Open Data of Korea:
Governance, Strategies and Examples

2019**.0**9**.**

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<Education Background>
-University of Illinois at Urbana-Champaign
 (Ph.D. in Knowledge Management/Information Policy)

<Research>
- voluminous articles on knowledge utilization, eGovernment, research methodology and program evaluation
- several books on public administration in the digital society

- Issues to Discuss -

I. A Basic Understanding

II. Legal and Implementation Systems

III. Policy Framework
      -Policy Goal and Strategies

IV. Some Examples

V. Conclusion: Future Direction

I. A Basic Understanding

1. Transparency/Accountability of Government & Open Data

■ e-Government as the embodiment of transparent government through tight monitoring is based on the principle of citizens' sovereignty over their nation.

■ e-Government can secure the citizens' right to know, safeguard their participation in government and ensure the transparency and responsibility of government operations by allowing the facilitation of laws that ensure the opening of government held information and data.

■ Eventually, this will lead to the realization of a trustworthy government.

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Transparency

-usually defined as the opposite concept of secrecy or secretiveness in government (one of factors causing government failures and bureaucratic dysfunctions)

-can be attained not only by e-government initiatives, but also by other means such as legal and regulatory reform, business process reengineering (BPR) etc.
-can be categorized into three dimensions:

+enhancing the right to know and disclosure of public (government-held) information and data to customers and/or general public,
+controlling corruptions
+ enhancing the quality of the decision making process and outputs in government

∗Oh. C.H. 2006. "Transparency, Accountability and E-Government"

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Accountability

− dealing with the demands and expectations one is facing as a public administrator

− sometimes interchangeably used as responsibility d/r responsiveness

− a strategic understanding: accountable to whom or accountable for what

− A critical issue: how to attain a certain level of accountability <− making government activities transparent to the public thru opening public information and data

*Oh. C.H. 2006. "Transparency, Accountability and E−Government"

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"open data"

WHY is it so important?

Data can be seen as *national infrastructure*
and
Managing infrastructural resources as *commons*
(openly) is often critical to sustaining economic growth
and social well-being

*Frischmann, B.M. 2014. "Encouraging open data across society," revised in part

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Infrastructure

User *Activities*
within economic, cultural, political, and other systems

User Generated *Outputs*

Private Goods **Public Goods** **Social Goods**

Output Markets

Spillovers

*Frischmann, B.M. 2014. "Encouraging open data across society"
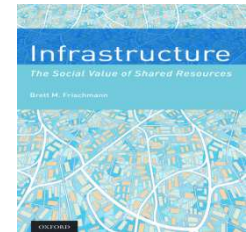
Some DATA in various contexts

User *Activities*
within economic, cultural, political, and other systems

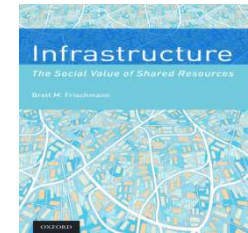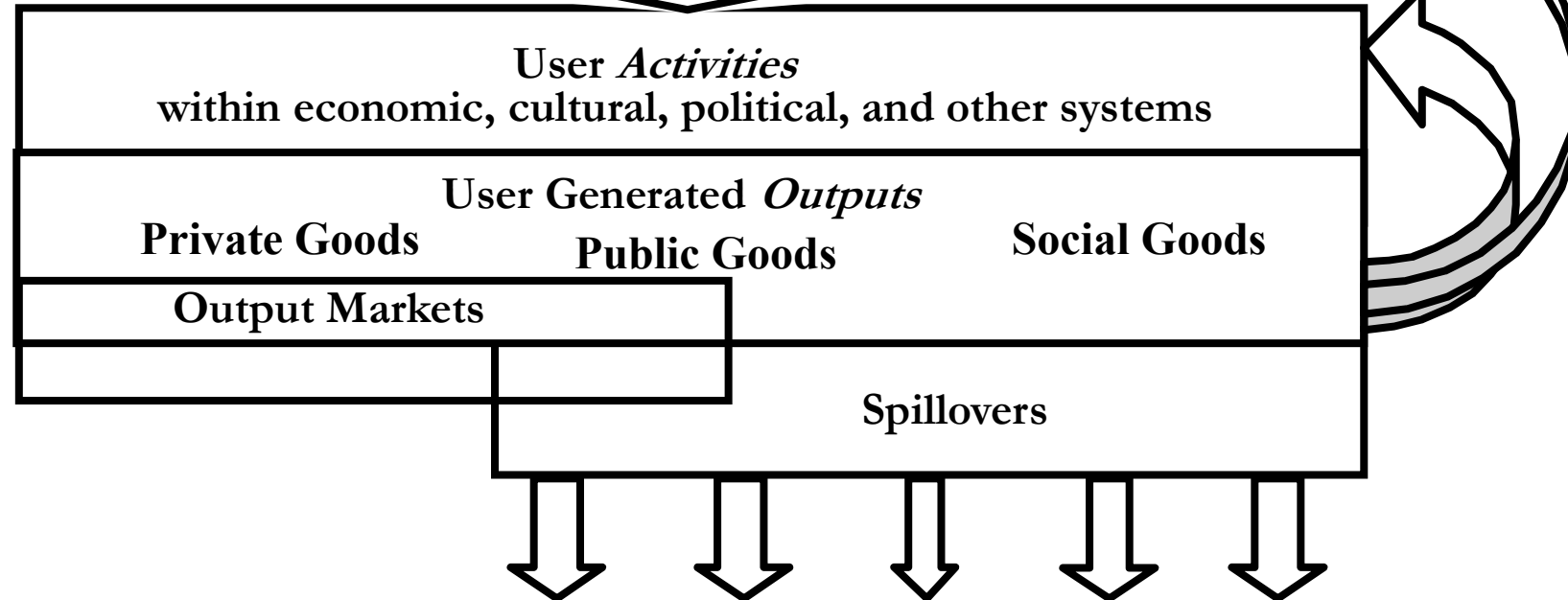**User Generated *Outputs***

Private Goods

Public Goods

Social Goods

Output Markets

Spillovers

*Frischmann, B.M. 2014. "Encouraging open data across society"

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-Beginning of Open Data in Korea

issue	• In 2009, a high school student develops and provides Seoul bus app for free
response	• The app recorded number 1 in domestic appstore but the service terminated (Gyeonggi Provincial Governmentt raised objection over copyright and location information laws) citizens protested and service resumed

South Korea and Japan streets ahead in smart transport
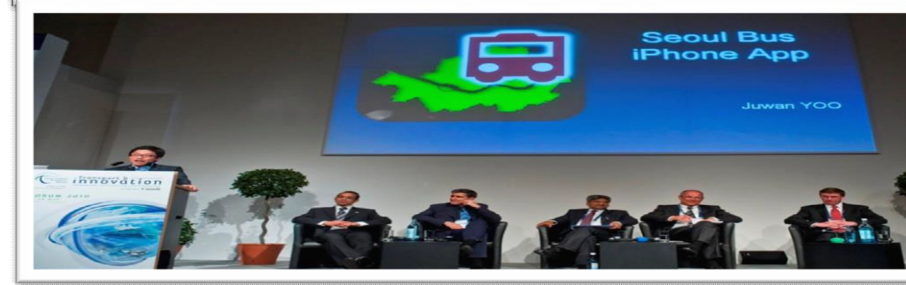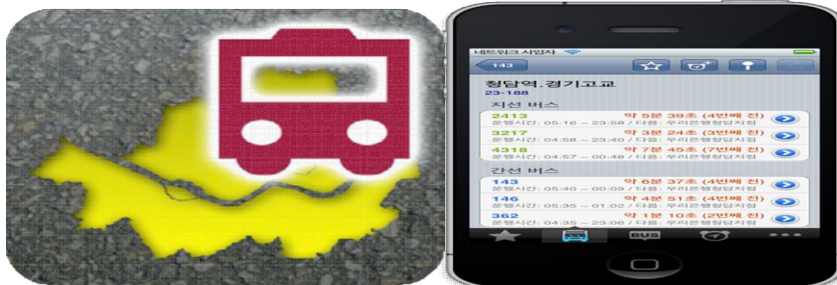
- In 2009, a high school student developed an application service that informs bus routes and arrival time in real time by using data from bus information system of local governments.

- The service was suspended due to unauthorized use of government data, but service was resumed within 12 hours in protest of the service users.

- As a result of this, release and use of government data became an issue, and the act on promotion of the provision and reuse of public data was enacted in 2013.

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# Changes brought by Transportation Data

- **Opening up all public data in Negative list way to maximize effect**

- **Ensure right to use public data freely**

- **Ensure equality principle in public data access**

- **Ensure commercial use of open data to produce virtual goods/services & profit generation**

Public data scope

- Electronic information or data produced, obtained, managed by public organizations
  - Ex) : geo, weather, maritime, environment, economy, population, transportation, leisure, agri, crime, patent, etc
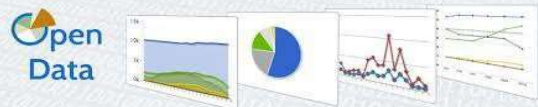
Public data provision

- Opening up of public data to allow access and use in machine readable form

- **machine-readable** : state in which data structure can be verified and data can be modified, transformed, filtered through software

Provision exceptions

- Data subject o non-disclosure by 'Information Disclosure Act' (national security, personal info, etc)

- Data containing third party rights which have not been cleared

- Data subject to non-disclosure by relevant laws

4. Realization of Data-driven Economy thru Open Data

$24b & 150K job creation by 2017

(research by KAIST)

Data-driven Economy

Turn ideas into business

Develop value added products

Open data usage

Remove barriers

Open data-based growth

Private sector *Use freely*

Mashup of public & private sector data **Govt+private** *Cooperate together*

Pan-govt efforts

open data provision

operate open data portal

Govt *Share together*

*Oh. C.H. 2014. "Open Data in Korea""

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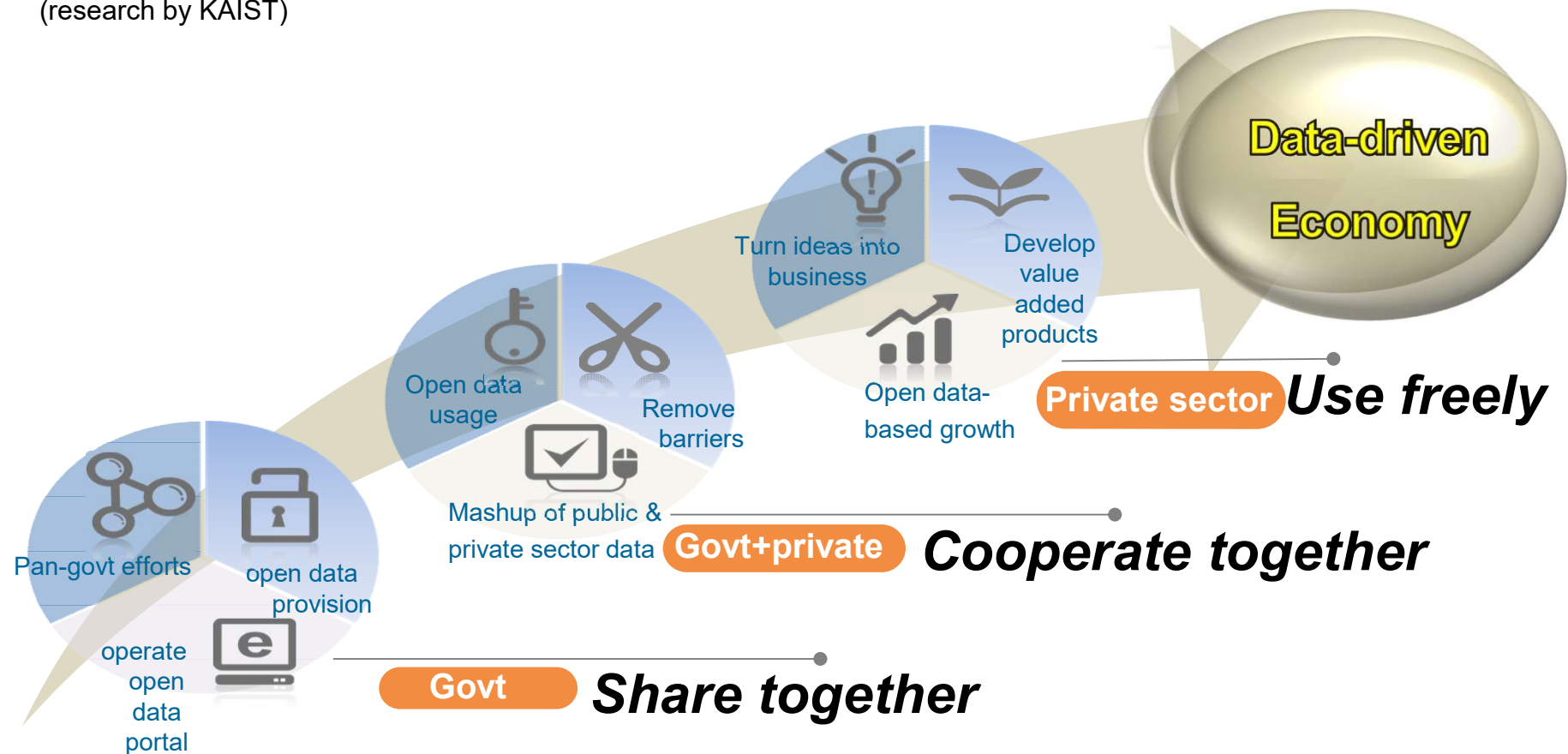
Ⅱ. Legal and Implementation Systems

1. Open Government Data Law

Release and Use

Disclosure

OPEN DATA ACT (2013)

INFORMATION DISCLOSURE ACT (1996)

vs

To ensure people's right to know, to secure people's participation in governance and government transparency

Every public institution shall endeavor to enable anyone to readily use government data and do not prohibit or restrict its commercial use

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

*Oh. J. 2018. "Open Gov Data Policies and Strategies in ROK" revised in part

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2. Legal framework for Open Government Data

- Types of law:
  - Freedom of information/access to information law (= Information Disclosure Act)
  - Transparency law (= Information Disclosure Act)
  - Open data law

- Level of applicability of the law
  - To all levels of government

*Oh. J. 2018. "Open Gov Data Policies and Strategies in ROK" revised in part

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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**
Includes **requirements on the open data strategy** and/or **open data initiatives** for all government and institutions and to monitor the implementation
Requires **stakeholders' engagement** to promote the reuse of open government data and/or the creation of an ecosystem of open data users

- Open Data Management Guideline
- Open Data Standardization Guideline
- Open Data Datasets Registration Guideline
- Open Data Quality Evaluation Guideline
- Database Standardization Guidelines for Public Institutions
- Open Data Users Guideline

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3. Governance Framework

Open Data Strategy Council

Ministry of the Interior and Safety

NIA NATIONAL INFORMATION SOCIETY AGENCY

Open Data Mediation Committee

- **ODSC (located under the prime minister's office and co-chaired by prime minister and civilian expert)**

  - Deliberate, coordinate, monitor and evaluate government's major gov't open data policies, plans and their implementation
  - Include each ministers and more than half of civilian experts

- **MOIS (lead ministry)** : make the gov't open data master plan & evaluate implementation, create a data infrastructure, release datasets, etc.

- **NIA (supporting agency)** : The open data center to support the release and use of open gov't data of all governments and institutions

- **ODMC (mediation of disputes)** : mediate disputes for the release of open gov't data; e.g., when refused or suspended by public institutions

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-ODSC Framework

Law

『Open Data Law』enactment ('13.6.27)

Key points: Ensuring the right to use public data, registration procedures, data provision obligation and immunity from liability

Organizations

Open Data Strategy Council
Co-chaired by Prime Minister

MOIS
(lead ministry)

* ODMC: Open Data Mediation Committee

Chief Open Data Officer
(central & local public institutions

ODMC
(dispute resolution)

Open Data Center
(NIA)

Designated by Open Data Law to provide policy and technical support

*Oh. C.H. 2014. "Open Data in Korea""

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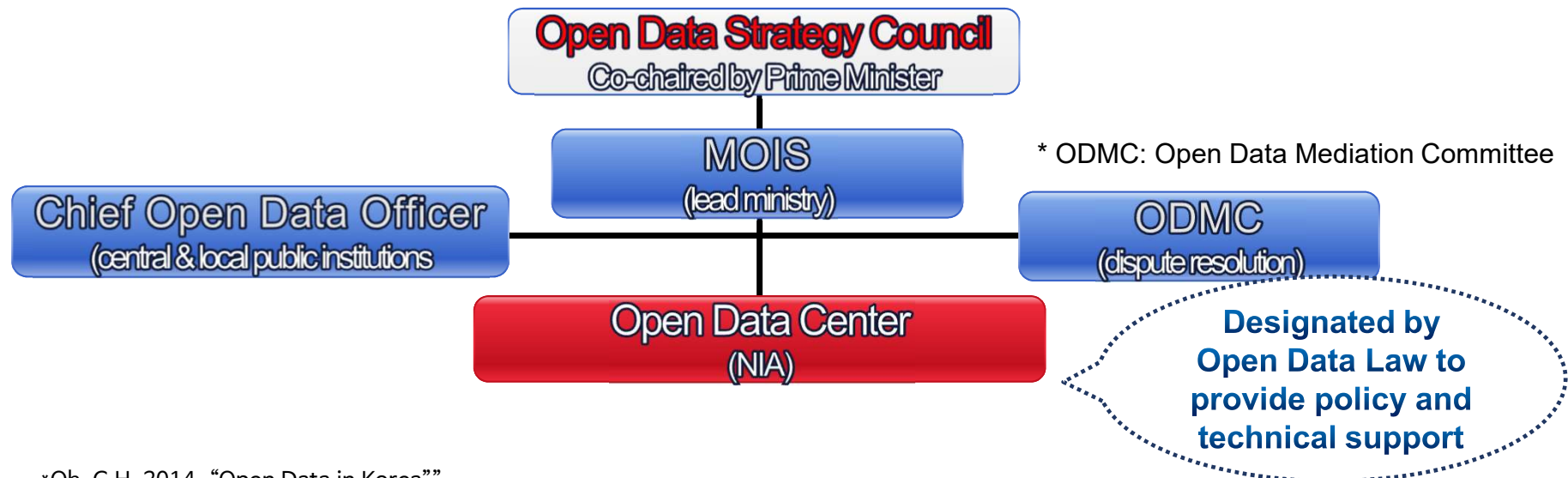
Open Data Center (ODC): open data clearinghouse
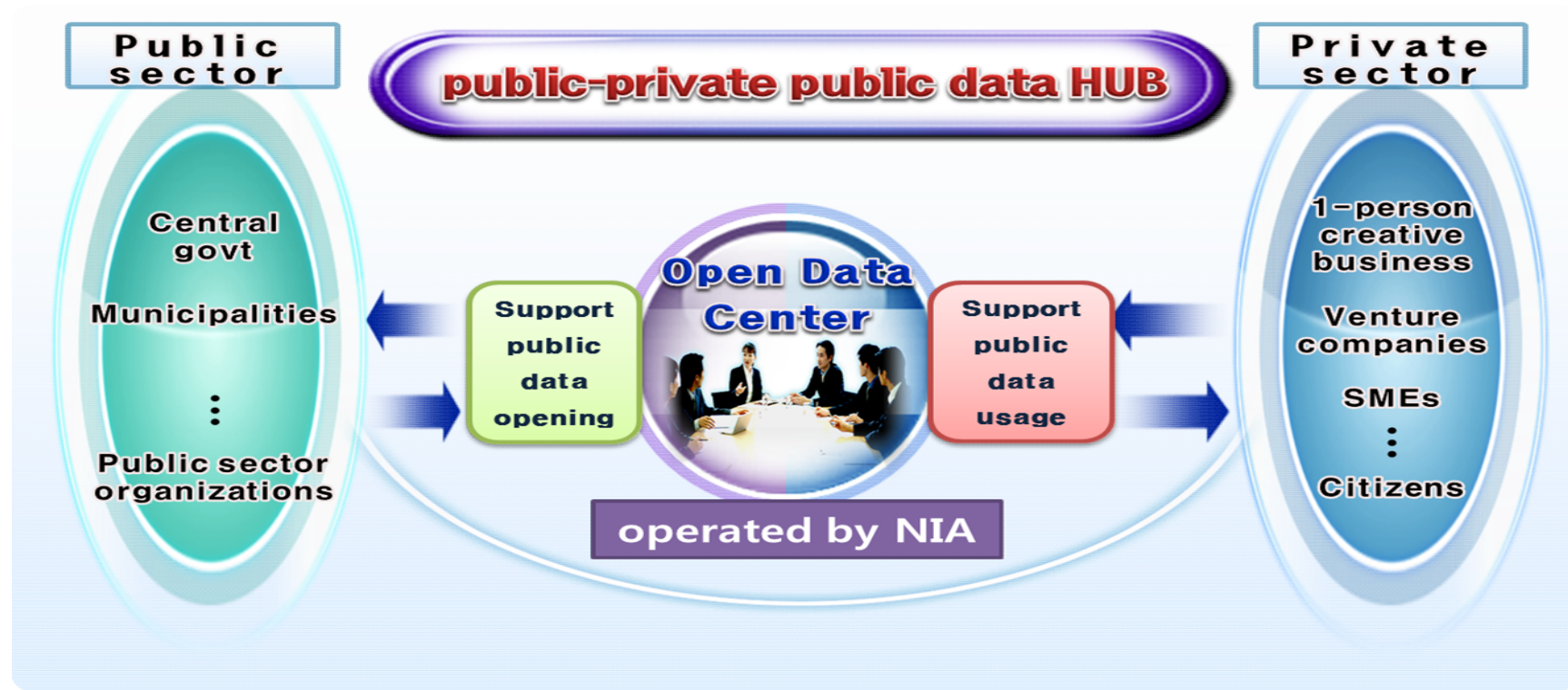
* NIA : National Information Society Agency

*Oh. C.H. 2014. "Open Data in Korea""

Ⅲ. Policy Framework:
Policy Goal and Strategies

Open Data Policies and Strategies (1)

Policy	• Open Data Act (2013)
Strategies (medium-term)	• 1st National Open Data Plan (2013~2017) • 2nd National Open Data Plan (2017~2019) • Open Data Innovation Strategy (2018~)
Implementation Plan (Yearly)	• Open Data Implementation Plan (2014~2018)

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Open Data Strategy

Vision

Objective

Priority areas

Data based Economy for the Well-being of Citizens

Open Data Usage
Custom Service Diffusion

Open Data based
New Industry & Jobs

Demand based open data provision & expansion

Open data infrastructure build up

Create open data ecosystem

Lay sustainable foundation (awareness, etc)

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Open Data Policies and Strategies (2)

Goal	• To guarantee citizens' rights to access government data • To improve citizens' qualities of life and to develop the national economy through open government data

Strategies	Key initiatives
• User-centric release of open data • Building infrastructure for the release and Reuse of open data • Open data ecosystem for economic values • Ensuring sustainable driving capacity	• National open data portal • National core data based on users demands • Chief data officers, Standardization of open data and data quality management • Startups supporting center, open data challenge challenges etc.

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Open Data Release and Use: a Glimpse
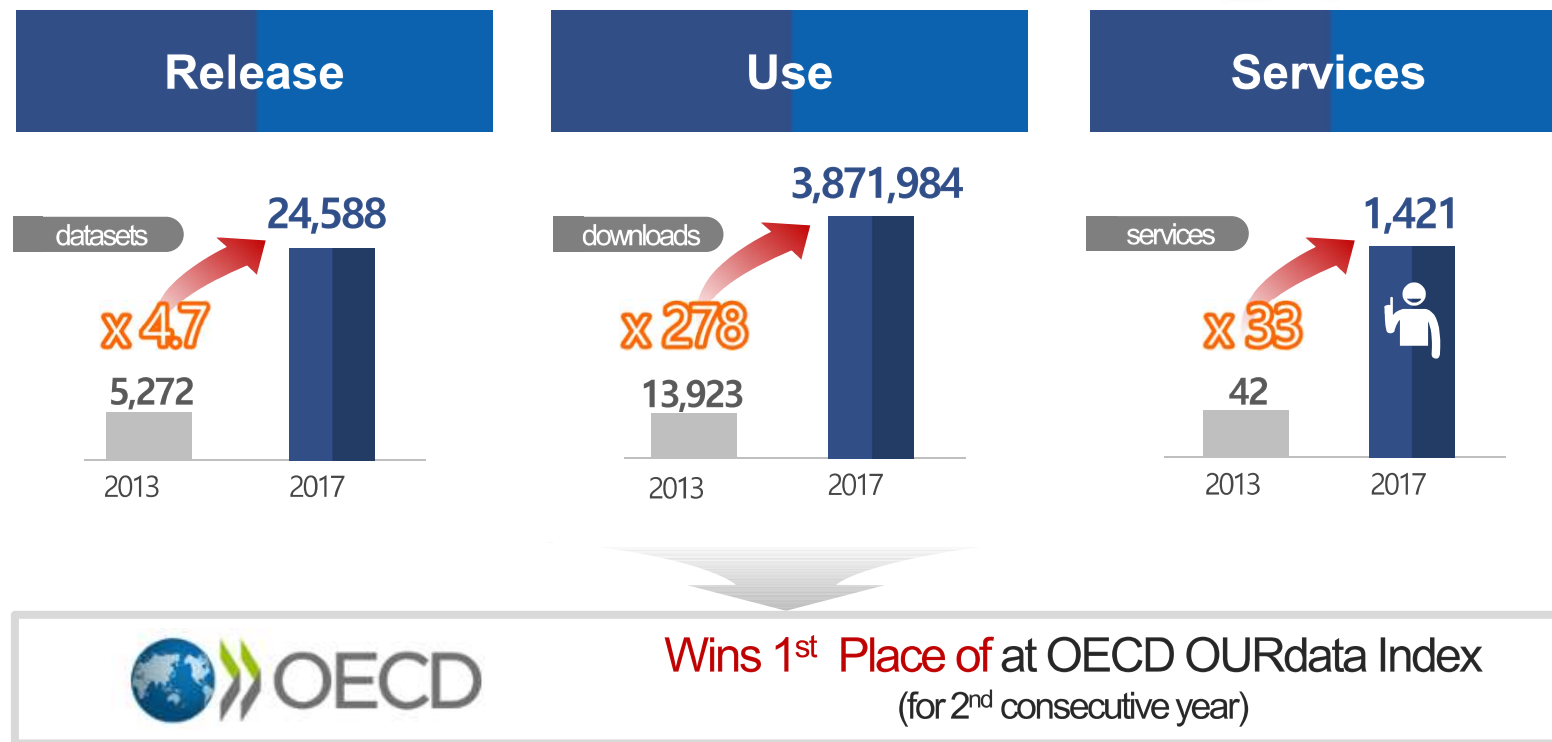
Release	Use	Services

Release

datasets

24,588

x 4.7

5,272

2013   2017

Use

downloads

3,871,984

x 278

13,923

2013   2017

Services

services

1,421

x 33

42

2013   2017

OECD

Wins 1st Place of at OECD OURdata Index
(for 2nd consecutive year)

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Key initiatives on OGD (1): Open Data Portal

Integrated and central management platform for registering and publishing datasets for all governments and public institutions
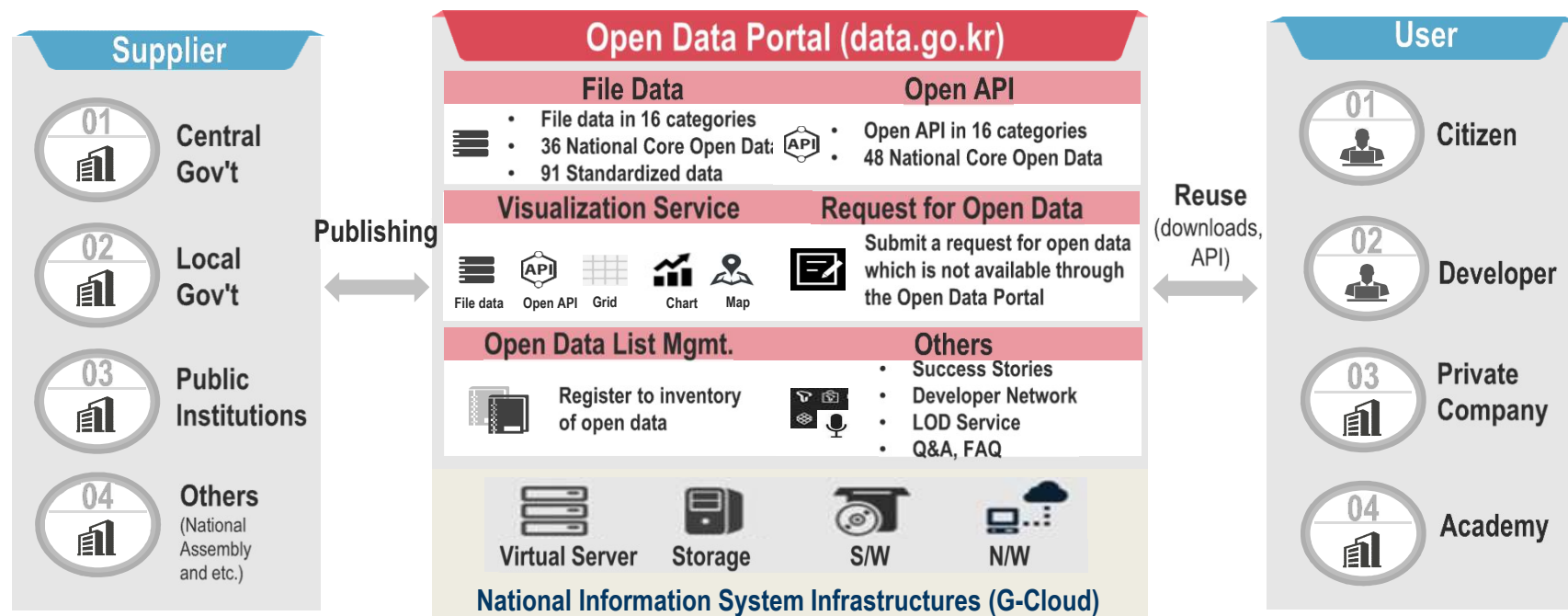
*Oh. J. 2018. "Open Gov Data Policies and Strategies in ROK" revised in part

Open Data Formats

We recommend applying open format(more than levels 3) to improve reuses of open government data

	Level 1	Level 2	Level 3	Level 4	Level 5
Allow	Unsatisfied format	Meet the minimum format	Open Format		
Features	Data that can be read by a specific software can not be freely modified or converted	Read, modify, and convert from specific software	Read, modify, and convert from any software	Data structure describing the data property relationship based on URI	Connect and share with other data on the web
Examples	PDF	HWP, XLS, JPG, PNG, WMV, MPEG, MP3, SWF	CSV, JSON, XML	RDF	LOD

*Oh. J. 2018. "Open Gov Data Policies and Strategies in ROK" revised in part

Open Data Portal Statics

Publication/Releases (2018.07)

- Published Data : 24,977 datasets
  - File Data : 22,329 datasets (90%)
  - Open API : 2,557 datasets (10%)
- Standardized Data : 91 datasets
- Organization Type : 696 publisher
  - Central Gov'ts : 46 (10%)
  - Local Gov'ts : 249 (74%)
  - Public Institutions : 379 (15%)
  - Others : 22 (1%)

Popular Data Top 5

File Data	Open API
• Small merchants and industrialists • Traffic accident statics • Big data analysis of News • Traffic accident • Real estate cadastral	• Real estate transaction • Air pollution • Weather forecasting • Domestic tourism • Real-time bus locations

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Key initiatives on OGD (2): National Core Data

Plans/Objectives

- Open Data Big-bang Project (2014)
- Collect demands on data needs and consultation with private sector, citizens

- 1st National Core Data Plan (2015~2016)
- High values and demands data for economic impacts

- 2nd National Core Data Plan (2017~2019)
- AI, IoT related data to support 4th Industrial Revolution and social impacts

of National Core Data

2015	11 datasets	· Comprehensive real estate · Local admin.(biz licenses & permits) · National healthcare services etc.
2016	22 datasets	· Real estate transaction · Local gov't financial · Foods, medicines, medical devices and cosmetics etc.
2017	15 datasets	· National e-Procurement · Social security · Comprehensive automobiles etc.
2018	29 datasets	· Environmental assessment & monitoring · Autonomous driving picture · AI based medical image reading support etc.

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Key initiatives on OGD (3): Standards for OGD

Producing	Processing	Registering	Deliberating & Publishing	M/A
Producing standardized datasets in compliance with defined standard formats	Self-checking standards of datasets through online services	Registering a suitable datasets in the result of self-checking with an authorization key on the open data portal	Deliberating datasets weither applied or not registered by public institutions on the open data portal	When reporting data errors and complaints, data correcting and supplementing

OGD standards checking services (**gooddata.go.kr**)	Open Data Portal(data.go.kr)
Central/Local gov't and Public Institutions	**Open Data Center(NIA)**

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Improve quality of open gov't data by evaluating the level of data quality management of each public institutions: quality of data vs data management

• Target: High-capacity open gov't data with a large social and economic impact

  - 36 categories national key open gov't data and highly demanded data in open data portal

Yearly level evaluation target

Introduction (2016)	Settlement (2017)	Spreading(2018)
• 11 categories national key open gov't data • Top 10 users demanded datasets	• 12 categories national key open gov't data in 2016 • Top 20 users demanded datasets	• 45 central administrative agencies
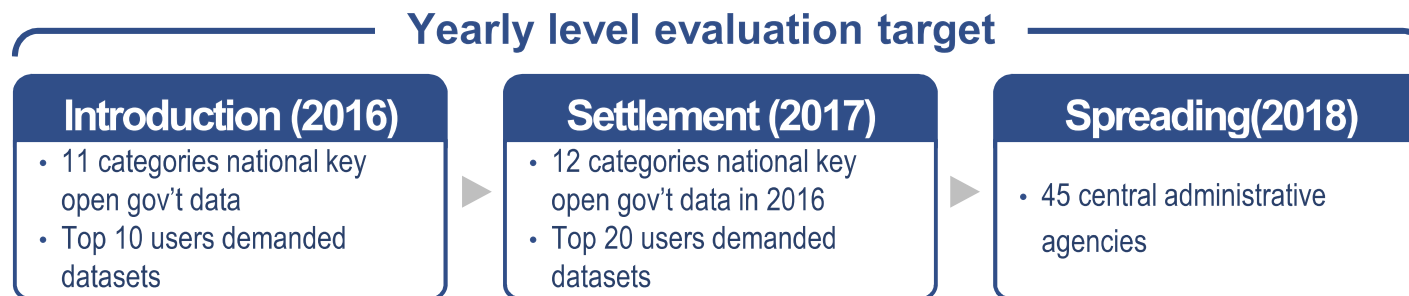
• After evaluation and Support : Check the corrective action of public institutions according to the result of quality control level evaluation, quality improvement consulting and technical support

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Supporting startups

Providing professional assistance to entrepreneurs covering full spectrum of startup development services

Start a Business

Office space for entrepreneurs, open spaces for ideas exchange and development, and testing their services

Comprehensive start-up support center (Open Square-D) in Seoul, Busan, Gangwon

Growing Up Business

Incubate ideas and services

Education, Consulting & Investment

Program to foster entrepreneurship, customized business consulting with private and public sector collaboration

Incubation of ideas, services and products

Open data challenge competitions, hackathons etc.

open Square D

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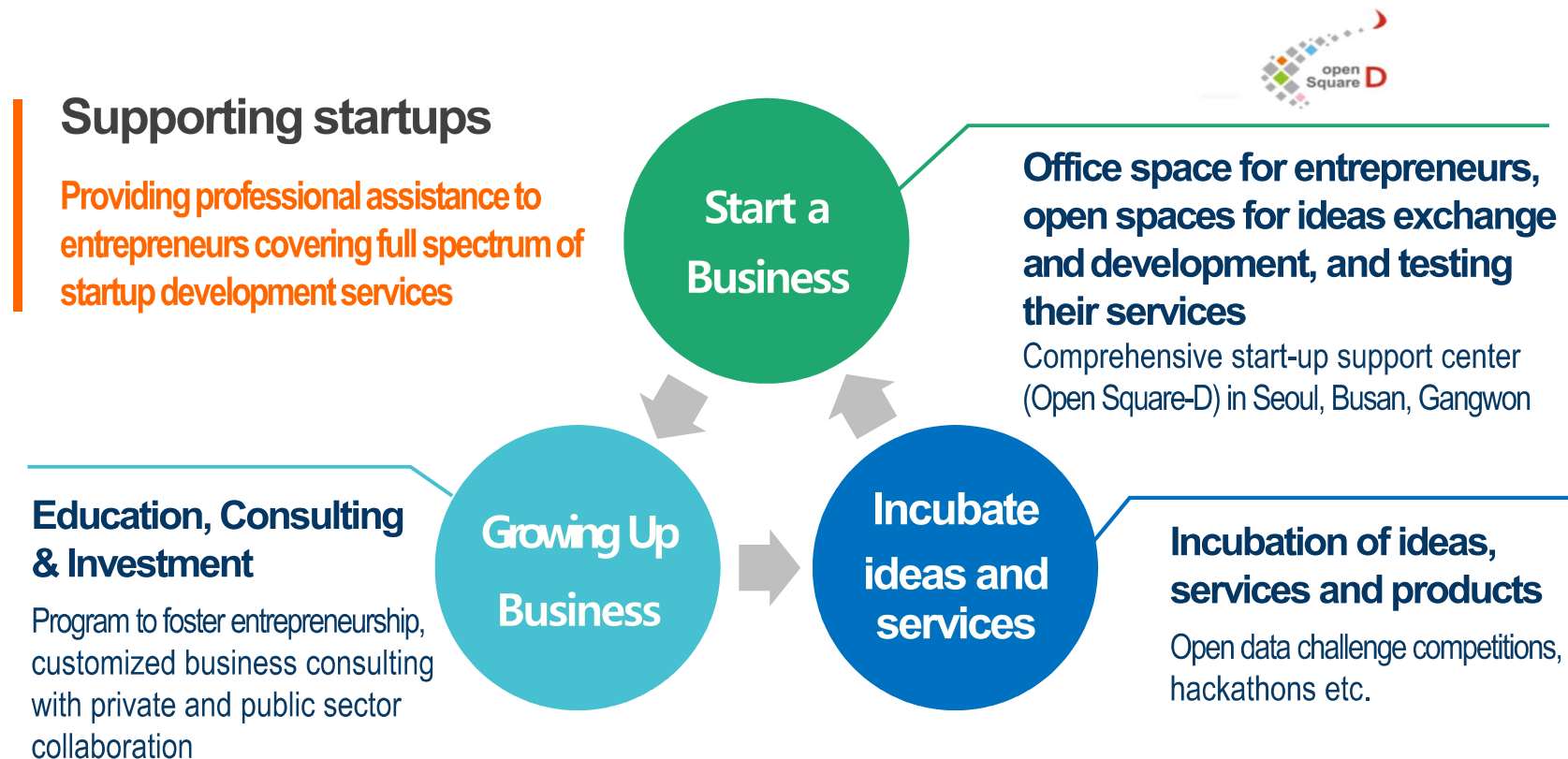
Public-Private partnerships for fostering startups

Fostering a company specialized in open data through customized support for each level of business status from business development, become a startups and go to global market

- 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

행정안전부
Ministry of the Interior and Safety

중소벤처기업부
Ministry of SMEs and Startups

특허청
Korean Intellectual Property Office

창업진흥원
Korea Institute of Startup & Entrepreneurship Development

kotra
Korea Trade-Investment Promotion Agency

KIPA
Korea Invention Promotion Association

KODIT
신용보증기금
KOREA CREDIT GUARANTEE FUND

1KIbO
Korea Technology Finance Corporation

DEMODAY

(사)한국엔젤투자협회
Korea Business Angels Association

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Key initiatives on OGD (6): Fostering analysis in the public sector

Supporting data-driven (or evidence-based) policy making and developing public services in advance by implementing a smart government through using open data with a big data analysis in the public sector

Open & Big Data Analysis Infra.	Open & Big Data Analysis Modeling	Analysis Model Standardization
• Local gov't ordinance for use of big data • Big data center for each public institution • Government-wide system for public and private data collection/storage/analysis	• Open & big data analysis model in transportation, housing, healthcare and other fields close to the people's lives	• Open & big data Analysis model standardization and spread it nationwide

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Data 1st Street

A communication channel that can be used without any troublesome procedures such as a login, so all users can apply for open government data conveniently

- All users' requests for
  open data and its result are reviewed
- Prevent duplicate submissions by
  sharing results
- Data of high needs is reflected in
  the open data priority, etc.

데이터 1번가

여러분이 필요로 하는 공공데이터를 자유롭게 신청 할 수 있는 데이터 소통창구입니다.
신청하신 데이터 분석을 통하여 공공데이터 개방 및 정책 추진에 활용하고자 합니다.

다른 이용자들이 신청한 데이터도 확인하시고 **공감** 을 표현해 주세요!

Total **896** rows

| All | Search Data |

🏛 답변대기 ✅ 답변완료

No.	제목	내용	신청인	조회수	좋아요	처리상태
896	사업자등록번호 조회	기업 상호명으로 사업자등록번호 조… IOI	익명	7	👍 0	⏳
895	전염병 정보 제공	실시간 전염병의 실태를 보여주는 앱… IOI	양준*	6	👍 0	⏳
894	서울시 전신주(전봇대) 위치정보 현황	서울시 전신주(전봇대) 위치정보(po… IOI	김신*	6	👍 0	✅

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Open Data Forum

A Public-Private Partnership Community in cooperation with stakeholders to resolve economic and social problems thru using open data

- (Members) Civil society, Company, academy and institution, Press/Media, Government and public institutions
- (Research and projects) To improve open data policies and promote reuse of open data in private sectors

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IV. Some Examples

Cases for Utilizing Open Data (1)

goodoc

Mobile healthcare information platform

- **Company overview**

  - Company Name : CareLabs (founded in 2012)
  - Total Employment : 60 (started with 2)

- **Services & features :**

  - Location based hospitals and pharmacies info.
  - Hospital info. by special conditions (ex. night medical services, female obstetrics and gynecology etc.)
  - Non-medical insurance services and fee and healthcare info.

- **Data used : Nationwide hospitals, pharmacies, emergency medical service providers and biz licenses & permits**

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Cases for Utilizing Open Data (2)

Search and share parking lot and parking rates mobile payment apps

- **Company overview**
  - Company Name : Modu Company (founded in 2013)
  - Total Employment : 18 (started with 4)

- **Services & features :**
  - Location based real-time parking space info.
  - Share parking space to other drivers during off-peak hours
    (ex. local residents, shopping mall, churches)
  - Parking fee payment in advance by mobile

- **Data used : Public parking lot of local governments**
  - Public and private parking lots and linkage navigation application

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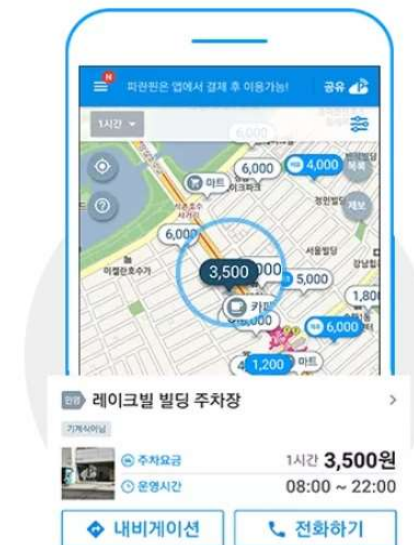
Cases for Open & Big Data Analysis (1)

CCTV installation area analysis and create a secure environment in poor security areas

Densest Neighborhoods	Rivers
421개	65곳
Walk Trails	Schools
138곳	60곳
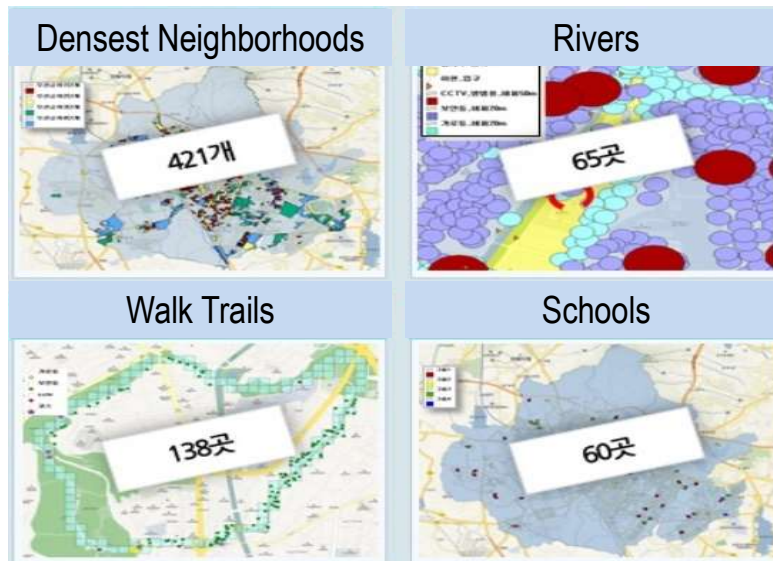
- **Analysis :** Security blind zone analysis and identify in neighborhoods, rivers, walk trails and schools

- **Data Sources :** CCTV, security and streetlights installation and operation status

- **Result & Impact**

  - Install additional cameras to cover security camera blind spot
  - Development and verification of standards analysis model by city type

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Cases for Open & Big Data Analysis Cases (2)

Analysis of optimized route of late night bus (called 'Owl Bus')

- **Analysis :** Adjusting bus operating routes by analyzing and visualization of the floating population density and pattern at night on the map by Geographic Information System (GIS)

- **Data Sources :** Public Transport data and floating population data by mobile call volume

- **Result & Impact :** Optimization of late night bus routes and adjustment of dispatch intervals based on floating population

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V. Conclusion: Future Direction

Future Plans (1): Open first by default

Increase open data on citizens' demands

Publish open data in a principled manner of all governments and public institutions except personal privacy and national security.

➡ Focused on datasets are closed to people's lives for example, safety, environment, and healthcare, etc.

Publishing selectively ➡ **Publishing in Principle**

As-Is   To-Be

Expand open data in new industries

Contribute to the growth of innovation through expanding open data required for new industries for example, AI, IoT and location data.

➡ Publish open data for autonomous vehicles, smart city and AR/VR in 2018 and for AI and Healthcare in 2019.
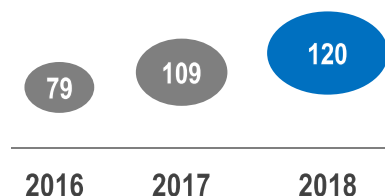
Autonomous driving   Smart city   AI

2018 (20 datasets) → 2022 (30 datasets)

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Future Plans (2): Improving open data quality

Improve open data quality to make it easier to use in private sectors

of Open Data Standards

79 (2016)
109 (2017)
120 (2018)

2016   2017   2018

Designating and expanding of open data standards for common holdings datasets of many public institutions with high demand from the private sector <- especially demand for linked open data

Open Formats %

70% (2016)
79% (2017)
80% (2018)

2016   2017   2018
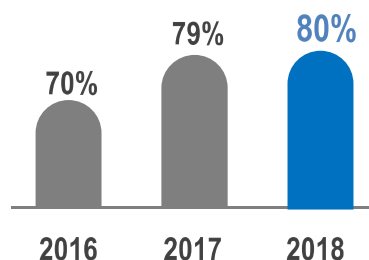
Continuously expanding the proportion of open formats (more than levels 3)

Data Quality Management

Central gov't
Local gov't
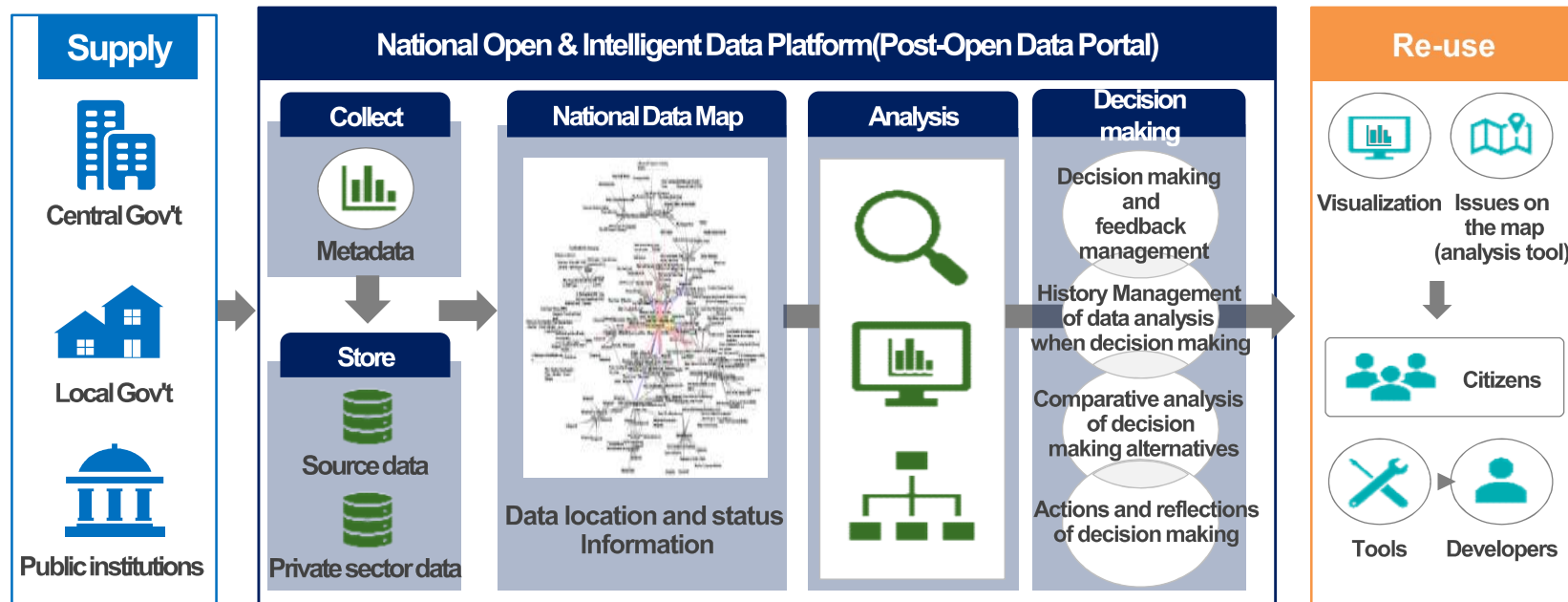Public institutions

2018   2019   2020
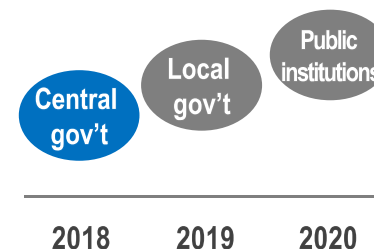
Expanding and enforcing of evaluation system for open data quality control levels to all central, local governments and public institutions

*Oh. J. 2018. "Open Gov Data Policies and Strategies in ROK" revised in part

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Future Plans (3): National Open & Intelligent Data Platform

A System that shares data and supports analysis for policy making by ensuring data interoperability by central, local government and other public institutions

Supply	National Open & Intelligent Data Platform(Post-Open Data Portal)				Re-use

Supply
- Central Gov't
- Local Gov't
- Public institutions

National Open & Intelligent Data Platform(Post-Open Data Portal)

Collect
- Metadata

Store
- Source data
- Private sector data

National Data Map
- Data location and status Information

Analysis

Decision making
- Decision making and feedback management
- History Management of data analysis when decision making
- Comparative analysis of decision making alternatives
- Actions and reflections of decision making

Re-use
- Visualization
- Issues on the map (analysis tool)
- Citizens
- Tools
- Developers

*Oh. J. 2018. "Open Gov Data Policies and Strategies in ROK"

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Future Plans (4): Enacting the Data-based Public Administration Act

Increasing administrative responsibility, improving citizens' quality of life, enhancing the sharing of data between public institutions and establishing an integrated data management system through data-driven public administration.

<- institutional base for evidence-based policy making and administration

Registration of Data & Publication	Integrated Data Management	Open & Big Data Analysis Center
• Registering data to the national data platform • Data sharing and exchange between public institutions • Collecting data from the private sector • Data securing and management	• Building a data management system by associating metadata of public institutions • Establishing integrated data management platform for efficient release of data and the interconnected and joint use of data	• Open & big data analysis center in each public institution • Open & big data analysis center in central government for data-driven national critical decision making

*Oh. J. 2018. "Open Gov Data Policies and Strategies in ROK" revised in part

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THANK YOU!