Korea is promoting the development of digital technology and the transition to digital government. The country is concentrating its capabilities on digital transformation for non-face-to-face activities, which have become routine since the COVID-19 pandemic. For a successful digital transformation, Korea has established and is pursuing the 6th National Informatization Basic Plan (2018–2022), which aims to transform Korea from an information society to an intelligent information society. The COVID-19 pandemic quarantine measures accelerated non-face-to-face digitisation, but the performance of digital government may not have reached the goals of the plan. The government will evaluate the performance of the digital government and introduce additional programmes in 2024.

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[5] As a kind of notification service, it refers to a service that provides important information to individuals by e-mail or text message.

4. Evaluation of Korea's e-Government and Digital Government

4.1. International evaluation

The UN E-Government Survey, issued by the Department of Economic and Social Affairs, comprehensively evaluates the E-Government Development Index of UN Member States. This development index is determined by comprehensively evaluating the Member States' Online Service Index, Telecommunication Infrastructure Index, and Human Capital Index. Korea has received excellent evaluations in the e-government evaluation conducted by the UN every 2 years.

Although many improvements are still needed, Korea has been at the forefront of the global e-government trend. In the global e-government evaluation conducted by the UN in 2020, Korea ranked second after Denmark amongst 193 Member States. Korea ranked third after the United Kingdom and Australia amongst 193 Member States in the 2016 evaluation. It has an excellent record, taking first place in three consecutive surveys (2010, 2012, and 2014). This is no mean feat due to the nature of the UN e-government evaluation, which quantifies and compares the levels of software and hardware elements.

The OECD released the 2019 Digital Government Index (DGI) for the first time in 2020. The assessment measures various criteria of the DGI for 33 countries (29 OECD member countries and 4 non-member countries). Korea received the highest score of 0.742 on a scale of 1, followed by the United Kingdom (0.736) and Colombia (0.729 points), Denmark (0.652 points), and Japan (0.645 points) in that order.

To learn about Korean e-government, foreign visitors continue to visit MOIS, NIA, and the Korea Local Information Research and Development Institute, which oversee e-government. The annual Korean e-government training for civil servants from developing countries is also receiving a good response. Korea is transferring its e-government and digital government system to many countries through NIA, an organisation specialising in digital transformation. In 2021, in collaboration with the Inter-American Development Bank, a seminar was held to transfer digital government policy and operational experience to civil servants in charge of e-government in Brazil and Panama. Incorporating the requests of Brazil and Panama, this seminar focused on six topics: Korea's digital new deal and digital government policy, public data, national information resources management, cases of intelligent government using AI, smart cities, and cybersecurity. The World Bank is posting comprehensive lecture content on Korea's digital information on its website so that other countries can benchmark it (MOIS and NIA, 2020).

4.2. Domestic survey

The 2020 E-Government Service Usage Survey (MOIS, 2021) was conducted from October to November 2020, based on household visit interview surveys and online surveys targeting 4,000 citizens aged 16–74 across the country. The Government 24 usage rate increased by 26.7% compared with the previous year – from 57.4% in 2019 to 84.1% in 2020 – possibly affected by the COVID-19 pandemic. In 2020, about nine out of 10 Koreans used the e-government service, and 98.1% of citizens were satisfied with the service (Table 6.4). The survey also found that most Koreans accessed Government 24 via the internet, with a minority using phones.

The most frequently used e-government services were home tax (86.5%), Government 24 (84.1%), and national health insurance (65.9%). Detailed survey results are in Table 6.5. The awareness of e-government service was 95.7%, the usage rate was 88.9%, and the satisfaction rate was 98.1%. In terms of age, the usage rate was highest amongst teenagers, and the satisfaction rate was highest amongst those in their twenties. The awareness of people in their 60s or older, the digitally vulnerable group, was 79% – up by 9.3% from the previous year.

Table 6.4. Share of Positive Responses on Digital Services by Age Group
(%)

Item	Year	Share	Age					
			16–19	20–29	30–39	40–49	50–59	60–74
Perception	2020	**95.7**	100.0	100.0	100.0	100.0	99.9	**79.0**
	2019	93.8	100.0	100.0	100.0	100.0	99.3	69.7
Utilisation ratio	2020	**88.9**	100.0	99.1	99.7	99.4	88.0	59.2
	2019	87.6	98.7	99.1	98.6	95.5	84.9	58.1
Satisfaction	2020	**98.1**	96.3	99.7	98.4	97.6	98.0	96.8
	2019	97.8	97.1	98.1	97.2	98.6	97.8	97.7

Source: MOIS (2021).

Table 6.5. Utilisation Ratios of Digital Services by Age Group
(%)

Item	Utilisation ratio		Utilisation ratio by age group (2020)					
	2019	2020	16–19	20–29	30–39	40–49	50–59	60–74
Home tax	97.2	**86.5**	58.5	73.8	**90.0**	**91.5**	**88.2**	**92.7**
Government 24	57.4	**84.1**	78.5	80.3	**87.8**	**85.6**	**82.3**	**86.1**
National health insurance	68.8	**65.9**	32.0	48.7	**67.5**	**73.4**	**74.1**	**67.9**
Express trail	77.6	58.2	48.1	**67.7**	51.3	54.3	**63.8**	**58.3**
Worknet	–	38.4	**49.6**	**57.4**	39.9	31.6	35.0	24.9
NICE (payment)	12.2	32.9	**45.2**	34.3	30.9	38.4	26.1	29.1
Village Info	36.1	31.6	24.8	27.0	30.4	29.6	**38.3**	**36.5**
Request hub	–	19.8	8.0	11.9	**24.4**	**23.0**	**20.7**	**21.7**
Q-Net	–	14.3	**22.9**	**23.4**	14.5	12.6	10.7	9.0
I-Sarang	20.3	13.2	4.6	1.9	**30.4**	**14.7**	8.7	9.1

Source: MOIS (2021).

4.3. COVID–19 and Digital Government

Korea's digital government strategy demonstrated excellence in its response to the COVID–19 pandemic. Informatisation and digital government functions were widely used in virus pre-quarantine and prevention, transparency of information disclosure, control of infected persons, rapid response, and follow-up management such as disaster relief subsidies. For example, after receiving an online application for personal disaster assistance for COVID-19 victims and payment of national disaster assistance, 99.5% of the assistance could be paid within 1 month (MOIS, 2020b). For reference, in the US, it took several months to classify victims and identify personal information, so it decided to pay the same amount to all citizens. In a situation where many countries were experiencing technical difficulties in distributing disaster aid, Korea had exemplary performance.

In the early days of COVID-19, Korea became a successful model for controlling the epidemic with its e-government and excellent ICT base. Major countries (including the G20) and many international organisations (e.g. the World Bank, the Asian Development Bank, and the OECD) requested Korea to share the experience of its response to the pandemic. Through collaboration amongst relevant ministries and institutions, such as the Ministry of Economy and Finance and the Ministry of Science

and ICT, a book in English on Korea's experience with COVID-19 was published titled *Flattening the Curve on COVID-19* (Government of Korea, 2020). In addition, NIA published *Korean ICT Services Against COVID-19 Pandemic* (NIA, 2022), an English case book covering the major government systems and public services provided by the Korean government to respond to COVID-19 in stages (diagnosis, epidemiological investigation, patient/contact management, and prevention). Korea's infectious disease control system was established before the outbreak of COVID-19 in the context of e-government, and its power was confirmed while responding to the pandemic.

5. Challenges for Korea's Digital Government

Digital government can be understood as the establishment of an overall system to ensure that various data collected and stored by public institutions are used efficiently for improving the quality of government services to the public. To protect privacy, the data is anonymised and subjected to further processing to become big data. The size of data is important, but it will be more important that companies or governments actively utilise it. Although Korea has received excellent evaluations for its e-government, it has many areas to improve or supplement. Korea must develop from a digital government to a digital platform government, not only in terms of a political slogan.

The concept of digital platform government received attention in 2009 when the Obama administration in the US promoted the establishment of the world's first national data platform government, advocating open government. As of 2020, about 220,000 data sets have been provided to businesses and the public, and raw data can be viewed and downloaded by accessing a US government website (data.gov). Similar measures were taken in Korea. In early 2021, Korea decided to support an integrated platform for public data owned or created by 925 public institutions covering national and local governments. The programme was established so that the private sector could easily search for, analyse, and visualise the desired data. Analysis using individual data has become much easier, but the level of use of integrated data is not very high. The format of each data set is different, and it is difficult to create a single integrated database without significant additional work.

Korea's digital platform government aims to innovate operational methods of e-government for the 21st century. In the era of the great digital transformation, the digitalisation of government cannot be delayed. The world is suffering from severe distortions of the supply chain, high energy prices, stagflation, and geopolitical conflict. The government and companies should find solutions using a data-based decision-making system to enhance the national crisis response ability in the deteriorating external conditions. For this, it is necessary to collect and combine the data from each department and institution, and dig out the implications contained therein. The government is preparing a blueprint of

digital government for the coming years based on the achievements of its past three decades. Many challenges remain to be solved for the second leap forward. For the development of digital government, it is urgent to improve the awareness of digital government above all else. The organisation and roles of the government and related institutions that promote national informatisation and e-government should be reorganised. When new technologies such as AI and cloud computing emerge and spread, new public demand appears and the administrative service environment changes. To reflect this in a timely manner and upgrade the system, it is necessary to increase investment continuously.

Perceptions regarding digital government need to be corrected. The view that digital government involves a simple server and storage installation is still prevalent. Support and interest in digital government – including upgrading – have declined in Korea despite its emergence as a role model on the world stage. Once the necessary system for digital government is built, it is difficult to secure an additional budget. Now that we have all the necessary systems in place, there is a danger of complacency in simply maintaining the status quo rather than pursuing constant upgrading. In this regard, it is necessary for the fiscal and budgetary authorities to understand that continuous investment must be made due to rapid technological development.

In addition to the challenges discussed above, the implementation of digital platform government faces several obstacles. It also has inherent limitations, which can be broadly divided into two categories: the data point of view and the service point of view. From the data point of view, the nature of the public platform contains sensitive information (personal information, etc.). To minimise these problems, related laws (the Data 3 Acts) were revised and implemented in 2020, but concerns about personal information breaches remain. There is still a limit to the provisions of data due to difficulties in data processing and securing data required by the laws. Sometimes, it is difficult to standardise various data sources. From a service point of view, there is a difference between the service of the data platform and the request of the user, so there is a limit to the user-centred service. Only government-accredited institutions can process government data in accordance with regulations and make it available to the government and the private sector to prevent personal information breaches and protect privacy, but processed data may not meet user needs. It can also be difficult to combine various types of information to meet users' demands. Therefore, it is difficult to implement a virtuous cycle for platform business value creation, and the lifespan of service and data may be short.

Under the current digital government, the information governance system is still inadequate, so data accumulation, sharing, and utilisation are not smooth. Cooperation between major actors – such as the central government, local governments, residents, and ICT companies – should be improved. The information-sharing mechanism needs to be enforced, and coordination amongst various data generation and management organisations should be enhanced through interlinkages.

Lastly, Korea's challenges in corporate digitisation and corporate utilisation of data should be emphasised. Digital government will expand its performance when it is linked with the digital system of business activities. Although Korea's digital government is highly regarded, the digitalisation of enterprises is still on the slow side. Over the past two decades, Korea has remained at the forefront of ICT technology thanks to the outstanding performance of its mobile devices, chips, and consumer electronics. However, today, Korea is lagging advanced countries in emerging Fourth Industrial Revolution sectors such as 3D printing, AI, big data, and cloud computing. Only 23% of Korean companies have used cloud computing, while it has become part of daily business life in more than half the companies in the Nordic region (Pak, André, and Beom 2021). Although digital technologies are increasingly powerful and suitable for small and medium-sized enterprises (SMEs), there is a wide gap between large enterprises and SMEs in the adoption of sophisticated digital technologies. Since Korean SMEs are less knowledge-intensive, they are less prone to innovation than manufacturing. Some 57% of service companies do not invest in innovation (i.e. research and development). In general, innovation in the service industry is weaker than in the manufacturing industry (Kang and Lee, 2019). Korea is one of leading ICT countries, and the ICT sector has become one of the main economic drivers in the nation. However, the potential to develop smart factories, create value through the servitisation of manufacturing, and increase the productivity of services is still untapped. To this end, it is necessary to support the adoption of digital technology through investment in ICT technologies, strengthen research and development support for innovative and productive SMEs, and reduce institutional and bureaucratic interventions that impede the adoption and diffusion of digital innovations (Pak, André, and Beom, 2021).

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