# **Open Government Data Policies and Practices in the Republic of Korea**

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**Case Study** 

### **Open Government Data Policies and Practices** in the Republic of Korea



APCICT ASIAN AND PACIFIC TRAINING CENTRE FOR INFORMATION AND COMMUNICATION TECHNOLOGY FOR DEVELOPMENT

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### **Executive Summary**

We, as citizens, often rely on the availability of open government data (OGD) for everyday life—from checking today's weather and air quality to finding the most optimal route to a destination. More countries are beginning to recognize that OGD is essential in not only improving public service and standard of living, but also spurring national growth and development, which define national competitiveness by creating economic opportunities and a culture of innovation. These opportunities and benefits of OGD contribute to citizens' trust in government in order to meet the needs of digitally transformed economies.

Consequently, governments that have already played a major role in advancing their open data policies must secure their long-term soundness with proper policy and governance infrastructure at institutional level. When open data policies evolve, there should be a deeper understanding of the need for appropriate governance mechanisms to achieve sustainable outputs, which would provide institutional arrangements, policy mechanisms, and funding models that promote government-wide coordination. Considering the horizontal nature of open data policies, their successful design and implementation necessitate strategies that allow decision makers and interested actors to be closely collaborating within the public and private sector.

This paper explores the most current OGD policies and practices in the Republic of Korea and its relevant institutional framework. It aims to present the Korean Governance model upon open government data initiatives, including specific policies and legislations that provide solid foundation for data openness. The paper also offers a comprehensive overview of the Republic of Korea's open data reuse cases for public value co-creation, encompassing almost all areas of life such as environment, health, security, education, finance, and thus most of the Sustainable Development Goals (SDGs) adopted by the United Nations. After briefly discussing the 2018 OECD Report on monitoring and evaluation of OGD, the paper will finally conclude with Open Data Charter's recommendations for all governments aspiring to adopt a sound OGD governance model with constructive open data initiatives.

### Introduction

Opening of the government data is an essential factor for developing our society to become transparent, safe, and powerful, and is a central aspect for innovation growth of the Fourth Industrial Revolution. According to the OECD, open government data (OGD) is information contained in government databases and private servers that can be freely accessed, used, and republished by people and businesses. Citizens in many countries now regularly access information related to transportation, environment, and health through apps and other platforms built on OGD. The Republic of Korea has ranked first in the OECD OURdata (Open-Useful-Reusable Government Data) Index 2019—which measures government efforts on aspects of data availability, data accessibility, and government support for data re-use—for three consecutive times since 2015. The Republic of Korea is also a front-runner across OECD countries in OGD policies and its implementation.



Figure 1. Open, Useful, Reusable Government Data (2019)

Before diving into the discussion on OGD, it is essential to touch upon the definitions of "open data", "public institutions", and "opening up", which will appear frequently throughout this manuscript. According to the OECD, "open data" is all information or database created, processed, written, or acquired electronically, supervised by "public institutions" as a matter of duty-as opposed to unopened data, which is data that contains the rights of a third person or private information according to the legislation of public institutions. "Public institutions" include government institutions, local firms/provincial industrial complexes, primary/secondary schools and universities, and corporate bodies and organizations mentioned in Act 3, No.10 of Framework Act on National Informatization of the Republic of Korea. By principle, public institutions should make every effort to make the use of public data convenient for citizens and take the necessary measures for universal expansion of the right of use and assure the principle of equality for the access and use of public data. The commercial use of public data should not be limited or prohibited unless defined by specific regulations from the laws. Lastly, public institutions "opening up" means (1) providing information for re-use, and (2) giving the rights to use the supplied information for commercial or non-commercial purpose.

Open data provides numerous opportunities to the government, public, and businesses. For the government, it increases government trust and transparency, enhances the efficiency of policy decision making, and develops public-private service cooperation. Open data also reduces costs for the government with the development of private services. For the public, it improves quality of life by increasing efficiency, and encourages production of services and participation in policymaking by individuals. New market and industry with highly valuable businesses and jobs are created, which contribute to economic growth and enterprise efficiency. As such, OGD can produce massive economic and social ripple effects and is expected to give a new growth momentum in the low-growth economic structure as in the Republic of Korea.

To be used at their full potential, however, OGD services must align with various interests and conditions. Is the government successfully constructing policies and developing skills across the whole government to enable a culture of data openness in which OGD is the accepted norm? Is the government working to build and improve the infrastructure that supports OGD and organizational transformation in the long term? Does the government consider the need, accessibility, and convenience of the users of OGD throughout the society? These are some questions that this paper aims to explore in the following chapters regarding the Republic of Korea's OGD policies.

# Chapter 1. Korean Governance Models of Sustainable Impact upon OGD Initiatives

#### 1.1 Open Government Data (OGD) policies and strategies

Well-grounded OGD policies and strategies are pivotal in supporting sustainable policy implementation in the long-run, and the development of an OGD implementation plan complementing these policies serves as an essential role for governments to move from desired outcomes to concrete actions. An action plan is crucial in defining measures to be undertaken in a realistic manner, prioritizing them and facilitating their execution, and ensuring oversight of all aspects of OGD policies and strategies (OECD, 2018). In the case of the Republic of Korea, government-level discussions and plans for OGD management only emerged about a decade ago when the public demand for OGD was clearly on the rise with the advent of the digital era. As the government recognized that OGD would improve public service and be an indispensable source of national economic growth and development, it formally designated its Open Data Project as a critical national project to implement the core value of Government 3.0 and Creative Economy. A brief roadmap of Korean OGD policies is as follows:

Policies (mid & long-term)	<ul> <li>1<sup>st</sup> Open Data Master Plan (2013~2017)</li> <li>2<sup>nd</sup> Open Data Master Plan (2017~2019)</li> <li>1<sup>st</sup> National Core Data Release Plan (2015-2017)</li> <li>2<sup>nd</sup> National Core Data Release Plan (2017-2019)</li> <li>Government-wide Data Release Plan(2019~2021)</li> </ul>
Strategy	Open Data Innovation Strategy (2018~2019)
Implementation Plan (Yearly)	<ul> <li>Open Data Implementation Plan (2014~2019)</li> <li>Annual National Core (open government) Data Release Plan (2015~2018)</li> </ul>

#### Figure 2. Roadmap of Korean OGD policies

Source: National Information Society Agency (NIA), 2019

Since the enforcement of "Act on Promotion of the Provision and Use of Public Data" in 2013 in the Republic of Korea, the foundation has been laid for the opening and use of public data. Government ministries and agencies began to understand that "openness by default" should be the rule rather than the exception, and always be within the limits of personal privacy and data protection legislation. While the concept of maximum disclosure of information prevails with regards to open government policy, "openness by default" is balanced with data protection regulations and exceptions, such as information containing personal privacy, national security, business confidentiality, and intellectual property.

#### Figure 3. Information Disclosure Act (1996) VS. Open Data Act (2013) Release and Reuse



- · Basic Principles : Open by default, Right to use commercially
- **Scope** : All data of the central, local gov't and public institutions (except personal privacy, national security, business confidentiality and intellectual property etc.)

Source: National Information Society Agency (NIA), 2019

In 2017, a new "Open Data Innovation Strategy" was launched, which was centered around five main aspects: to change ownership of data from the government to the public; publish open data of all governments and public institutions in a principled manner; create economic and social values; adopt data and evidence-driven administration; and strengthen public and private partnerships as a driver of the open data ecosystem.

#### Figure 4. Open Data Innovation Strategy five main aspects



Source: National Information Society Agency (NIA), 2019

Table 1. Open Government Dat	a key strategies and initiatives
<ul> <li>To guarantee citizens' rights t</li> <li>To support to improve citizens economy by opening government</li> </ul>	o access government data s' qualities of life and to develop the national nent data
Strategies	Key initiatives
<ul> <li>User-centric release of open data</li> <li>Building infrastructure for the release and Reuse of open data</li> <li>Open data ecosystem for economic values</li> <li>Ensuring sustainable driving capacity</li> </ul>	<ul> <li>National open data portal</li> <li>National core data based on users demands</li> <li>Chief data officers, Standardization of open data and data quality management</li> <li>Startups supporting center, open data challenge challenges etc.</li> </ul>

Other key strategies and initiatives on OGD are outlined below.

Source: National Information Society Agency (NIA), 2019

To uphold key OGD initiatives, the Korean government established a communication channel named "Data 1st Street", which has eliminated all log-in procedures so that users can easily request OGD. All users can openly review their OGD requests, preventing any duplicate submission or provision. Popular data sets are shown with "likes".



Another example that demonstrates the OGD initiative of user engagement and communication is Open Data Forum, which is a public-private partnership community among diverse stakeholders to solve economic and social problems using open data and

promote reuse of OGD in the private sector. Members primarily consist of civil society, private companies, academia, media, government, and public institutions.



Source: National Information Society Agency (NIA), 2019

With all the aforementioned efforts made by the government, the Republic of Korea was able to achieve the following statistics on OGD publication as of December 2019. Top 5 popular data sets of 2019 are also listed below.

#### Figure 5. Open Government Data publication statistics (2019)

Publication/Releases (2019.12)

### Published Data: 33,600 datasets

- File Data: 30,150 datasets (90%)
- Open API: 3,330 datasets (10%)
- Standardized Data: 120 datasets
- Publishers: 730 (datasets %)
  - Central Gov'ts: 44 (9.4%)
  - Local Gov'ts: 250 (73%)
  - Public Institutions: 414 (16.6%)
  - Others: 22 (1%)

 File Data
 Open

 Agricultural/fishery
 API

- rate and costs Korean companies enteringoverseasmarket
- List of books in public libraries in the city of Daejeon
- List of international airports in the world
- Administrative agency locations and contacts

# Air pollution info Weather forecasts Astronomical info (24 solar terms) Bus routes in Seoul Real estate transactions info

(sales & lease)

Source: National Information Society Agency (NIA), 2019

# 1.2 Establishing institutional governance as a necessary path to support sustainability and innovation

A permanent existence of the institutional structure developed to facilitate the design and implementation of the open data policy is an essential component of the governance system and a principal enabler of political leadership support and engagement. As such, it is critical to secure open data policy permanence and continuity, which can be highly conditioned by the existence of a sound institutional governance model that is sustainable and resilient to changing political cycles and agendas. The supply of a steady flow of

financial and human resources to maintain policy coordination and government-wide implementation, and the availability of the required policy levers for consistent and efficient execution and coordination are critical conditions for ensuring long-term sustainability and durability of open data governance (OECD, 2018). In addition, the government should be responsible for providing guidelines and setting standards for OGD, as well as for increasing awareness regarding OGD. The following section describes the Korean governance structure for the implementation of open data.

#### o Institutional governance framework of OGD in the Republic of Korea

The competent department which is in charge of directing various issues—including the government's policies on the supply and use activation of public data—is the Ministry of Interior and Safety, which contributes to job creation and social development through innovation growth. Its minister appraises the organization and status of supply of public data, reports the appraisal to the Open Data Strategy Council and in Cabinet meetings, and notifies the results to the Head of public institutions.

The Open Data Strategy Council is a control tower of the government in charge of public data launched in 2013 that deliberates and revises main policies and plans related to public data, along with inspecting and appraising items of enforcement. Notably, 50% of the committee consists of civilian committee members so that non-governmental opinions are properly reflected. The Council works to expand the opening and use of the government data in quantity and quality by inducing the participation of the public, businesses, and social organizations.

Every three years, ministers from both the Ministry of Interior and Safety and the Ministry of Science and ICT consult and integrate sector planning of states and local governments, after which they confirm the results through the deliberation and decision of the Open Data Strategy Council. General planning includes the expansion of the supply and use activation of public data, promotion of private use, quality control and improvement in the system and regulations, education and training regarding the administration of public data, and planning on the finance and investments required for the supply and use of public data.

The National Information Security Agency (NIA) is the main institution in charge of OGD to support design and implementation of policy and strategy. NIA operates Public Data Utilization Support Center, of which the tasks include research and investigation on the policies and statistics related to public data supply and use, management support for processing OGD, and international and private cooperation of public data. It also provides education and training to enhance data using the capability of the public and managers in public agencies and promotes the use and establishment of public data portals.

The OGD management system for registering and managing open data is exemplified in the public data portal (www.data.go.kr), which helps to monitor the status of retention, management, and opening of data. Each public agency needs to register its public data into the list of management system for data synchronization and management. For data registered in the open data portal, the applicant can search and download the data they are looking for directly. For any data not registered in the portal, the applicant can request it through the portal, which is referred to the Open Data Chief Supply Officer of the public institution that possesses the corresponding data. The given Institution judges the suitability of the supply of the data and notifies the applicant of the result (either the approval or the refusal of the request). The applicant whose application has been refused can request a dispute settlement from the Open Data Supply Dispute Mediation Committee within 60 days of the notification. Established under the Ministry of the Interior and Safety, the Committee mediates disputes between public institutions and applicants related to the denial and suspension of public data supply.

# 1.3 Establishing the legal and regulatory environment as a critical success of sustainability and innovation

It is worth acknowledging that coordinating OGD policies and efforts heavily relies on the necessary compliance tools, or clear legal basis for the mandate of the responsible body in charge of policy and agenda so as to assert their authority, sustainability, and legitimacy with relation to other public sector institutions. Evidence from the OECD Open Government Data Survey 3.0 indicates that many countries draw upon the freedom of information and/or access to information laws as the most relevant legal basis supporting OGD (OECD, 2018).

In the Republic of Korea, the Open Data Law stands as the archetype of a solid source of the mandate for the National Information Society Agency (NIA). The law was enacted under Article 5 of the Open Government Data Act on OGD's supply and use activation, propelling various policies by obligating the overall opening of government data. Article 13 of the Open Data Law specifically mandates the NIA to have the responsibility to "provide support for promoting the provision and use of public data" (OECD, 2018). The Open Data Strategy Council was established in accordance with the Open Data Law. Some key characteristics of the Korean legal framework for OGD are shown below:

 Table 2. Korean Open Government Data legal framework characteristics

Requires explicitly the publication of open data in **machine readable format and in open format** with their associated metadata

Demands the publication and update of an open data catalogue for all institutions

Provides a **taxonomy of datasets** to be published in priority

Mandates a national and institutional Chief Open Data Officer

Mandates the appointment of **public officials in charge of data publication within all public sector institutions** 

Includes **requirements on the open data strategy** and/or **open data initiatives** for all government and institutions and to monitor the implementation

Requires **stakeholder engagement** to promote the reuse of open government data and/or the creation of an ecosystem of open data users

Source: National Information Society Agency (NIA), 2019

#### 1.4 Sharing the organizational culture for sustainable value creation

While supporting and promoting the development of clear legal and regulatory frameworks for OGD is crucial, it is also important to build competencies to put the legal basis into practice. Public institutions need to fully understand the meaning of open data, and learn the particular skills to process, distribute, access, and reuse data, in order to embrace the culture of OGD. An essential step towards fostering culture sensitivity to government data transparency is to set requirements whereby data should be "open by default". Governments should, accordingly, build up a rundown of legitimate justifications so as to advise ministries and agencies of the few exceptions restricting requirements to government data openness (OECD, 2018). In the case of the Republic of Korea, the government is in the process of enacting the Act on Promotion of the Data-Driven Public Administration to make sound governance for fostering the culture of data-driven policy making and use of open data. When it is enacted, it will not only enhance cross-department collaboration in terms of government data-sharing and reuse, but also create an institutional basis for building an objective administrative system through integrated registration, releasing and management of data, and data analysis centers in central government and in each public institution-all of which will contribute to sustainable value creation.

On the one hand, the legal and regulatory system acts as an instrument for fostering the cultural context conducive to OGD; on the other, it clearly delineates the limits and restrictions on government openness. Ideally, this list of legitimate justifications to restrict the release of OGD should be accessible in a single official document, available both online and offline for public access, and clear and understandable for all actors. In the Republic of Korea, Article 17 of the Open Data Law outlines a set of valid justifications that restrict the requirement that government data be released publicly by default.

# Chapter 2. Open Data Reuse Cases for Public Value Co-creation in the Republic of Korea

# 2.1 A selection of lighthouse cases of the Republic of Korea's National Core Data reuse and SDGs

The emphasis on the government's role on data publishing is gradually moving from a publisher viewpoint to a more user-focused one. Governments have taken significant steps to create OGD platforms that, in effect, have become "one-stop shops" to promote improved access to data, and more advanced multi-stakeholder engagement networks. Allowing the OGD model to evolve into a more collaborative, problem-solving, and purposeful approach is a necessary step towards co-creation of value. In this vein, this chapter will provide a diverse range of the Republic of Korea's National Core Data reuse cases characterized by a large, high-quality volume of data open and utilized by both the public and private sector. According to the country's National Information Society Agency (NIA), the criteria for identifying National Core Data are as follows:

- 1. Importance of data at the national level characterized by the presence of a national master database with highly released and reused data.
- 2. Level of data reuse in line with the economic and social benefits of OGD.
- 3. Conditions for data release and reuse met to produce, release, and manage to ensure high quality and user-oriented data as well as to solve any related problems when they arise.
- 4. Potential value of data that affects businesses and society.

The Korean OGD cases are categorized according to the United Nations' Sustainable Development Goals (SDGs) to demonstrate that OGD clearly promotes sustainable economic development and well-being of citizens in multiple dimensions. The SDGs are shown below:



Source: OECD (https://www.oecd.org/sdd/measuring-distance-to-the-sdgs-targets.htm)

#### 2.2 SDG 1 & 2: No poverty and Zero hunger

#### o National food bank information

The national food bank information was constructed as open data that provides users with information on donations made by corporations and individuals in order to improve the quality of social welfare service and revitalize donation culture. It offers data on the status of donors and users, donation items, contacts and addresses of basic food banks across the country, and types of donations preferred. This allows users to develop services that improve accessibility to food banks and donors to provide donations more efficiently. User information, food/non-food donations by region, donor category, and statistical data by type of business can be utilized as research data for spreading donation culture.

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번호	구분	사업장	대표자	일반전화	팩스	소재지
1	경기 양평군	양평군기초푸드뱅크	강동연	031-775- 7741	031-775- 7745	경기도 양평군 용문면 용문역길 67
2	경기 여주시	여주군좋은이웃기초푸드뱅크	박흥원	031-884- 1377	031-882- 2199	경기도 여주시 가남읍 태평2길 13
3	경기 연천군	연천군푸드뱅크	백성국	031-833- 1010	031-835- 0191	경기 연천군 전곡읍 전곡리
4	경기 평택시	평택시송탄기초푸드뱅크	정경호	031-662- 2677	031-665- 1399	경기도 평택시 점촌로32번길 53 (서경동)
5	경기 성남시 수경구	성남시푸드뱅크	서덕석	031-757- 1377	031-752- 9479	경기도 성남시 중원구 성남대로1151번길



Source: Korea Policy Briefing (<u>http://www.korea.kr/news/reporterView.do?newsId=148826669</u>)

#### 2.3 SDG 3: Good health and well-being

#### o National health information

The Health Insurance Review and Assessment Service provides vital real-time healthcare data such as medical and drug prescription history, health check-up information of all citizens, medical supplies, pharmaceutical companies, and medical resource information to the public and private consumers through its HIRA system. The pharmaceutical industry, medical equipment industry, related institutions, universities and research institutes can all use OGD for public health promotion to strengthen their competitiveness, develop strategies for business activities, and conduct systematic research in smart health care devices. Big data analysis also provides the public with self-management and prevention information. One example of an open data reuse case in the private sector is Goodoc, a mobile healthcare information platform. It provides information not only on locations of hospitals organized by their services and nearby pharmacies, but also on non-medical

insurance services and licenses, as well as permits of emergency medical service providers and businesses.



Source: Goodoc (<u>https://www.goodoc.co.kr/</u>)

An example of an open data reuse case in the public sector is a public health alarm service provided by the government. It provides real-time trends and alarms of five major disease risks—cold, eye infections, food poisoning, asthma, and dermatitis—by modelling and predicting the number of disease cases using structured and unstructured data such as patient care, food poisoning outbreak, weather (e.g. temperature, humidity, rainfall), environment (e.g. fine dust, o-zone), and social network (e.g. Twitter).



Source: Public health alarm service (http://forecast.nhis.or.kr/menu.do)

#### o Clinical research information

The Clinical Research Information Service (CRIS) is an online registration system for clinical trials and studies conducted in the Republic of Korea. It is established at the Disease Control Center with the support of the Ministry of Health and Welfare and operates

free of charge. The World Health Organization (WHO)'s International Clinical Trials Registry Platform (ICTRP) joined as the 11th registry in the world. The CRIS covers all human studies, including Prevention, Early Detection & Diagnosis, Prognosis, and Treatment, all of which are in the scope of registration. The purpose of the CRIS is to share information with the public regarding ethics and transparency in clinical trials and researches in the Republic of Korea. Securing the transparency of the research process, maintaining the reliability of results through preliminary disclosure and tracking the research plan with the clinical research database would increase the safety of research subjects and share research resources more efficiently. In addition, the opening of clinical research information conforming to the World Health Organization (WHO)'s International Clinical Trials Registry Platform (ICTRP) standard is expected to increase international exchange and utilization of clinical research information.

#### 2.4 SDG 4: Quality education

#### o Information on education

The Ministry of Education provides information on education administration such as personnel, budget of primary and secondary schools in the whole country, student enrollment rate, teacher status, and school facilities through school alerts and public data portals. Disclosed items are verified by the verification system (preparation  $\rightarrow$  verification  $\rightarrow$  closing  $\rightarrow$  submission  $\rightarrow$  revision) and an on-site inspection after the announcement at the national primary and secondary schools subject to disclosure. This system increases the competitiveness of school education, as students and parents can become more interested in schooling and participate in a variety of programs related to schooling. The government and the education office may also resolve the education gap through disseminating educational administrative information.



Source: School Info (http://www.schoolinfo.go.kr/ei/ss/pneiss\_a03\_s0.do)

#### 2.5 SDG 6: Clean water and sanitation

#### o Real time information on water

Information on water is collected in real time from various sensors installed for tap water production and supply facility operation, which provides the public with healthy tap water. Water industry associations, academia, and research institutes can systematically utilize information on water quality, flow rate, and pressure supplied from the waterworks for data analysis. The open data includes items such as water quality and supply, flow rate, pressure, and level of purity, which can enhance people's trust on drinking tap water and save enormous social costs of purchasing water purifiers. In addition, this can help overcome possible water shortages by inducing water conservation in times of severe drought due to climate change.



Source: Open Data Portal (https://www.data.go.kr/information/1000401/monthData.do)

#### 2.6 SDG 7: Affordable and clean energy

#### o National Reference Standard Data

National Reference Standard Data provides accurate and reliable scientific data available for analysis and evaluation. For instance, astronomical data can be used in the development of machinery for solar energy utilization and for the increase in the reliability and precision of GPS services. Meanwhile, solar energy data provides basic data for the design, installation, and operation of energy use equipment and facilities, thereby reducing development costs and increasing accuracy. Nuclear fuel material property data improves the analysis of nuclear fuel behavior by securing reliable nuclear data. Public acceptance of the safety of nuclear power may increase by demonstrating the safety of nuclear fuel. Lastly, environmental radiation data is used as an objective indicator to determine the abnormal value of the environmental radiation measurement distribution.

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aong, sanada data			Expected Date of				
ata Hold Basis	Frequency of Update	Annual	Update	2021-02-11			

Source: Open Data Portal (https://www.data.go.kr/dataset/3071039/fileData.do?lang=en)

#### 2.7 SDG 8: Decent work and economic growth

#### o Information on employment insurance

Employment insurance data is a type of social security insurance related to workplaces and individuals enrolled in employment insurance (e.g. unemployment insurance, employment security, vocational competency development, etc.). It provides business and educational institutions with employment-related research and improves the resiliency of employment market by analyzing social phenomena related to employment. Public institutions can monitor the status of employment and extract necessary parts for each data item (industry, age, etc.) to form employment strategies.



Source: Open Data Portal: Application, Welpin (https://apkpure.com/%EC%9B%B0%ED%95%80/wcws.com)

#### 2.8 SDG 9: Industry, innovation, and infrastructure

#### o Information on hiking trails and national species

Information of a total of 21,000 km of 3,368 mountain trail routes in the Republic of Korea has been collected in cooperation with the National Park Management Corporation and local governments through the Korea Forest Service. In addition, National Species Information is provided to facilitate the utilization of 500 kinds of information on plants, insects, and lichens, and related history, medicinal and cultural information. Open data is provided to the general public through public data portals and through the National Biodiversity Information System. The map service on portals such as NAVER can be used to select and plan various mountain climbing courses according to difficulty, time and distance, for safe leisure activities. Moreover, companies can utilize trails and national species with cultural and lodging information. The tourism industry can develop new service products such as sightseeing, mountaineering, camping, mountain biking, and education camps. The number of people who climb mountains at least once a year in the country is about 32 million, which equals to 77% of the adult population aged 19 or older.

- ∅ 등산로 정보의 활용
- 정확한 등산로 제공으로 안전사고 예방
- 산 정보를 이용한 스마트앱 활용(네비게이션, 게임 등)
- 등산로 안내 책자 발간
- 산간지역 상세지도 작성



Source: Korea Forest Service (http://bitly.kr/MCDfb2sq)

#### o Information on buildings

The Ministry of Land, Transport and Maritime Affairs has opened about 2,800 million items of building and housing information (registers, licenses, etc.) entered in the building administration system since February 2015. It provides the private sector with opportunities for creating new businesses through the development and provision of open API services. The opening of construction data enables building and energy management, search for optimal residence, and reduction of costs for the general public. Construction-related industries may expand with cost savings for location analysis, real estate consulting, and renewable energy industry consulting.



Source: KLD (http://www.ikld.kr/news/articleView.html?idxno=205119)

#### o Industrial property

Industrial property rights are classified into patent rights, utility model rights, design rights, and trademark rights according to the nature of rights. Industrial property information is necessary for registering, maintaining and defending industrial property rights, and consists of domestic industrial property rights, public information, administrative information, and overseas patent information. The KIPO opens OGD through KIPRISPlus (patent information service) and public data portal, where citizens can easily access desired patent information, thereby facilitating the creation of high value-added service and promotion of patent information utilization. In the private sector, industrial property information and prevents patent disputes.



Source: KIPRIS (http://plus.kipris.or.kr/eng/main.do)

#### o Integrated financial

Open financial information allows the public to access tax use history, and the government to improve transparency and reliability of budget operation. The financial industry may utilize public data to enable the management of government bonds, compare interest rates on deposit loans, and develop new financial businesses related to insurance. New businesses such as finance-related mobile app developments can be created with the use of open financial indicators.



#### 2.9 SDG 10: Reduced inequalities

#### o Comprehensive real estate information

The Ministry of Land, Transport and Maritime Affairs provides comprehensive real estate information on land and property ownership, land use and regulation matters, and the price of real estate through the national spatial information integration portal and public data portal. This OGD on real estate eliminates redundant tasks and administrative costs by streamlining municipal real estate administration. Various related industries such as real estate information service, construction, engineering, logistics, app development, and restaurant businesses can benefit, while citizens can identify essential market information such as price fluctuations and transaction trends.

#### o Local financial data

The Ministry of Public Administration and Security opens local financial information through the local finance 365 (integrated local public finance system) service and public data portal, which local finance experts and policymakers may find useful. Visual graphs are provided so that the public can easily digest complex financial information.



Source: Local Finance 365 (http://lofin.mois.go.kr/portal/main.do)

#### 2.10 SDG 11: Sustainable cities and communities

#### o Smart traffic information

Smart traffic information refers to CCTV image-based traffic data and real-time road traffic information such as traffic volume, queue, number of pedestrians, and intersection information of major cities. This OGD is useful for GPS and autonomous vehicles-related companies that need real-time visual traffic information to develop and advance overall route planning, motion planning, and decision-making skills. Various public institutions and research institutes can also utilize smart traffic information as base data for traffic policy establishment and signal information adjustment to address rush hour zones. One example is finding optimized routes of late-night buses with the use of OGD by analyzing and visualizing floating population density patterns with Geographic Information Systems (GIS).



Source: From A (<u>https://froma.co.kr/116</u>)

Another example is a mobile application that provides real-time parking space called "Everyone's Parking Lot". The app shares information on parking spaces, fees, and available parking times. Parking fees can be paid in advance on mobile, while parking coupons can be purchased at a discounted price on the app.



Source: Everyone's Parking Lot (https://www.moduparking.com/)

#### o Information on traffic accidents

Traffic accident information includes accident characteristics, weather, environmental factors that can affect safety, and accident prevention activities of people. The National Police Agency, the Korea National Road and Highway Information Service (KITA), and the Korea Traffic and Transportation Corporation (KITA) provide link-specific road risk index calculated with information on traffic accidents, weather, outbreak, traffic, time zone, road type, and vehicle type. One example of the reuse of OGD is identifying weakness areas for ambulance transportation by time zone and securing golden hour by optimizing ambulance route for emergency patients with big data analysis. The analysis uses open data related to the location of first aid patients, location of fire stations, 119 safety facilities and resources, GPS ambulance tracking, EMS unit at hospitals, road traffic, and census data. This contributes to accident prevention by region and time zone and to an efficient management of emergency dispatch systems, including facilities, equipment, and human resources related to rescue and first aid activities.



Weakness areas for 119 Safety Center



Analysis of cardiac arrest patients



Ambulance placement priority

Source: Jeonbuk fire fighting (http://www.bigdata.go.kr/2017/contest/2017\_using\_star\_project\_1.pdf)

In the private sector, navigation companies can improve the accuracy of incident guidance and expand their contents through a three-dimensional guidance service. Accidents may be reduced by providing automatic notification service to the driver when passing through accident-prone areas. Research institutes can secure statistical data by incorporating traffic accident information in the existing traffic database, and to improve the accuracy of accident analysis when researching traffic safety. Local governments are able to revitalize public service projects, such as the reorganization of roads and the improvement of signaling systems for frequent traffic accidents.

#### o Security blind spot analysis with CCTV cameras

Security blind spots are identified, and additional CCTV cameras are installed after analyzing public CCTV camera-installed areas, especially the most populated neighborhoods, school zones, rivers, and trails.



Source: National Information Society Agency (NIA)

#### 2.11 SDG 12: Responsible consumption and production

#### o Meridian research (Meridian and survey price on agriculture, fishery)

Data on agriculture, fishery, livestock meridians and survey prices are collected from public wholesale markets, the Korea Agro-Fisheries Food Distribution Corporation, the Livestock Products Quality Assurance Institute, and the National Agricultural Cooperative Federation. The Ministry of Food, Agriculture, Forestry and Livestock (Ministry of Agriculture, Forestry and Fisheries Education and Culture Information) opens about one billion items through a public data portal, through which citizens can easily access real-time price information on agricultural products, while producers are able to determine the optimal time of delivery and increase their income, and retailers can identify new distribution models. In addition, organizations such as distribution service industry, universities, and research institutes can use systematic data analysis using open data on prices of agricultural products.

#### o Consumer behavior survey

Consumer behavior survey conducted by Korea Broadcast Advertising Promotion Corporation (KOBACO) analyzes media usage, purchase behavior, and lifestyle of consumers across the country. The survey provides marketing fundamentals that help advertising companies to collect media strategies and cross-analyze media sources, product purchases, and lifestyle. It offers insights in various fields such as market research, policy making, and advertising strategy collection.



#### o Information on consumer safety

The Fair Trade Commission has established a comprehensive consumer support system that integrates and provides information on product recall, certification, and other damage-related remedies. The consumer information that is currently open is recalled information and product safety information and is provided through a comprehensive consumer support system. The Ministry of Food, Drug Administration, and the National Institute of Standards and Technology (KFDA) confirms the recall of product information and compares consumer information.



Source: Korea Policy Breifing (http://www.korea.kr/news/reporterView.do?newsId=148764895)

#### 2.12 SDG 13, 14 & 15: Climate action and Life below water and on land

#### o Information on ecological nature

While the National Saengtaewon collects ecological field surveys of national environmental research, the Ministry of the Environment Environmental Information Service builds spatial data to create ecological maps used for various development plans and environmental impact assessments. These ecological maps have been set as the evaluation standard for natural environment conservation and development, as they provide information on ecological and natural resources to government agencies, local governments, and companies to devise plans for environmental conservation and consultation.



Source: Environmental Geographic Information Service, EGIS (https://egis.me.go.kr/api/ezm.do)

#### o Information on environmental impact

The environmental assessment data contains administrative and knowledge information produced through the preparation, review, and consultation of the environmental evaluation report from 1982 to present. The "Evaluation Monitoring Environment and utilization data open system construction project" (2007-2016) has opened data in six areas (construction, development of urban roads, industrial location and composition of the industrial complex, energy development, river and development, port construction), along with thousands of cases of environmental impact assessment. The environmental assessment monitoring database contains qualitative and quantitative information on the use and conservation of the country, including measured and forecast values for each item in the atmospheric environment, natural ecological environment, water environment, land environment, and living environment.

#### o Food waste information

The Ministry of Environment and the Korea Environment Corporation releases food waste data, which collects emission information of each local government, and calculates and

manages the fee for the amount of emission, providing easy access to materials related to the discharge of food waste. Small and medium-sized merchants, IT service industry associations, universities, and research institutes can utilize data to create reports and analyze systematic data without conducting direct research or sampling. Waste transport companies can identify the state of food waste and equipment status to adjust the speed of processing and to minimize the emission of odor or wastewater. Local governments can use data to efficiently manage food waste disposal systems and to formulate wastereduction policies.

#### 2.13 SDG 16: Peace, justice, and strong institutions

#### o Legal Information

The statutory information includes all statutes, administrative regulations, autonomous laws, judicial precedents, statute interpretation cases, administrative judgments, and the constitutional court decisions of the Republic of Korea uploaded on the National Legislation Information Joint Application Center and the Public Data Portal. Social benefits will be increased due to the release of statutory information as citizens can monitor any unreasonable regulations of their local government and demand for rectifications. Prospective entrepreneurs can select entrepreneurial items with legal counseling services that utilize statutory information, or services that create added value by converging information and technologies from other fields.



#### 2.14 SDG 17: Partnerships for the goals

#### o Building capacities inside the public sector and among external users

The maturity of the open data ecosystem is necessary to facilitate the reuse of OGD that will fuel value creation, which depends on the presence of a critical mass of professional users who are capable of consuming OGD. Considering the open data literacy among key

user communities such as businesses and civil society organizations, a fundamental step in supporting the reuse of OGD is to invest in boosting open data literacy among data providers and consumers in the public or private sector. In particular, the provision of open data literacy programs is important for extending the range of open data users as marginalized communities can also start benefitting from OGD. Along with capacity building activities, these will help make open data initiatives and associated benefits more inclusive in the context of digital inclusion and digitization of communities.

Data from OECD studies shows that public officials remain the main target community in most countries as per capacity building. Yet, findings also demonstrate that little focus across countries has been put on growing open data awareness more widely among the primary consumers of open government data—namely, people, academics, journalists and social entrepreneurs. In the case of the Republic of Korea, the government aims to promote the building up of a business community through capacity-building initiatives and has created the project "Open Square D", which seeks to nurture data-based open government startups. The project is a forum for technology entrepreneurs to learn and exchange ideas about open data. It also provides opportunities to improve open data capabilities for public-private partnerships.



Source: National Information Society Agency (NIA)

# o User-driven events and external initiatives for data re-use: Creating PPPs and partnerships with data user communities

Models of partnerships with external actors and coordinating programs to facilitate data reuse range from centralized public sector agency initiatives that organize OGD within a decentralized model that distributes responsibilities across public sector organizations. When championing OGD, governments are driven into a rather creative environment to highlight incentives for the use and reuse of OGD. The "hackathons" organized by the government usually do not simply provide data to work with; they often provide productive cooperation among those gathered, either by engaging in the creation of solutions or by providing an adequate space for collaboration among different actors. The goal is to bring in a multitude of stakeholders of different backgrounds—government civil servants, the

private sector, non-government organizations (NGOs), academics, civil society, journalists and interested citizens—who are expected to bring their knowledge to the table. Indeed, these hackathons serve as one of the governments' most common activities to facilitate the reuse of OGD and serve as a meaningful platform. Purpose-driven hackathon programs can be crucial in terms of creating value, establishing long-term relationships and shared commitment for impact delivery through reuse of OGDs, identifying issues to be addressed and bringing in all relevant actors to explore solutions.

#### Figure 8. Hackathons

- Analysis of companies and building a management system using open data
- Identify and manage potential companies using open data
- Tech./Mgmt. Consulting, business networking with large corporations and VCs



The Open Data Start-up Competition in the Republic of Korea is a competition that promotes the development of new business opportunities through the use of open government data. Many start-ups that use OGD are invited to take part, and winners receive government funding and support to further grow their start-up. The Korean government also supports businesses specializing in open data through customized support for each level of business, from business incubation to acceleration.



(https://www.nia.or.kr/site/nia\_kor/ex/bbs/View.do?cbldx=90549&bcldx=21634&parentSeq=21634)

It is worth noting that governments are not the only communities that initiate and engage actors outside the public sector to reuse OGD. External stakeholders such as civil society

groups also organize events and approaches that center on the reuse of OGD. Hence, the support for reuse of OGD cannot be described as merely a top-down action coming from governments, but more of a bottom-up initiative. Such recent efforts suggest that OGD and fostering its reuse are the main objectives of governments, which reinforces the need to provide platforms that facilitate engagement with OGD for problem-solving. Thus, OGD stands as a clear indication that governments need to become collaborative forums, and cooperate with non-governmental organizations and private entities to address common issues, while maintaining compliance with the overall strategic priorities of the government to protect public interest.

### **Chapter 3. Monitoring and Evaluation of OGD Results**

This chapter briefly discusses the efforts taken by governments to monitor and measure the implementation, quality of data, performance and impact of OGD policies. While open data efforts have gained traction around the world, the need for capacity building to evaluate and quantify the success and effect of open data policies is at the heart of the debate among governments. In order to open up government data with clearly articulated value propositions, sustaining investments is critical from a government perspective, and relying on post-policy evaluation tools to measure the actual realization of those benefits. Evaluation methods, assessments, and metrics are key elements of successful data governance models, as they help assess policy success and encourage efforts to adapt data policies appropriately. Nonetheless, a strong focus on reporting data as a policy goal would lead to a qualitative policy assessment strategy, promoting more effort to release data rather than reuse data, which is a prerequisite for creating value (OECD, 2018). There are several factors to consider with regards to monitoring and evaluation of OGD results that can add to the difficulty of measurement efforts.

#### 3.1 Developing key performance indicators

The development of measurement tools is important for governments to evaluate the achievements of the goals set out in OGD strategies. When available, these metrics need to be disseminated and used across the public sector to determine the realization of expected outcomes and, if appropriate, to adjust policies accordingly. In line with the "open by default" stance, the measurement outcomes should be open for public access to endorse the responsibility of governments with respect to open data strategy. Findings from the OECD Open Government Data Survey 3.0 suggest that the use of measures to assess policy implementation is not widely spread across the government, despite the programs adopted to track open data efforts at the institutional level.

#### 3.2 Data quality management and evaluation

The Korean government strives to improve the quality of OGD by evaluating the level of data quality management of each public institution, which must effectively manage government data to ensure provision of up-to-date, accurate, and interoperable data, and promote institutional data quality management for high-quality data. Data subject to evaluation is all national core data on the open data portal, and government data of all public organizations. The image below depicts the government's data quality management process.



Figure 9. The Government of Republic of Korea's data quality management process

Source: National Information Society Agency (NIA), 2019

The quality of ODG in the Republic of Korea has also been consistently improving in the number of open data standards and formats, and data quality evaluation system.





Source: National Information Society Agency (NIA), 2019

#### 3.3 Auditing regulatory compliance

Although the publication and reuse of OGD are paramount in enabling public value cocreation, open government should not undermine its responsibilities in terms of government and personal data protection. Countries have developed guidelines and standards to support and enforce, when needed, the anonymization of data prior to its publication, and there is a growing consciousness among governments in regard to their role as custodians of public data. As a result, governments are working to ensure that the release of government data as open data does not create breaches of some essential norms and legislation that stand as a foundation of government integrity, trust and ethics. The release of government data can generate more difficulties than benefits, therefore having a direct impact on public trust, when it fails to comply with such norms and legislation. Anonymization of data is another important element that governments should monitor to maintain high levels of public trust. According to the OECD Survey on Open Government Data 3.0, results suggest that such assessments have not been undertaken in most countries; post assessments were rarely made for the whole government to ensure that all government data were anonymized as open data prior to publication. However, the Republic of Korea is one of the few countries where such efforts were made. All government data made publicly available respects national norms in terms of privacy, security, confidentiality, and property under the Information Disclosure Act and Open Data Act of Korea. Formal requirements of anonymizing and de-identifying data must be met before any public release, following Guidelines for De-identification of Personal Data. A filtering system on the central OGD portal also exists for checking whether a data set contains any personal information. A revision of the Personal Information Protection Act was proposed to reform legislations and regulations in promoting OGD release and reuse for innovation, while maintaining governance of personal data protection.

#### 3.4 Assessing public values and barriers of OGD

It has proved difficult for most countries to measure the impact of open data policies, as most of the evaluation activities have either focused on developing data publishing metrics or ex ante measures to quantify the possible benefits of OGD. In the Republic of Korea, the Government 3.0 Performance Evaluation considers the performance of open data and the influence it has had on government accountability in assessing the effects of OGD on success in the public sector. Although evaluating effects remains a significant challenge worldwide—partly due to the limited supply of relevant data and measurements, more efforts will help strengthen the potential to quantify real benefits individually and collectively.

### Conclusion

This paper has examined the Republic of Korea's decade long OGD policies and initiatives that make the country's case meaningful, which has much room for improvement. Setting up definite goals for promoting a more prevalent, efficient, and meaningful use of OGD with the objective of value co-creation—and constructing a streamlined ecosystem conducive to such use—can be a formidable task. The Korean government has been aspiring to make open data a part of day-to-day governance. It has put in much effort in expanding the infrastructure of OGD by the establishment of sound public data management and evaluation system with proper technical support. The government is building government-wide support system for systematic management of measures and achievements of OGD, laying the foundation for standardization and maximization of OGD's ripple effects that contribute to an open data culture in both the public and private sector.

Yet, given the low perception and consensus of the potential value of OGD, there is still a lack of perception of public data openness among the Korean public, which calls for more effective awareness education and incentive systems for a more active use. The quality of public data will also have to improve in the areas of open format, access features, and use infrastructure for stable data use. The Republic of Korea has only recently moved from publishing OGD selectively with purpose in a principled manner—except data considering personal privacy and national security. It intends to focus more on developing open data that have a meaningful impact on people's lives, such as safety, environment, and healthcare, and to expand OGD related to new industries and businesses such as AI, autonomous vehicles, smart city, IoT, and AR/VR that would contribute to the growth of innovation. Moreover, the ecosystem of open data is still feeble with the lack of one-stop start-up businesses. With a weak growth of start-up businesses in the Republic of Korea, it is necessary to achieve public-private partnerships that are favorable to OGD-based market creation.

#### Policy recommendations based on the Open Data Charter

The following section outlines a set of principles and standards for a sustainable OGD governance model that any government should strive to adopt based on the Open Data Charter—a globally-agreed set of practices for publishing, using, and maximizing the potential of government data.

#### o "Open by default" in action

The OGD movement must go beyond experimentation and put in place core policies and practices to support a sustainable government-wide open data culture. This requires the government to design concrete plans for implementing policies through defining processes, responsibilities, timelines, resources, and a national executive authority. Introducing

guidelines and formal procedures for consistent government-wide data management, with standardized procedures for publication and update of datasets, is another vital condition for sustainability. The government should also yield financial and human resources to put policies and plans into practice, including capacity building, infrastructure, engagement, innovation, research, and monitoring. Setting the OGD "by default" is a truly aspirational goal and a number of steps must be taken: The government may begin with proactive disclosure of data by publishing key datasets proactively on government websites. It can then prioritize the publication of data with purpose, by attending to people's demands and by analyzing the most pressing social issues and needed datasets. A natural corollary would be a move towards open-by-design governance by adapting policies, procedures, and systems to facilitate data sharing.

#### o Building sound data infrastructure

To scale open data efforts beyond the experimental stage, the government needs to proactively promote a sustainable ecosystem of OGD. It should develop effective data management practices and establish reference data workflows that are managed in a way that complies with already-established policies and guidelines. With all this said, the government must regularly update its technical infrastructure to transform huge volumes of government data into open data and to consistently improve data quality by setting up minimal quality threshold and requirements, as well as routine verifications for all data produced or data updating processes. Data systems must be made open data-ready by demanding data sharing capabilities in procurement requirements for any new development or update. The government should connect with other departments and agencies and build on shared reference data, global metadata, and interoperability standards.

#### o Publishing with purpose

For a sustained and meaningful engagement in OGD for people, the government needs to communicate openly, working to understand what data they want and how they can use it to improve public services and governance. This requires sustained engagement and collaboration, which can be achieved by working closely with civic groups—including marginalized groups—to understand their needs and what data should be prioritized for publication. Investing in training and capacity building for mid- and low-level staff is considered imperative. In addition, promoting data literacy for people who work directly or indirectly with data, such as civilians, public officials, and leaders in different fields is even more essential. Connecting with multi-stakeholder advisory groups can help to address more complex and specific data openness issues and projects. To publish government data with purpose, challenges that OGD could address must be identified early on; then, communities can work in collaboration to deliver impact by committing to publishing key datasets that are most essential to addressing challenges and that will benefit communities.

By implementing the above principles and recommendations, governments would be able to venture in building strong open data governance practices that allow citizens to realize the true promise and impact of OGD. In essence, what governments are seeking to achieve is to revolutionize the current public data governance so that values are created during the interaction between the government and its citizens. The vision encapsulates attempts to shift the OGD governance model from being government-oriented to citizenoriented, and ultimately, to becoming citizen-led development in all arrays of the OGD services. Only then the value of public data governance will efficiency increase from collaboration among different stakeholders, improving both productivity and citizen satisfaction in the long run.

#### References

International Open Data Charter. (2015). *Open Data Charter*. Retrieved from <u>https://opendatacharter.net/</u>

National Information Society Agency. (2019). *Open government data policies and practices in the Republic of Korea*. [PowerPoint slides].

OECD. (2018). *Open Government Data report: Enhancing policy maturity for sustainable impact*. OECD Digital Government Studies. OECD Publishing: Paris



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