2023 KNOWLEDGE SHARING PROGRAM
Global Forum for Knowledge Sharing

Proposal to build a smart city platform model in developing countries

PRESENTER

LEE JOO SANG ESE Co.LTD, Executive Vice President

Hosted by 기획재정부 Ministry of Economy and Finance

Organized by KDI 한국개발연구원 Korea Development Institute

Knowledge Sharing Program

CONTENTS

01 – Promotion background and strategy of Korean Smart City

02 – Why you need a Korean Smart City model

03 – Smart city model proposal for developing countries

01 Promotion background and strategy of Korean smart city

- The politic background of Korean Smart City
- The main policy and status of Korean Smart City

The politic background of Korean Smart City

Facing serious problems across the city.

The social structure turns into community of superintelligence, virtualization, hyper-connected after technology of the 4th industrial revolution.
However, it also caused many city problems due to climate change and urbanization. So we need to resolve it such as energy, safety, air pollution etc.

The 1st industrial revolution (mechanization)	The 2nd industrial revolution (electricity)	The 3rd industrial revolution (internet)	The 4th industrial revolution (Artificial Intelligence)
[Connection between cities] → Connection of space	[Connection between day and night] → Connection of time	[Connection between countries] → Connection of space time	[Connection between reality and virtual] → Connection of time and space

Cities and Problems reaching limits

Status

Lack of parking · Traffic jam · Broken the water cycle · Increase in energy consumption · Increase in disaster · Increase in waste · ••• etc

Problems

Air pollution · Flooding · Water shortage · A weakening of city security · Water/ground pollution · Decline of local business · ••• etc

As the new era of change is coming, it is necessary to prepare for it

The era of the 4th industrial revolution

System integration · Internet of Things · AI · Big data · Cloud · Mobile

The era of New climate

Reducing find dust · Regulation of Carbon emission · New renewable energy · Water management · Food security · Disaster management

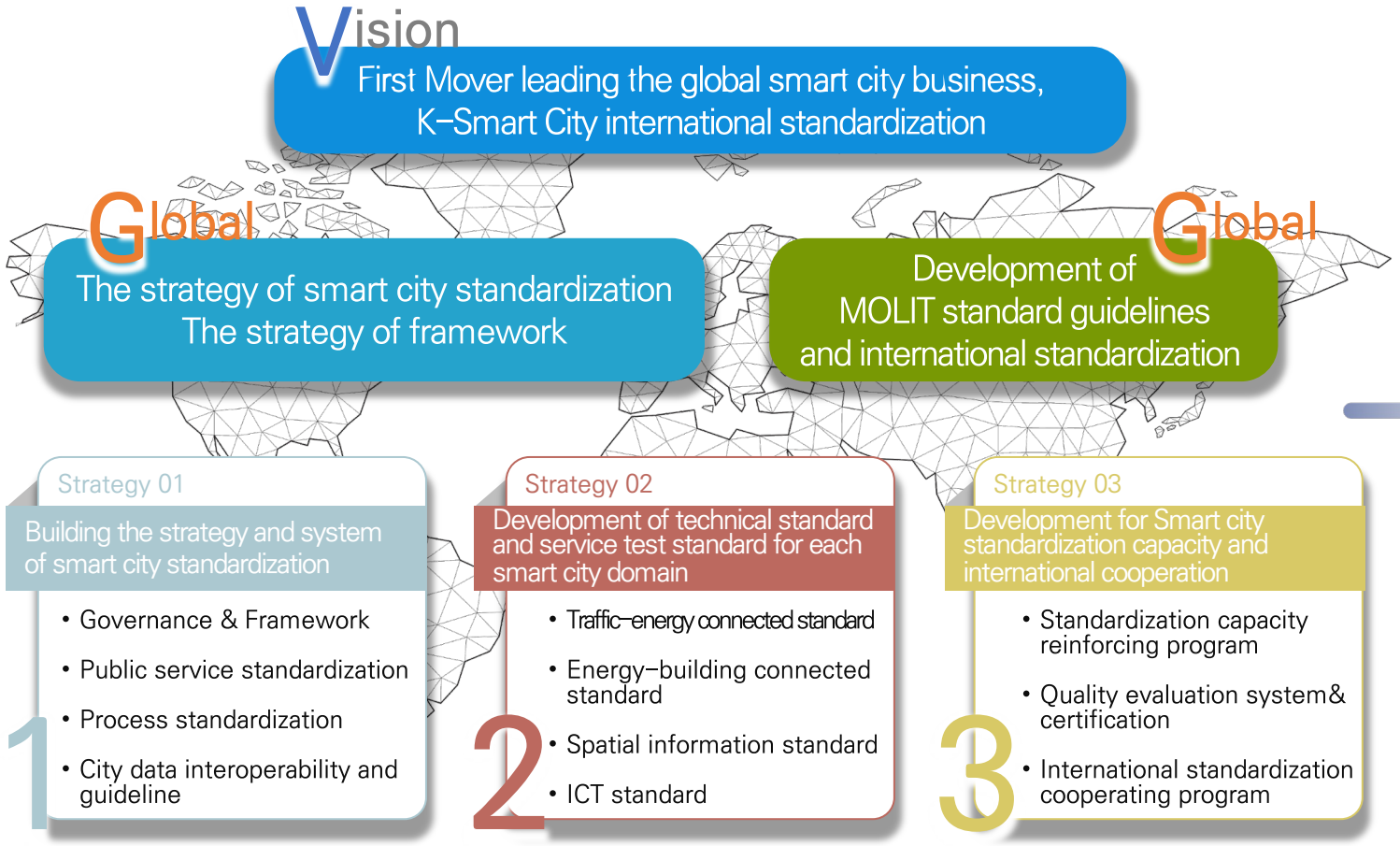
The era of aging population

Health/ Welfare · Job · Education · Leisure/ Convenience

The main policy and status of Korean Smart City

Smart City project promoted by government

- Following each step, MOLIT(Ministry of Land, Infrastructure and Transport) is promoting the smart city law and policy.
- Step1(2013)-Set a Ubiquitous law and plan, Step2(2013)-Set a plan of establishing smart city and revising smart city law, Step3(2018~now)- promoting smart city strategy and plan, distributing smart city system for all over the city.



Standardization of data-driven platform model

Domestic · International Standard **47**

Official Standard **9**

- Standard enacted by standard organization (ISO, IEC, ITU etc.)

De Facto Standard **4**

- Universal technical standards used in the industry

Korea KS and Organization Standard **34**

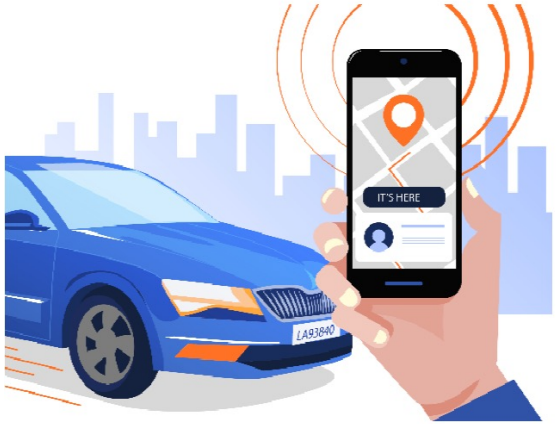
- Standard for data association and fusion between cities and system

02 Why you need a Korean Smart City model

- Definition of Smart City Solution
- Korean Smart City Solution Program
- Korean-style Smart City Project Selection
- Smart city Construction cases of ESE Co.LTD

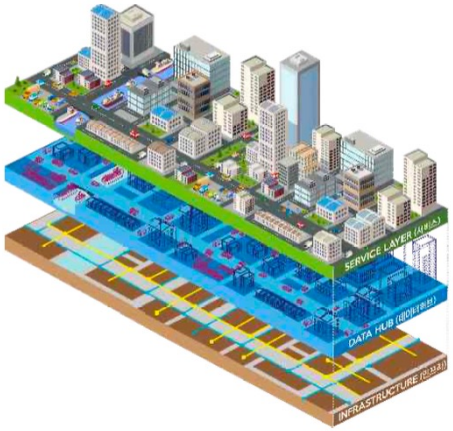
Definition of Smart City Solution

- Smart solutions refer to technologies to provide services and related platforms or systems in the areas of transportation, energy, environment, security, urban administration, etc.



Service

Applications designed for the benefit of citizen convenience and administrative efficiency (e.g. smart parking services)



Platform

Combination of the software to collect, store and transfer data with the server to deal with such process (e.g. video monitoring platform)



System

A set of various sensors, devices and physical infrastructure installed on the basis of data platform to carry out specific functions (e.g. transportation card system)

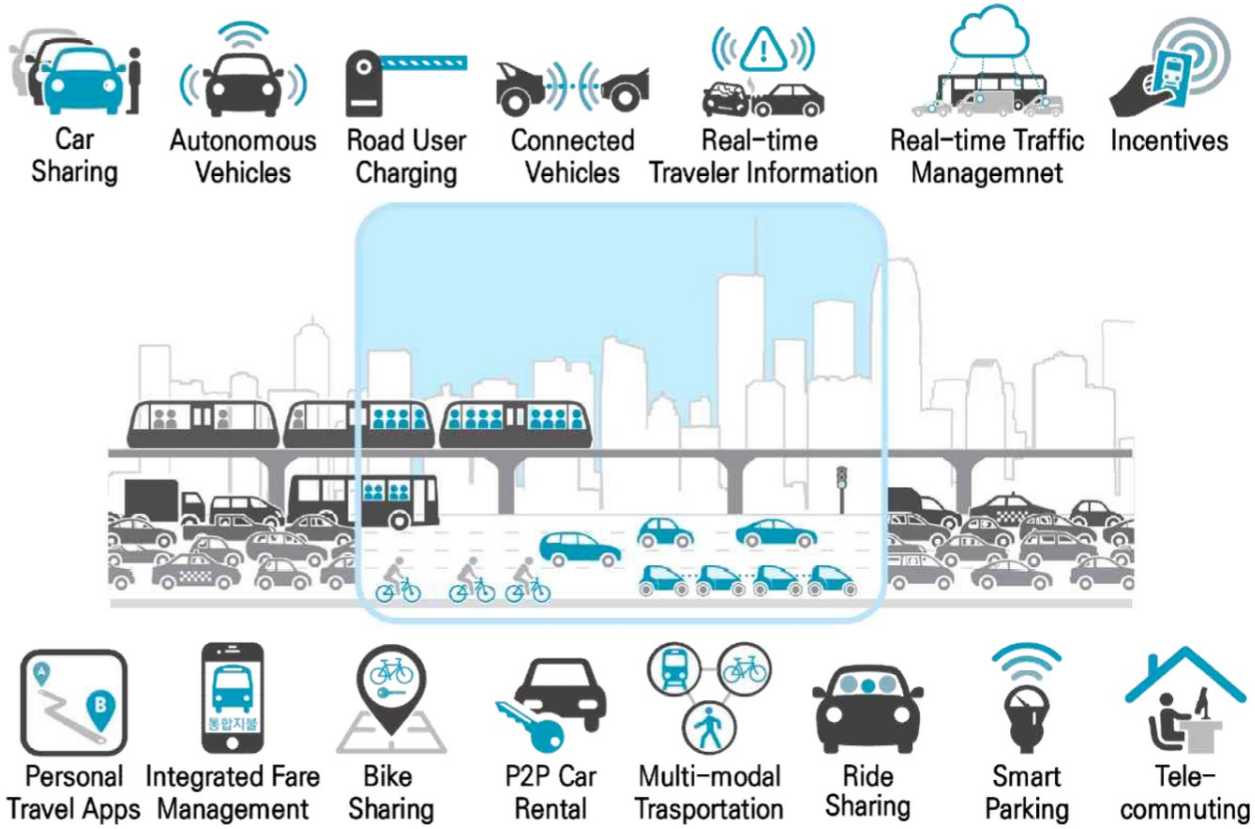
Korean Smart City Solution Program

- Korean Smart City Solution Program formulates a plan to develop and operate a standalone or packaged solution to address urban issues in fields such as transportation, energy, and the environment in cities overseas.

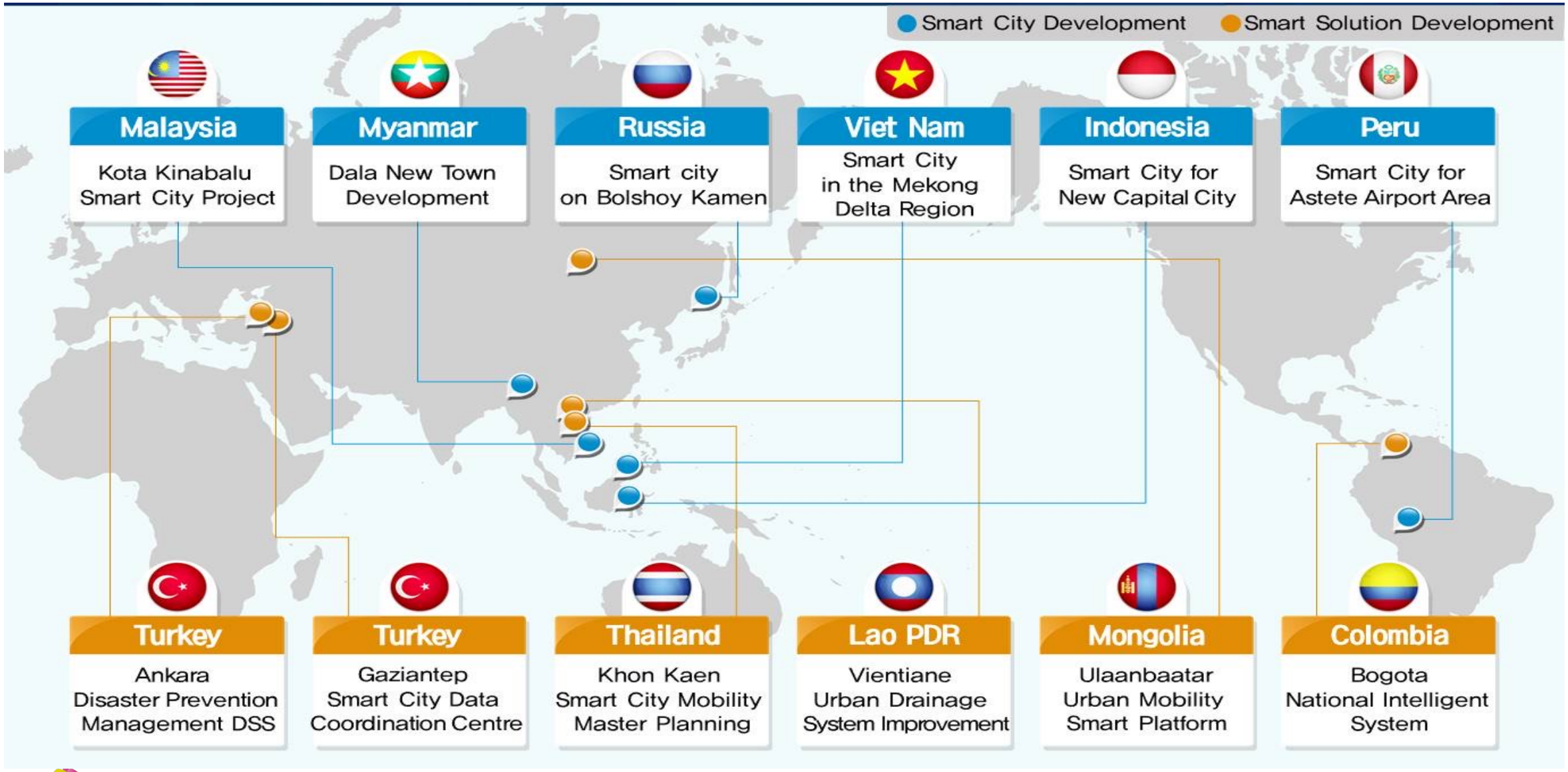
Smart City Domains



Examples of Smart City Solutions



Korean-style Smart City Project Selection



Smart city Construction case of ESE Co.LTD

Tianjin eco city in China

Construction status

Smart city integrated platform in Tianjin Eco city

- ✓ Based on Integrated data platform, Tianjin eco city has been operating for 3 years, they provide smart services in the medical, public, environmental fields.
- ✓ They also operating real-time monitoring and status of expansion of differentiated services and the entire city based on 3D GIS.
- ✓ 2022~ it has been providing citizen-centered smart services.



Smart city Construction case of ESE Co.LTD

Gaziantep City in Turkey

Construction status

2021 K-city Network smart city solution demonstration project

- ✓ Integrated monitoring center
- ✓ Introduction of integrated platform server
- ✓ Introduction of network equipment
- ✓ Apply to platform based on open source
- ✓ Assigning appropriate resource for smart city platform
- ✓ Secure integrated monitoring environment and system-based situation dissemination capability.
- ✓ We expect synergy through the integration of city information and collaboration between department.



Smart city Construction case of ESE Co.LTD

Disaster – Incheon Metropolitan City

Construction status

- Integrated management of disaster and video information in Incheon

✓ Site : Incheon, Korea

✓ Purpose : Improving response skills through sharing information and cooperative synergy

✓ Details of project

- Disaster integrating service
- Disaster sharing service
- Disaster disseminating service
- Connecting video information (15,716 camera from 13 institutions)
- Connecting disaster information (356 pieces in 16 types)
- Hardware and infrastructure



Smart city Construction case of ESE Co.LTD

Disaster & Environment – Banyumas City in Indonesia

Construction status

Integrated management of disaster and environment

- ✓ Site : Banyumas, Indonesia
- ✓ Integrated monitoring center
- ✓ Introduction of integrated platform server
- ✓ Introduction of network equipment
- ✓ Apply to platform based on open source
- ✓ Assigning appropriate resource for smart city platform
- ✓ Secure integrated monitoring environment and system-based situation dissemination capability.
- ✓ Disaster response and Environment Management



03 Smart city model proposal for developing countries

- Customized model in response to urban demand
- Direction for building smart city platform

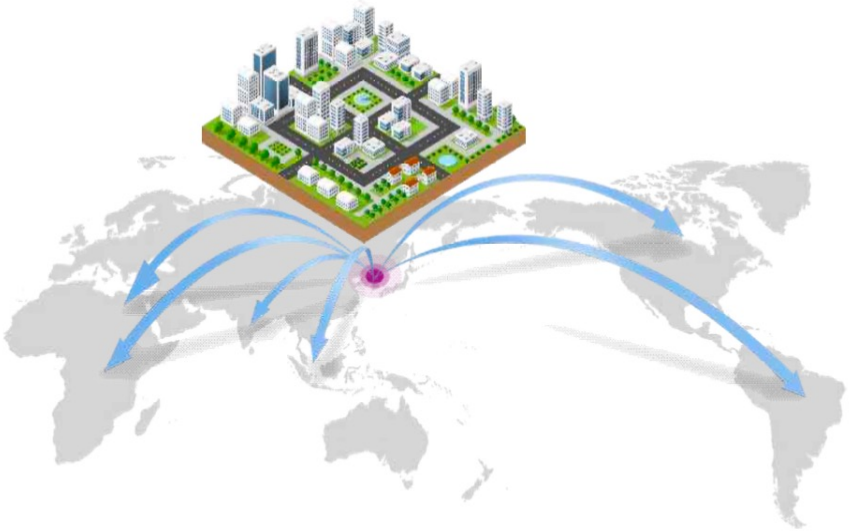
Customized model in response to urban demand

- Korea team is intended to share smart city experiences with cities outside Korea willing to adopt Korean-style smart city model and demand outstanding smart city solutions



Solution Planning Project

Analysis of project conditions of the candidate city, recommending suitable solutions, reviewing project details, and considering feasibility for project implementation



Solution Demonstration Project

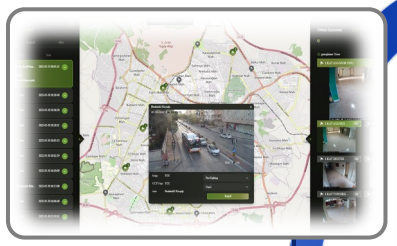
Smart city technologies which has already proven its effectiveness or been commercialized in and outside Korea will be implemented and demonstrated in oversea cities

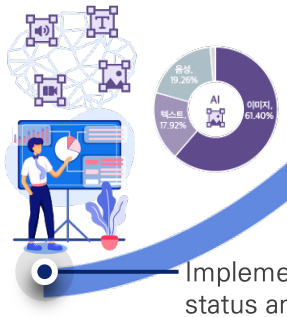
Direction for building smart city platform

- In order to apply Korean smart city success stories to Developing countries, a step-by-step strategy is needed.

Step 1

Securing the basic demonstration solution





Implementing status analysis, master plan

Step 2

Advancement of smart city platform based on IoT, image analysis, Big data, 3D digital twin ▶▶▶

Packaging
Customized platform

Demonstration of smart city data hub platform

IoT sensor-based data collecting/analyzing



Collecting IoT data (water quality, fine dust…)

Statistical visualization through image analysis



Visualization of floating population

Event prediction by Big data



Prediction of bridge maintenance timing

Visualization using 3D Digital twin



Visualization of 3D data

Step 3

Smart city solutions spread nationwide

Form an organization to spread the smart city through international cooperation

- Korea team :
  - Providing original technology
  - Technical support
  - Providing master plan
- Developing countries government :
  - Beginning the smart city platform business
  - Improvement of local laws and systems
  - Survey and environmental analysis

Knowledge Sharing Program

THANK YOU

Hosted by 기획재정부 Ministry of Economy and Finance

Organized by KDI 한국개발연구원 Korea Development Institute | 한국수출입은행 THE EXPORT-IMPORT BANK OF KOREA | kotra 대한무역투자진흥공사