



Science in the City

Building Participatory Urban Learning Community Hubs
through Research and Activation



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2. Local Informatization in e-Government
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I. What is Smart City?

Evolution of Smart City



1.0
Internet



2.0
1.0+Sensor



3.0
2.0+Big Data

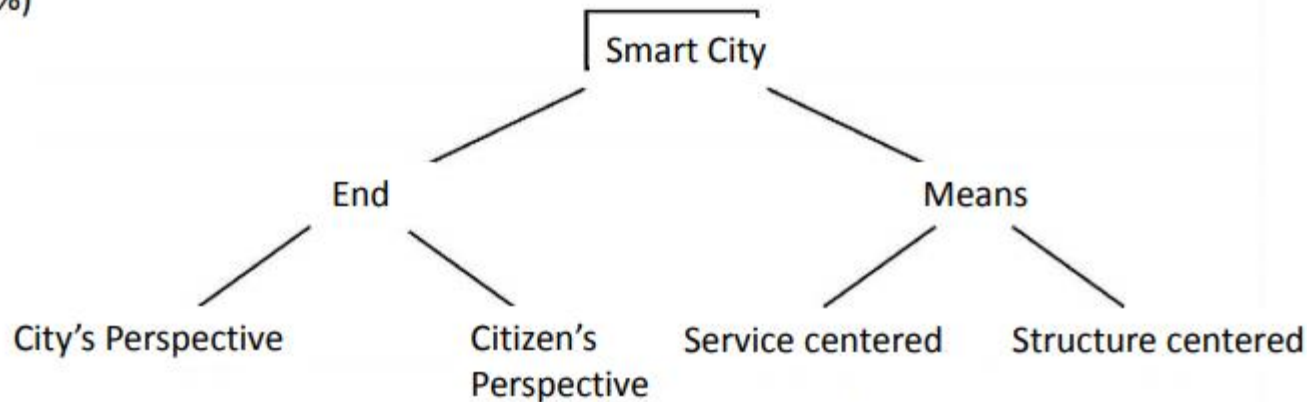


4.0
3.0+AI/Robot

I. What is Smart City?

Concept

ICT, communication, intelligence, information(26%)
Infrastructure and services(17%)
Environment and sustainability(17%)
People, citizens, society(12%)
Governance, management and administration(10%)
Economy and Finance(8%)
Quality of life and lifestyle(6%)
Mobility(4%)



Source: Kim

I. What is Smart City?

Smart City by type

New City

RoK, S/E Asia, China, India, Middle East

- **Focus on HW-innovation (new city establishment)**
 - New concept of urbanization to solve diverse urban problems such as traffic congestion, unemployment, crime, energy shortage due to radical urbanization
 - Integrating the smart city concept in the development phase is a trend
 - Integrating newly emerging smart technologies in the development phase and putting efforts to attract outside investment

Existing City

North America, Europe, Japan

- **Focus on SW-innovation (urban regeneration)**
 - Pursuing smart urbanization as a measure to urban deterioration and climate change.
 - Smart city establishment for resolving environment and energy problems (Europe, Japan)
 - Mainly defining as "smart city=sustainable city"
 - Promoting smart urbanization based on urban regeneration and sustainability

I. What is Smart City?

Overview of Smart City- Smart City Type Classification

New City

Existing City

Efficiency
(convenience)



Dubai
(UAE)



Sejong
(RoK)



Songdo,
Incheon
(RoK)



Sanghai
(CChina)



Sejong
(RoK)



Busan
(RoK)



Singapore

Sustainability
(Environmental)



Doha
(Qatar)



Masdar City
(UAE)



Amsterdam
(Netherlands)



Yokohama
(Japan)



Chicago
(USA)



Glasgow
(UK)



Barcelona
(Spain)



Local Informatization in e-Government



II. Local Informatization in e-Gov.

Concept of Local informatization

- Concept**

**e-Government Act
(Article 65)**

**Framework Act on National
Informatization(Article16)**

Stakeholders

Central and local governments

Purpose

Improving quality of lives for local residents

Field

Administration, daily lives(culture, well-being, environment), industry

- Concept's change and expansion**



Who

Local governments



Central and local governments



Goal

Mitigating the Digital Divide



Developing local communities
and enhancing the quality of lives
for local residents



How

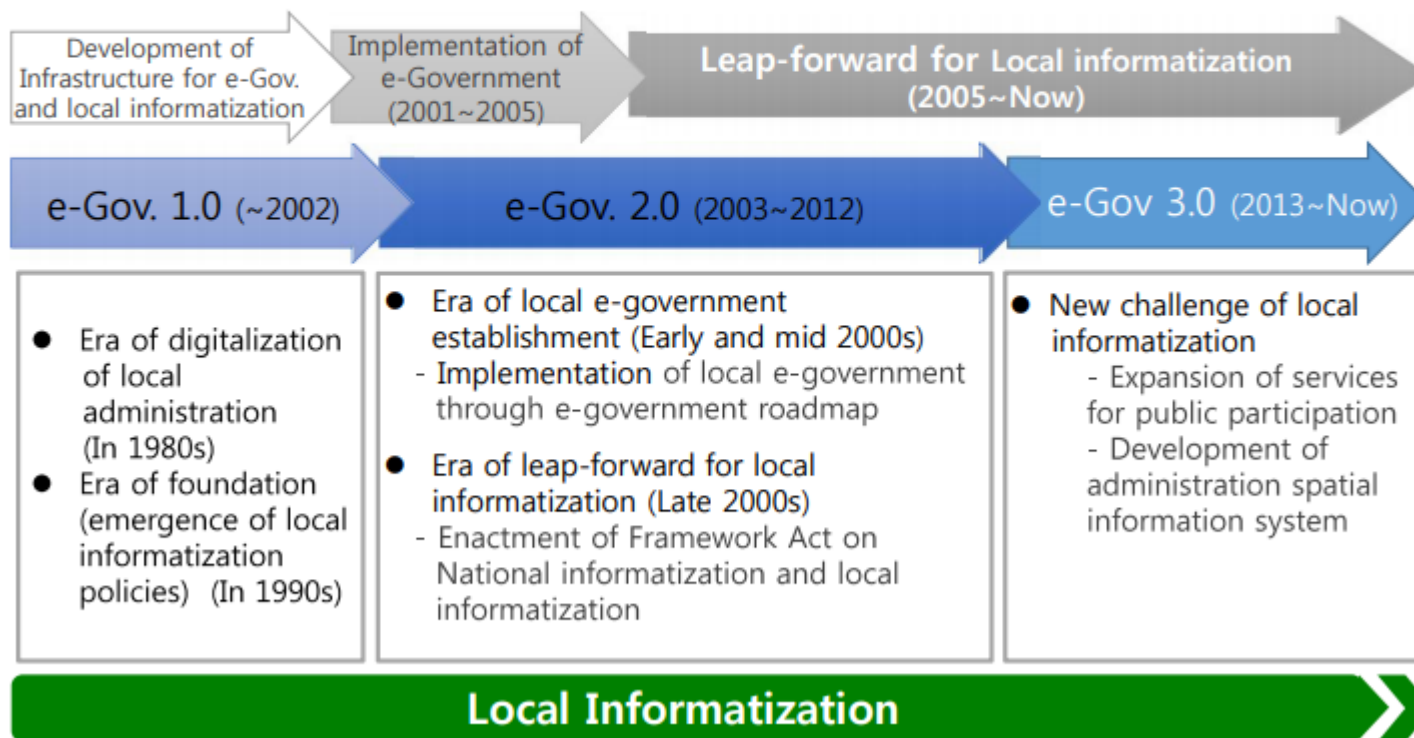
Establishing infrastructure and
ICT network based on Hardware



Provision and utilization of
information service in local
administration and economy

II. Local Informatization in e-Gov

Process of local informatization in e-Government



II. Local Informatization in e-Gov

Support from central government for promoting local informatization

**Development
& provision of
common
administration
task program**

Application Program is developed by the central ministry and diffused by local gov. Local governments develop and manage HW in their data center

19 Tasks

- City/Province Saeol Administrative Information System
- Local Tax System
- Extra Tax Income System
- Local Finance System
- etc

**Support
local gov's
informatization
pilot project**

U-Service support project

- Central ministry funds pilot project
- Smart garbage bin, u-library, and etc.

Support for Establishment of
CCTV Integrated Control
Center

- Support through matching funds
- Support the establishment of CCTV control center in 190 local governments





The Relationship Between Local Informatization and Smart City

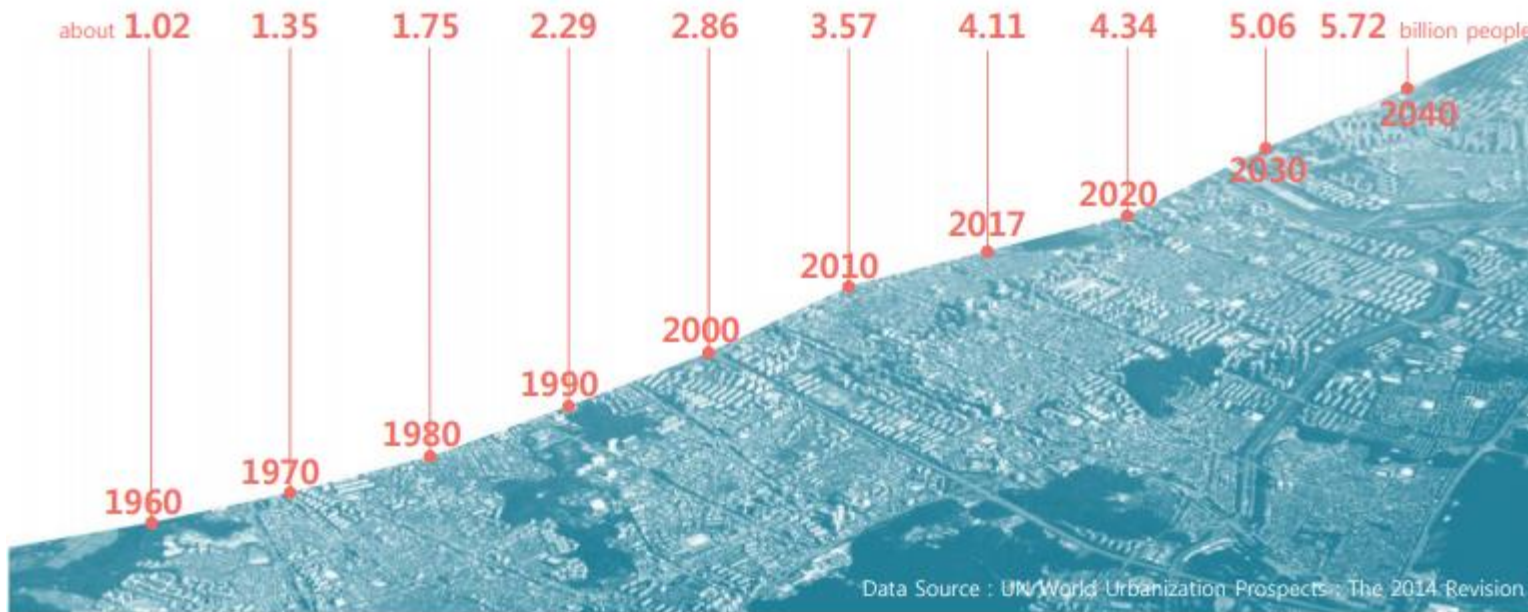


This project has received funding from the European Union's
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III. The Relationship Between Local Informatization & Smart City

Urban Population Growth and Urban Problems

- The world's urban population is steadily increasing
- In 2040, the urban population will be increased about 6 times compared to 1960s
- The urban population is about 4.11 billion in 2017 , and it is expected to increased up to 5.11 billion by 2030



III. The Relationship Between Local Informatization & Smart City

Solving urban problems by leveraging cutting-edge ICT

A futuristic city to solve various urban problems by leveraging cutting-edge ICT to improve the quality of life of urban residents.



The digital innovation accompanied with the Fourth Industrial Revolution **makes the city smarter.**

III. The Relationship Between Local Informatization & Smart City

Change of local informatization paradigm

- Early local informatization focused on administrative informatization
- Local informatization in e-Government era focused on implementing administrative services
- Recently, mobile and smart concepts have been introduced into local informatization
- The goal of local informatization is to improve the quality of life of residents

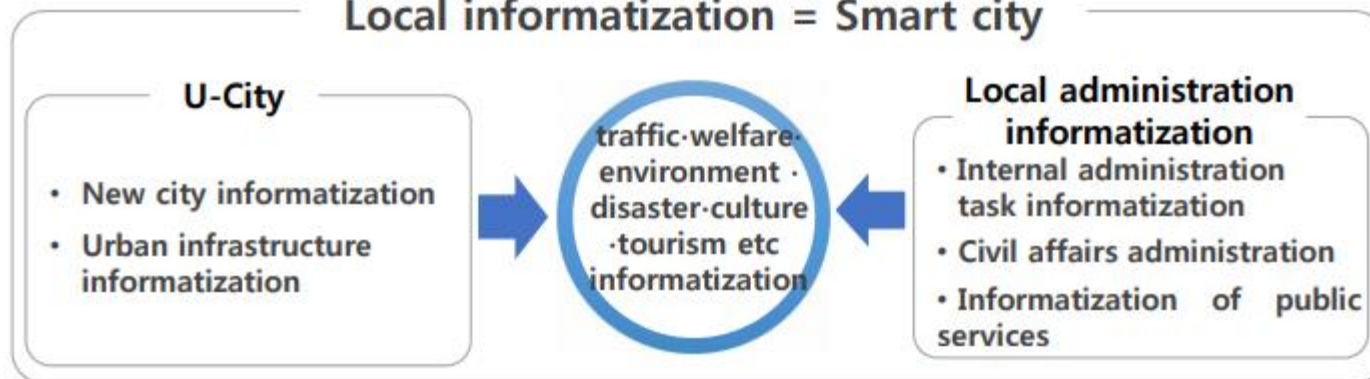


III. The Relationship Between Local Informatization & Smart City

Local informatization and smart city

- U-City, which was led by the Ministry of Land, implemented information-oriented projects mainly in urban areas such as new town projects, roads, electricity, and water supply and sewage systems so far
- U-City expands its scope to smart city
- Local informatization led by MOIS has been implemented mainly through administrative informatization
- The scope expands into solving fundamental problems of local governments including disaster·welfare·environment·traffic, etc. by integrating ICT

Local informatization = Smart city



IV Smart City Policy Trends



IV. Smart City Policy Trends

Status of smart city implementation (Ministry of the Interior and Safety)

- Implementing an innovative service support which is fundamental for Smart City through **U-service support project**
- Establishment of **CCTV integrated control center** for crime and disaster prevention, child protection and traffic problem solving
- Integrated control support using intelligent information technology
- **Promoting excavation and diffusion of smart city model** by applying cutting-edge ICT technology such as artificial intelligence, etc.
- **Promoting smart city development based on ICT for population-declining areas**



IV. Smart City Policy Trends

Status of smart city implementation (Other central ministries)

Ministry of Land, Infrastructure and Transport

- Announcement of ubiquitous city comprehensive plan('14 ~ '18)
- U-City technology development, human resource training, pilot city support, etc.
- Implementation of U-City integrated platform dissemination in integrated control center
- Reform the smart city law (expansion to management and operation from construction and from new city to existing city)

Ministry of Science and ICT

- Promotion of global smart city demonstration complex construction project('15 ~ '17)
- Demonstration of four areas of citizen safety, transportation, energy, and living convenience
- Establishment of open home IoT standard platform('17)

Ministry of Trade, Industry and Energy

- Implementation of a smart grid demonstration project and supply support project('09 ~ '16)
- Smart grid diffusion business('16 ~ '18)
- Implementation of developing KEPCO(Korea Electric Power Corporation) big data integration platform

IV. Smart City Policy Trends

Status of smart city implementation (Local government)

Development of IoT ecosystem/ Implementation of demonstration project	<ul style="list-style-type: none"> ▪ (Seoul) Performing Seoul Digital 2020('16~), Implementing demonstration of 20 kinds of IoT service('16) ▪ (Busan) Establishment of open IoT smart city demonstration complex('15~'17) ▪ (Daegu) IoT test bed business agreement, Susung medical district smart city creation service('16)
Implementation of city integrated information center project	<ul style="list-style-type: none"> ▪ (Incheon) Establishment of free economic zone U-City('16), Smart-City Operations Center Management ▪ (Daejeon) Completion of developing Doan new city project('15), U-City Integration Center Operation ▪ (Sejong) Investment of KRW155.8 billion through three stages until 2030, Operation of comprehensive smart city integrated information center
Promoting smart city by reflecting local characteristics	<ul style="list-style-type: none"> ▪ (Ulsan) Promotion of smart city master plan formulation service('16~'17), Suggest a plan to build Ulsan smart city reflecting to local conditions ▪ (Jeju) Jeju Smart City Island Agreement('16)
Crime prevention /Social safety net Establishment	<ul style="list-style-type: none"> ▪ (Gwangju) Establishment of social safety net for vulnerable groups('15~'16), Security guard smart street light

IV. Smart City Policy Trends

Status of smart city implementation (Related Institutions)

Korea Agency for Infrastructure Technology Advancement	<ul style="list-style-type: none"> ▪ Organizing international urban & infrastructure development council ▪ Implementing national strategy on Smart City
Korea Land & Housing Corporation	<ul style="list-style-type: none"> ▪ Creating Korean smart city and accelerating such as establishment of specialized complex and implementation of a pilot project. ▪ Creating a smart city industrial ecosystem such as supporting start-ups and organizing contests. ▪ Promoting exportation of smart new cities into other countries such as Kuwait, India and Bolivia & strengthening PR ▪ Overseas business planning, e.g. U-City pilot project in Hue city, Vietnam.
Korea Smart City Association	<ul style="list-style-type: none"> ▪ Promotion of standardizing smart city integrated platform ▪ Promotion of smart city human resource training business
Etc	<ul style="list-style-type: none"> ▪ (K-water, Korea Water Resources Corporation) Smart water city development pilot project in Sejong City, etc. ▪ (KEPCO, Korea Electric Power Corporation) bichgalam Smart City Project of Naju Innovation City, etc.



V Smart City Service



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V. Smart City Service

Livestock manure electronic transfer management system using weight sensor

Disposal, collection, transport, disposal of livestock manure using GPS and weight sensor

Development of electronic management system for transparent processing of all processes

Implementation Details

- Development of livestock manure electronic transfer system
- Monitoring an illegal dumping by comparing changes of the location and weight of trucks
- Enhancement in the quality of local resident's lives as the number of odor complaints reduced by 22.9% which were caused by illegal disposal of livestock manure



V. Smart City Service

RFID-based food waste management system

The system imposes disposal fees according to the amount of household garbage based on RFID to reduce environmental pollution by **inducing residents to voluntarily reduce the amount of food waste**

Implementation Details

- Implementation of RFID-based food waste collection system
- Establishment of integrated food waste management system
- Reduction of emissions by more than 20% after implementing food waste trimming system using RFID



V. Smart City Service

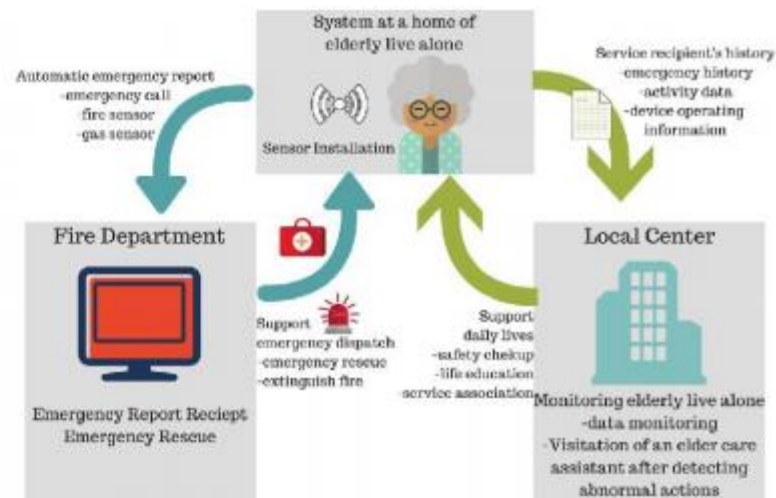
U-care service for the senior citizens living alone

In emergency situations, sensors, such as an activity sensor and a gas sensor at houses of elderly persons living alone, automatically request for help,

Solution of the aging society: **preventing elderly people from dying alone.**

Implementation Details

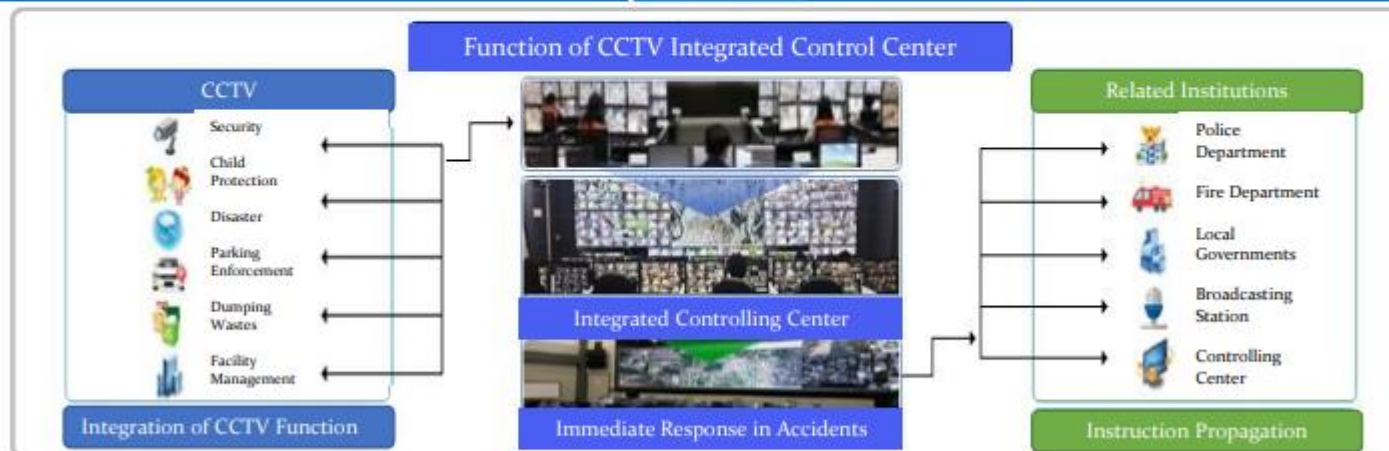
- Installation of U-care sensor in the home of the elderly living alone
- Development of a sensor information real-time monitoring system
- Pursuing the public safety by early response to over 2,000 emergency situations per year and more than 28 accidents



V. Smart City Service

Establishment and operation of CCTV integrated control center

Efficient operation of controlling tasks through **establishment of integrated control center**.
CCTVs were used to installed and operated by each department in the local government independently for multiple purposes such as transportation, crime prevention, and fire prevention



Incident/Accident Response on Five Violent Crimes

total 98,155
(10~15)

- five violent crimes: 9,456 cases
- misdemeanor: 29,065 cases
- discovery of suspected and wanted vehicles: 3,778 cases
- juvenile crimes: 25,611 cases
- disaster management: 1,139 cases
- safety response such as traffic accidents: 8,631 cases, etc: 20,475 cases

VI Smart City Policy Recommendation



VI. Smart City Policy Recommendation

Prioritize implementing smart traffic as a pending issue

- Major cities in the world are suffering from traffic congestion, air pollution, the lack of parking space due to the concentration of traffic flow in the center of the city as well as experiencing economic growth
- Therefore, link smart city to implementation of diverse regulations and supporting plans to solve urban environmental problem
- **Smart Mobility: Solve both** traffic congestion and energy/environment problem **at the same time**
- Connected car, shared car, eco-friendly public transportation



VI. Smart City Policy Recommendation

Provision of citizen needs-based public service through big data analysis

- Proactivity through big data analysis is needed
- Integrated management of data is important for ease of analysis → Organic operation of integrated management center and integrated controlling center is needed
- Identifying the area of high demands for citizens through big data analysis should be the top priority
- Should enhancing policy efficiency through services that citizens can experience
- Higher the policy efficiency, more citizens' supports are expected

<Case I: Night bus route in Seoul>



<Case2: Real-time parking information service in Incheon>



VI. Smart City Policy Recommendation

Inducing citizen participation and attention through active information provision

- Citizen's interests in the industry related to smart city will be increased through tangible(interactive) service development
- The city government needs to induce citizens to provide service for solving local problem through active public data
- Interaction between city and citizen is expected to be increased by citizens who voluntarily provide private data to public sector

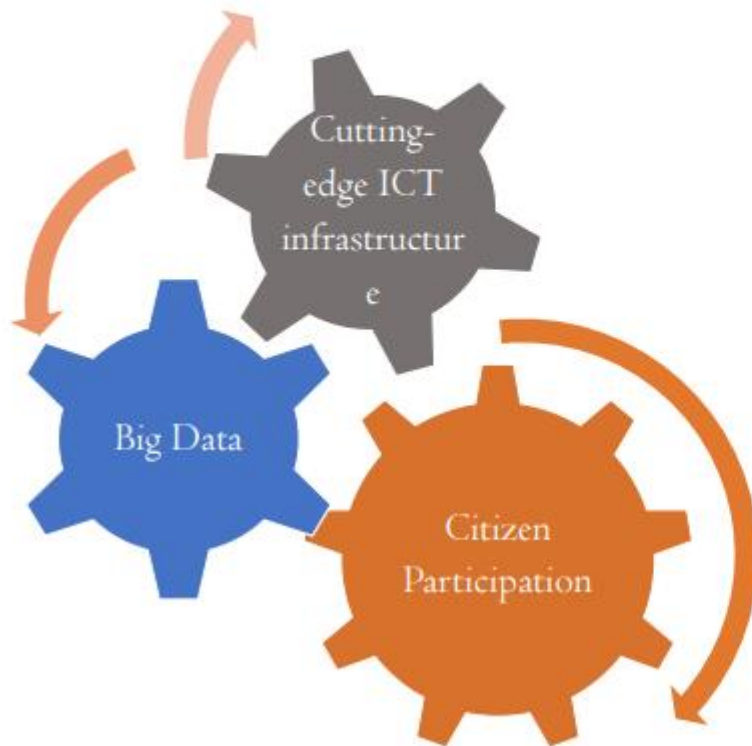


<Case: Big data campus in the city of Seoul>

- Among 4,500 kinds of big data, data utilization and analysis are available for citizens preference
- Arrangement of big data professionals who helps data analysis for citizens

VI. Smart City Policy Recommendation

Pursuing “Smart City=Smart Citizen” model for a long-term plan



- In smart city, it will be possible to develop public services for citizens' desire through analyzing big data which is collected in ICT infrastructure
- In smart city, it is expected that smart citizen's active engagement as prosumer will be most important

VI. Smart City Policy Recommendation

Five Difficulties in Smart City Policy

- 1 Privacy Protection vs Social Intelligence Securement
- 2 Formulation of Government-Citizen-Industry Holistic Governance
- 3 Harmonization of City-Service Publicity and Private Investment
- 4 Political Rationality: Difficulty of Structural Innovation Rather Than Technological Innovation
- 5 Future Investment: High Risk, High Return

VI. Smart City Policy Recommendation

Reaction: Social Agreement and National Strategy as Agenda

❖ **City Strategy vs. National Strategy**

- ◆ Limited capacity of a local government vs national development agenda

❖ **Formulation of policy network and securing interests and supports of nation**

- ◆ A wide range of experts' participations from academia, press, and industry

❖ **Social agreement on direction of implementation**

- ◆ Preparing a platform for citizen participation and conflict resolution

❖ **Preparing a long-term implementation strategy**

- ◆ Takes 10-20 years

VI. Smart City Policy Recommendation

Reaction 2. Smart city platform establishment and publicity securement

- ◆ Common platform : a software for linking and utilizing information system in each sector including security, disaster prevention, and facility management based on infrastructure, data, and service

◆ Stakeholder of Investment

- ◆ Government's leading investment
 - core common factor establishment by the government
 - follow-up investment by private sector
- ◆ Private investment + public regulation
 - government: platform planning
 - private corporation: platform development
- ★ Applying regulations for securing public good
- ★ Preparing foundation for stable investment and service inducement