Why Smart Cities?

Rapid Urbanization and Consequent Social Problems

According to the UN, by 2050 the world’s population will grow from 5 billion to 9 billion, with the urbanization rate reaching up to 70%.

Use of Innovative Technology to Solve Urban Problems

Countries around the world are paying attention to smart cities as a new alternative to solving urban problems, and making full-fledged efforts to promote smart cities using fourth industrial revolution technologies such as big data and AI.

As a matter of fact, major countries around the world are pursuing smart cities in a variety of ways, including the creation of Living Labs (Santander, New Mexico), the operation of data platforms (Milton Keynes, Cambridge), and solution development (Columbus, USA).
02 What is a Smart City?

Diverse Thoughts on Smart Cities

What is Smart City?
Depending on the level of economic and urban development and urban conditions of each country, smart cities are defined in various ways, and each country’s approach to smart cities is varied.

A city running on a mobile platform? In cities, you can get anything with your phone, like shopping, ride-hailing, healthcare, education etc.

A sustainable city is to use less energy and water and produce less waste and pollution.

A city that helps residents enjoy more safe and convenient living?

Our Idea of Smart City

Korea defines Smart City as ‘a platform to improve the quality of life for citizens, enhance the sustainability of cities, and foster new industries by utilizing innovative technologies of the 4th Industrial Revolution era’.

03 Korea’s Strengths

Smart Company, Smart People

Korea’s strength in developing smart cities can be explained in two ways. First, Korea is ‘smart’. Korea has world-class ICT technology as well as world-leading companies such as Samsung and LG. In addition, Korea is an IT-friendly country with the world’s highest smartphone penetration rate and high internet usage.

Valuable Experiences in Urban Development

Second, Korea has various experiences in urban development. Korea has overcome the ruins from the Korean War in the 1950s and has achieved rapid economic growth since the 1960s. Korea has accumulated diverse know-hows in urban development through many trials and errors in the process of new town development for more than 20 years.
Korea’s smart city policy has been gradually expanding and evolving in accordance with changes in circumstances.

**Smart City Policy Development History**

- **Construction of U-City Phase (~’13)**
  - It is a project that combines the development of a high-speed ICT Network system with the new town development projects such as the 2nd Generation New Towns and Happy City in Inno-City. Through the U-Eco City R&D project (’07.8~’13.6, KRW 101.6B), it infrastructure technologies such as U-City basic service, element technology, and integrated platform were developed.

- **System Linkage phase (~’14~’17)**
  - The government implemented information and system linkage projects focusing on the public in order to maximize the utilization of the established smart infrastructure. Based on the Smart City information R&D (~’13.12~’19.3, KRW 23.8B), Korea began to distribute the integrated platform based on 5 major public services:
    - Emergency Dispatch
    - 112 Emergency Dispatch
    - 119 Emergency Dispatch
    - Disaster Safety
    - Support for the socially underprivileged

- **Smart City Development phase (~’18~)**
  - Korea expanded its policy to encompass new concepts such as testbeds, living labs, innovative ecosystem of the new technologies of the 4th Industrial Revolution. Major innovative growth initiatives, the Korea government is implementing various policies such as developing national pilot cities, smartization of existing cities, and building an industrial ecosystems.

**Korea’s Smart City Development Stage**

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**Status of Smart Cities by Local Governments**

Until now, the Korean government has provided active policy support, such as expanding fiscal investment and drastic deregulation, for the successful development and expansion of smart cities. As a result, many local governments are promoting the development of smart cities. 78 local governments across the country have secured dedicated organization for smart cities (as of June, ’19), and a total of 67 local governments are participating in smart city government support projects (as of June, ’19). Each local government is stepping up efforts to develop a smart city that fits its local characteristics.

**Status of Smart Cities by Local Governments**

- **Seoul-Incheon-Gyeonggi (21)**
  - Seoul Special City
  - Incheon City
  - Gyeonggi-do

- **Chungbuk (3)**
  - Chongbuk Metropolitan City
  - Chongbuk Province
  - Chongbuk Province

- **Changwon-do (3)**
  - Gyeongsangnam-do
  - Jinju
  - Changwon

- **Gangwon-do (4)**
  - Gangwon Province
  - Chuncheon
  - Chuncheon

- **Jeju (1)**
  - Jeju Province
  - Jeju Island

- **Gwangju-Jeonnam (7)**
  - Gwangju Metropolitan City
  - Gangwon Province
  - Suncheon

- **Busan-Ulsan-Gyeongsangnam-do (3)**
  - Busan Metropolitan City
  - Ulsan Metropolitan City
  - Gyeongsangnam-do

- **Daegu-Gyeongsangbuk-do (7)**
  - Daegu Metropolitan City
  - Gyeongsangbuk-do
  - Sangju

- **Daejeon-CHONGNAM (3)**
  - Daejeon Metropolitan City
  - Chungbuk Province
  - Daejeon

- **Gwangju-Jeonnam (7)**
  - Gwangju Metropolitan City
  - Gwangju Province
  - Suncheon

- **Seoul-Incheon-Gyeonggi (21)**
  - Seoul Special City
  - Gyeonggi-do
  - Incheon City
Korea’s Smart City Development Strategy

We will make our people’s lives happy with our innovative and inclusive smart cities.

The Korean government is pursuing smart city policies with the aim of solving urban problems, developing an inclusive smart city that cares for citizens, and building an innovative ecosystem and strengthening global cooperation utilizing the advanced technologies of the 4th Industrial Revolution.

In June, a five-year mid-to-long term roadmap was established to develop and expand smart cities and prepared 14 detailed tasks in 4 major areas.

1st We continue to create smart cities tailored for each stage of urban growth (new—existing—old).
2nd We will strengthen the foundation for smart city expansion by simultaneously developing technologies and fostering human resources for city operation based on data and AI.
3rd We are establishing a smart city innovation ecosystem through bold regulatory improvements and corporate and civic engagement governance.
4th We plan to strengthen our global network to share insights and experiences with countries around the world.

VISION

Smart City: a platform that changes people’s lives

SEJONG
- MP : Prof. Jae-sung Jung (Brain Scientist)
- Executor : LH corp.
- Area: 2.7㎢
- Population: 22,500
- Completion : 2022~

BUSAN
- MP : Doctor Jong-sung Hwang (Data & Platform Expert)
- Executor : K—Water corp.
- Area: 2.2㎢
- Population : 8,500
- Completion : 2021~
National Pilot Smart City - Sejong

The Sejong Pilot City with the concept of AI-based city, is creating a smart city that changes the daily lives of citizens through 7 innovative factors such as mobility, healthcare, education, energy, and more. For example, smart transportation optimizes traffic by sharing-based transportation and AI analysis of traffic flow data to provide services that reduce commute time and costs, and introduces various future transportation such as shared cars and autonomous vehicles to be experienced in daily life.

Sejong Pilot City - Core Innovative Factors

**MOBILITY**
A city that ensures access to transportation by introducing future mobility services such as automated driving car & personal mobility

- Designate 'sharing car only district' and offer smart mobility services* inside the district
  - Smart mobility : personal mobility, car sharing, ride hailing, self-driving shuttles

- Promote Mobility as a Service(MaaS) by developing a platform that streamlines transfers between transportations Like bus, taxi, bicycle, taxi and personal mobility
  - MaaS : Mobility-as-a-Service

**Healthcare**
A city that develops a platform for proactive and streamlined health care service provision for protection of citizens' health and lives

- Prevention
  - Compile patients’ health records
  - AI analysis to predict illness

- Emergency response
  - Calculate short routes for dispatchers
  - Real-time transfer of patient data
  - Personalized treatment upon arrival at hospitals

- Management
  - Platform for hospital data sharing (e.g., doctors on-duty, waiting time)
  - Personalized hospital recommendation
National Pilot Smart City

National Pilot City - Busan

The Busan pilot city with the concept of data and augmented reality, is creating of cutting-edge waterfront city through 10 innovative factors such as robots, water, and energy. In particular, it is a city specialized in water by applying smart water management technology in the entire urban water cycle (rainwater-river-sewage-reuse) and will also build zero energy system that achieves 100% energy self-sufficiency by utilizing renewable energy source from nature such as hydro and solar energy.

Busan Pilot City - Core Innovative Factors

**Energy**

A city that secures energy self-sufficiency by meeting its energy need from new sources like fuel cell plant, hydrothermal energy

- **60MW Fuel Cell Plant**
  - Produce electricity and energy from fuel cell plants

- **Hydrothermal Energy**
  - Obtain energy for heating and cooling by extracting heat from surface water

**Robot**

A global robot city with emerging robotic industry and robot-friendly infrastructure that integrates robots to daily life

- **Robot Cluster**
  - Robot station, Robot rental service, Robot control center(planned)
  - Robot Lab/Test bed (planned)

- **Care robot**
  - Self-check out counter

- **Delivery robot**

- **Medical robot**

**Water**

Develop a Korean Water-Specialized City by implementing all the cutting-edge technologies related to water throughout the entire water cycle (rainwater-river-sewage-reuse)

100% Water recycling with smart water technologies

- **Rainfall monitoring**
  - Integrated disaster management

- **Low Impact Development(LID)**

- **Water Quality Improvement**

  - Reuse of sewage
  - Smart Purification Plant
  - Smart Water Management(SWM)
R&D

The Korean government is pursuing R&D for smart city innovation and growth engine combining technology development and demonstration to build a smart city based on data and AI. Korea has been supporting KRW 128.7 billion for 5 years from 2018 to 2022, and has developed and demonstrated data hubs and models in two locations in Daegu and Si-heung, Gyeonggi-do.

Smart City Challenge | City

Smart City Challenge (City) is a bottom-up type of project that encourages participation of private sector such as companies and universities, and reflects the demands from local governments and citizens. We will develop creative solutions for urban problems and demonstrate them at the ‘city’ level.

1st year  Funding for planning & pilot projects (6 cities/year, 1.5 billion KRW/project)
2nd year  Funding for expansion (1~2 cities/year, 20 billion KRW/project)

Smart City Challenge | Village

Smart City Challenge (Village) is helping to identify and demonstrate smart services optimized for small-scale local demands centered on local governments and local living labs. For example, we support the planning and development services in conjunction with local characteristics such as fine dust reduction, cultural tourism and revitalization of traditional market.

1st year  Support Planning Cost (4 projects/year, KRW 300 million won per project)
2nd year  Support Development Cost (3~4 Projects/year, KRW 2 billion won per project)
Develop Smart City Foundation

Smart City Living Lab

Living Lab is a series of processes and governance where citizens come together to find urban problems and solve them with private smart technologies. The Korean government is also actively operating Living Labs so that citizens, businesses, and local governments can work together to create smart cities.

**Governance**

**Living Lab:** a network where citizens identify urban problems and businesses present solutions to fix the problems

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**Inclusiveness**
- Organize Citizens’ Committee
- Consultation
- Propose solutions
- Select/test solutions
- Evaluate/expand solutions

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**Consultation**
- Identify problems

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**Innovation**
- Propose solutions

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**Implementation**
- Select/test solutions

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**Trust**
- Evaluate/expand solutions

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**Distribution of Integrated Platform**

The smart city integrated platform project is a major achievement of U-City R&D. It is a project to increase the efficiency of urban management by linking various information systems such as crime prevention, disaster prevention, and traffic operated by local governments to the integrated platform. Especially, the integrated platform, 112, 119, disaster networks, and socially underprivileged support services make the city a safer and more convenient living place. The government plans to expand the integrated platform distribution to 229 local governments nationwide by 23 and to establish a regional center that will serve as a hub by linking the basic local government with 112, 119 centers.

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**Platform**

Expansion smart city integrated platform to a total of 229 local governments by 2023 diversifying public services using this

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**Cities with the platform**

- 2016: 4
- 2017: 10
- 2018: 24
- 2019: 49

17 Hub centers (introduction in 2020): Linking local agency systems with the central agency systems (112/119)

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**Service expansion plan**

Now
- CCTV for traffic
- 112 dispatch
- 119 dispatch
- Disaster prevention

New
- Parking Management
- Pedestrian Access
- Waste Management
- Environment monitoring
- Public transport service
Create an Innovation Ecosystem

Drastic Regulatory Improvement

The Korean government is actively pushing for institutional improvements, including deregulation, to develop and expand smart cities. Particularly, we have developed special cases to foster new industries such as autonomous vehicles, drones, and renewable energy so that national pilot cities can serve as testbeds for new technologies and to expand the use of personal information and ease restrictions on participation by large corporates. Further, we have amended the Smart City Act twice (‘18.7, ‘19.4) to diversify smart city projects and services targeted for existing cities, and to introduce private proposal projects. At the same time, we are also pushing ahead with drastic deregulations by introducing ‘Smart City-type Regulatory Sandbox’ that eliminates all relevant regulations that are constraining the implementation of smart city projects.

Regulatory Sandbox: a mechanism for granting temporary waivers to businesses for new technology testing and pilot service introduction

Create an Industrial Ecosystem

The Korean government, together with Ministry of SMEs and Startups, supports about 100 young entrepreneurs per year in order to create an innovative industrial ecosystem related to smart cities, and supports incubating start-ups with startup space and startup programs. Furthermore, we plan to launch an online solution market operation to better match demand and supply in the smart city market.

Build Cooperative Governance

Korea is establishing various governance systems, including ministries, local governments, businesses and citizens in order to foster new industries related to the 4th Industrial Revolution using Smart City as a platform. Particularly, we are expanding the convergence alliance to expand the participation of private companies in smart cities, and developing business models and discovering regulatory matters centered by our member companies (359 companies). We also plan to launch the ‘Smart Living Lab Network’ to accumulate living lab assets and create synergy.
Smart City National Business Support Consignment Status (as of 2019.9)

To facilitate smart city policies and projects, the Korean government has established and operated governance with government-affiliated public organizations under the Ministry. Through an organic cooperation system, we are carrying out smart city-related policies and projects, including smart city policy support and research, human resources development, development of smart city contents and services and support for overseas export.

Strategy 03 Create an Innovation Ecosystem

Strategy 04 Global Network

Smart City We Build Together

Korea is building a smart city global network to open the future of sustainable smart cities with countries around the world.

We share each country’s policies and experiences and carry out various projects ranging from personnel exchange, joint projects, and cross-examination of solutions.

Export of K-Smart Cities

In order to proactively respond to the rapidly growing global smart city market, the Korean government announced plans to promote smart city overseas expansion in July 2019 with related ministries. Accordingly, we plan to actively implement comprehensive support plans such as financial support, network building, and collaboration between large and small companies.

4 Key Policies to Promote Smart City Export

1. Enhance financial support through PIS Funds
2. Expansion of financial support for overseas orders
3. Establish International Smart City Open Network
4. Strengthen International Cooperation
5. Establish Global Smart City Exporting
6. Outbound Marketing

Global Cooperation Base
Establishment of smart city center in KIBS Global Infrastructure Center and KIIC
Smart City Open Network
Establishing a network among KIBS smart cities
International Cooperation
Korea Smart City Exporting
Outbound Marketing
Establishing Smart City Open Network and Smart City Exporting
Global Network

Overseas Cooperation - New Town Development

The overseas export of city models is carried out by the public developer, LH. The first K-Smart City export model, Abdullah Smart City project in Kuwait has been executed with the government of Kuwait since 2016. Bolivia, Santa Cruz New Town is the first Smart City export in Latin America, carried out a detailed design in 2016. Since May 2019, we have been developing the basic concept design for Malaysia’s Kota Kinabalu Smart City in conjunction with Sejong and Busan pilot cities.

Overseas Cooperation - Solutions Export

The following are the examples of exporting smart city solutions by the private companies. Company A has developed a transportation system in Bogota, Columbia and later exported to Athens, Greece. Company B, a city integrated platform supplier, exported city integrated platform programs to 23 countries including China, the Middle East, and ASEAN countries, while startup company C develops smart waste bins and focuses on overseas expansion based on references accumulated in Korea.

World Smart City Expo

The Korean government also holds large international events to secure global initiatives. We will re-launch the [World Smart City Week] event that was held twice from ’17~18, as the [World Smart City Expo], in efforts to foster it as a world-class smart city event, a venue for international cooperation networks and business exchanges. Also, we plan to hold various citizen participation events such as university student idea contests and Make-A-Thon, so that citizens can easily understand smart cities and experience smart solutions.
Let’s Build Together
Smart City