



What is **Smart City**?

From Seoul's Experience

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Hello
from SEOUL



An aerial photograph of Seoul, South Korea, taken from a high vantage point. The foreground is filled with lush green trees. Below them, a dense urban landscape unfolds, featuring a mix of low-rise residential buildings with colorful roofs and taller commercial skyscrapers. In the far distance, the Namsan Tower stands prominently on a hill against a backdrop of rolling mountains. The sky is a vibrant blue, dotted with fluffy white clouds. Overlaid on the center of the image is the text "Hello from SEOUL" in a large, blue, sans-serif font.

Hello
from SEOUL

An aerial night view of a city, likely Seoul, showing a dense urban landscape with numerous skyscrapers and illuminated buildings. A prominent feature is a modern, illuminated walkway or bridge structure that runs diagonally across the lower half of the image, featuring blue lighting and circular planters. The text "Hello from SEOUL" is overlaid in large, white, sans-serif font across the center of the image. In the foreground, there's a large, curved, illuminated structure that looks like a modern staircase or a large planter. To the right, a large commercial building with "LOTTE Mart" signage is visible. The overall scene is vibrant and modern, showcasing urban development and public space design.

Hello from SEOUL



Hello
from SEOUL

An aerial night view of the Seoul skyline, showing a dense urban landscape with numerous illuminated skyscrapers and residential buildings. The city is set against a backdrop of dark mountains under a night sky. The text "Hello from SEOUL" is overlaid in the center in a large, yellow, sans-serif font.

Hello
from SEOUL

Hello
from SEOUL



A low-angle, upward-looking photograph of a modern architectural structure. The building's facade is composed of a grid of square panels, some of which are metallic and reflective, while others are a lighter, textured material. The structure curves dramatically, creating a sense of depth and scale. The sky above is a clear, pale blue. Overlaid on the center of the image is the text "Hello from SEOUL" in a bold, orange, sans-serif font.

Hello
from SEOUL



Hello
from SEOUL

An aerial photograph of Seoul, South Korea, featuring a traditional Korean palace (Gyeongbokgung) in the foreground, a dense forest in the middle ground, and a modern city skyline with numerous skyscrapers in the background. The text "Hello from SEOUL" is overlaid in a large, red, sans-serif font.

Hello
from SEOUL

Table of Contents

- **Smart City?**
- **Seoul's Cases**
- **Lessons**

So what the heck is Smart City?

SMART CITY
BUILDING TOMORROW'S CITIES

Digital City

Ubiquitous City

Sustainable City

Green City

More than 200 definitions of Smart City

Smart City: Definition

UNECE and ITU's Smart Sustainable Cities Definition

TOOLS

“A smart sustainable city is an innovative city that uses **information and communication technologies** (ICTs) and other means

GOALS

to **improve quality of life, efficiency of urban operation and services, and competitiveness,**

VALUES

while ensuring that it meets the needs of present and future generations with respect to **economic, social, environmental as well as cultural aspects”**

Livable City

Characteristics: Green, Competitive, Resilient, Inclusive

Safe

Healthy

Economic
Opportunities

Mobility

Sustainability

Equal Access
to Public
Goods

Infrastructure

Policy

Institution & Governance

ICT Integration or value addition

**Integrated
Solution**

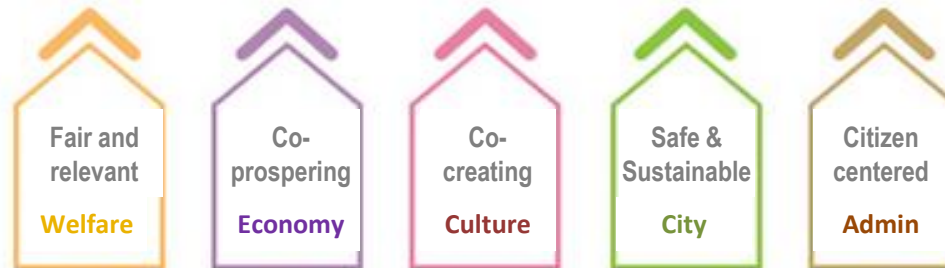
Aligning Smart City Vision with the City's Vision

Seoul's Vision

Vision

Improve the city, *Relish* in the city,
TOGETHER

Goals



Values



Ways to
enhance by
application
of ICT

Global Digital Seoul 2020 (SMG 2016)

Vision: New Connection, Different Experiences

Social City 11 Action Plans



Citizen Participation and Communication

- Citizen-led digital governance
- Strengthen citizen communication
- Align cooperation with private sector
- Vitalize public-private open data platform

Diginomics 6 Action Plans



Stimulate Economic Growth

- Vitalize start-ups and incubate ventures
- Digital economy integrated platform
- Converge digital with existing industries
- Support innovation start-ups utilizing Seoul's big data

Digital Innovation 21 Action Plans



Improve Citizen Life thru Innovative Solution

- Solve urban challenges through digital solutions
- Enhance quality of life through digital technologies
- Recommend policy solutions based on in-depth data analysis

Global Digital Leader



Provide Exemplary Practices

- Early adoption of cutting-edge digital technology
- Build state-of-the-art digital infrastructure
- Build capacity to grow digital business
- Share experiences with the world

Table of Contents

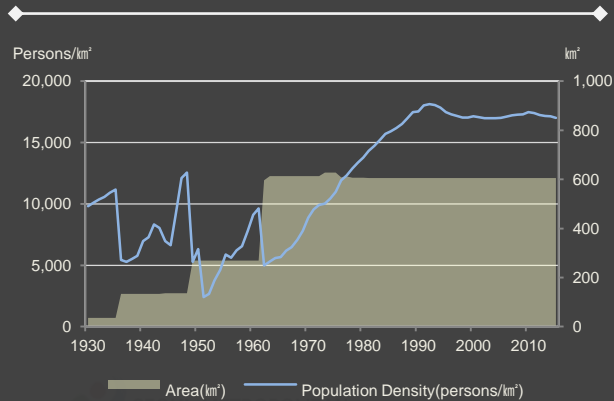
- Smart City?
- **Seoul's Cases**
- Lessons

Seoul: A City Old and New

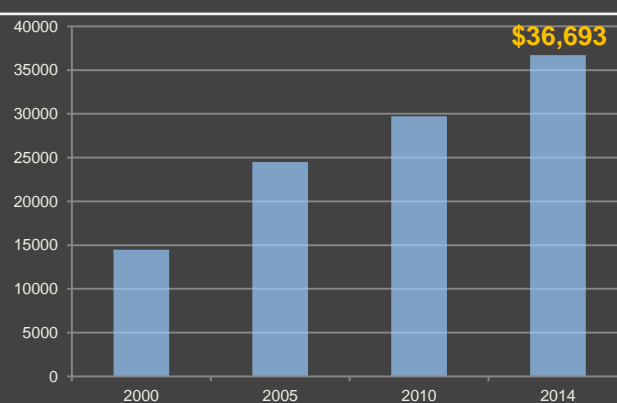
Seoul's urban development journey from the ruins in the 1950s to a smart metropolis



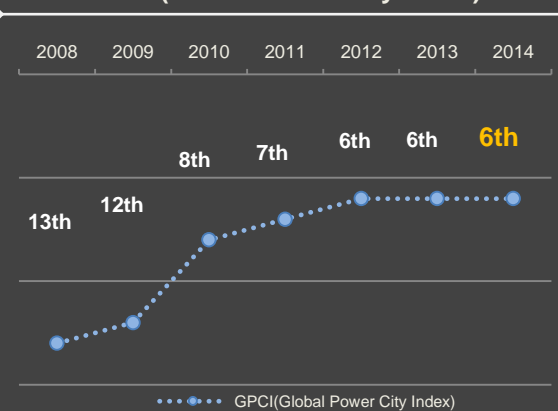
Population and Area Growth



Seoul's Gross Regional Product

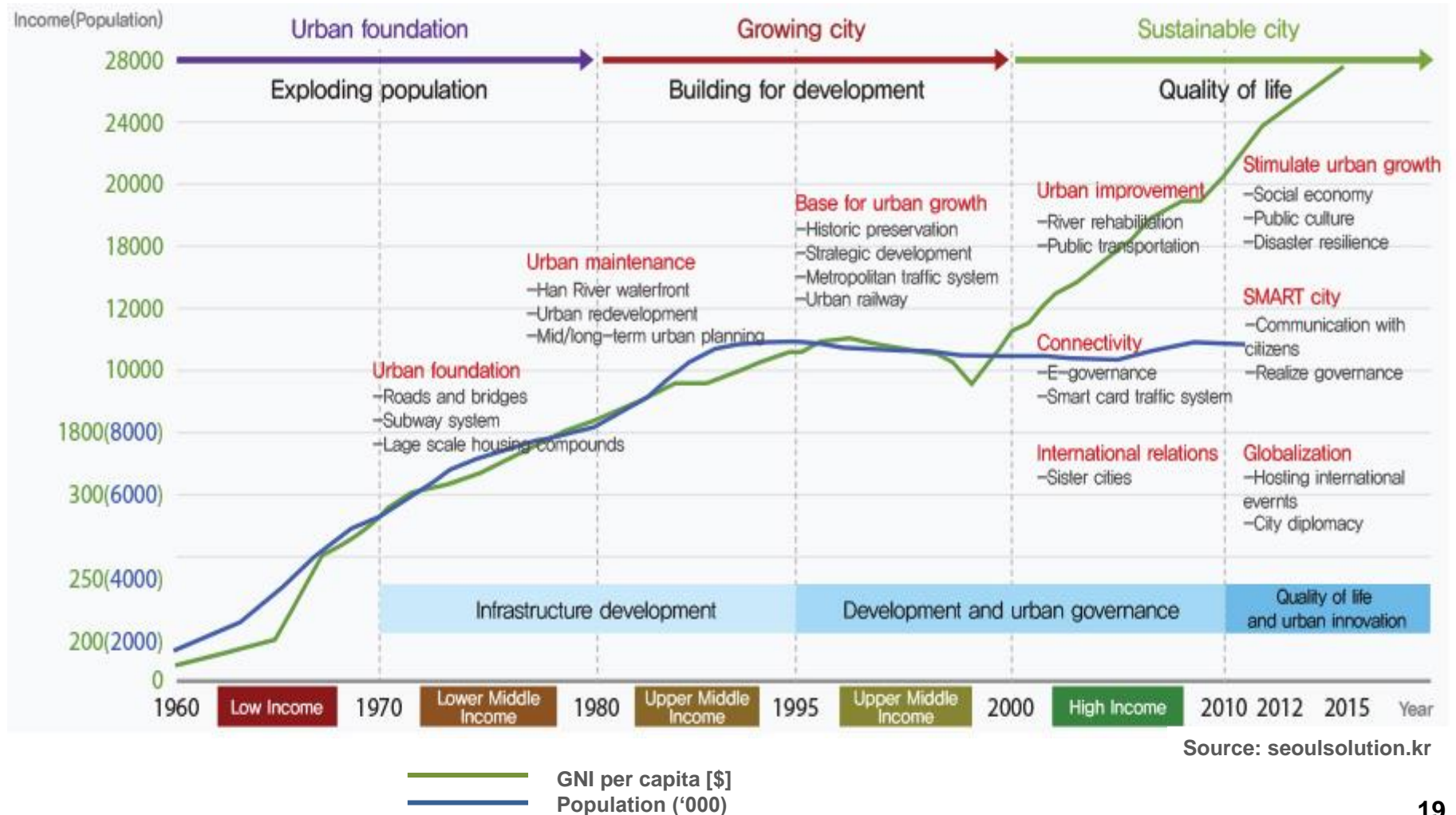


GPCI (Global Power City Index)



Seoul's Growth Trajectory

Transformation of Seoul's urban development



Source: seoulsolution.kr

Making of Seoul as a Smart City

Leverage technology to serve its citizens and make cities more livable, equitable and sustainable

1

Understand my city upon Big Data

2

Efficient city management through ICT on infrastructure

3

Smart IoT connections that make the city more livable

4

Provision of platform to stimulate economic growth

5

Facilitate transparency and stimulate citizen participation

6

Intelligent policy making through Big Data Analysis

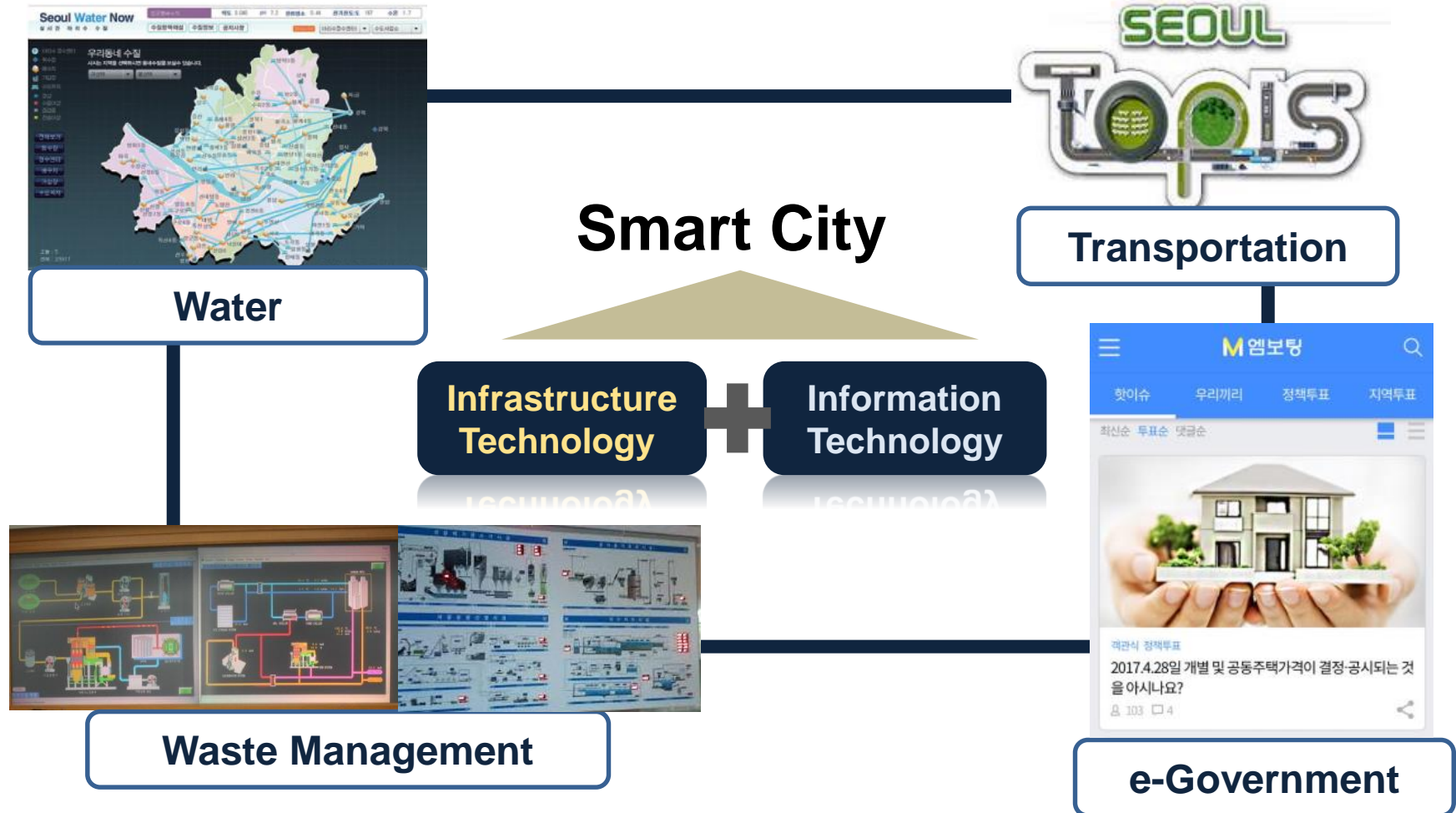
**Convenient
Citizen Life
&
Efficient
City Admin**

INCREASE

- Impact
- Efficiency
- Transparency
- Speed

Efficient City Management

Smart ICT on Infrastructure



Water quality and supply chain

Sustainability

Healthy

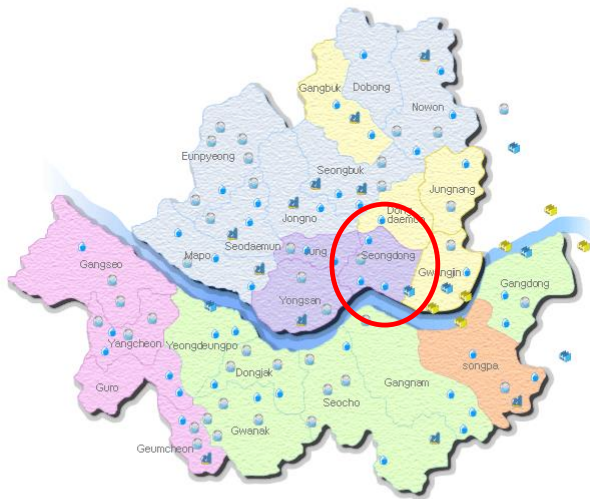
Realtime monitoring of water quality and supply chain management

SEOUL WATER NOW

Online Realtime Water quality Opening Service Image

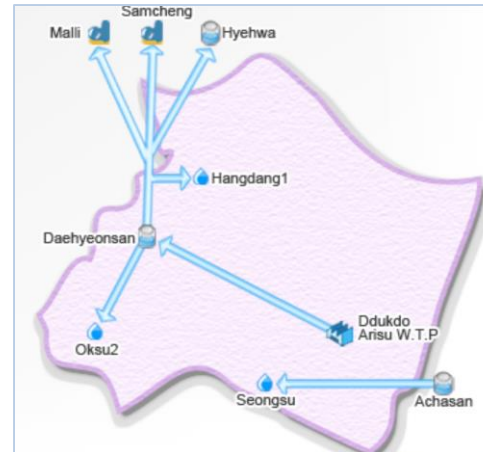
Clicking the monitorings point on the map, you can check the water quality of the site

● All ● Intake P.S. ● W.T.P ● Reservoirs ● Pumping S. ● Taps



quality standard criteria

(Ministry of Environment) Under 0.5NTU 5.8 ~ 8.5 Under 4mg/L



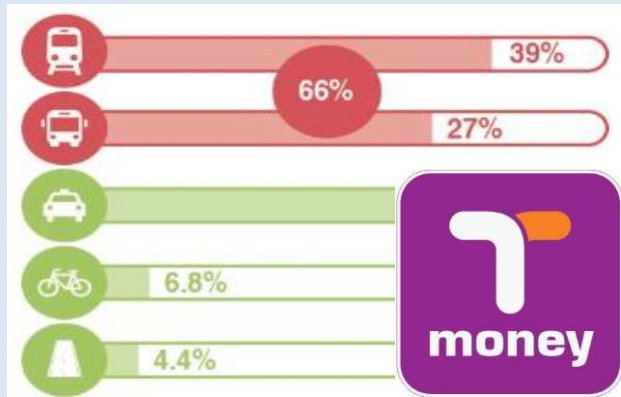
- Quality of water at source and on tap
- Level of water production
- Level of water consumption
- Volume of water treated and released to Han River

Seongdong Water Quality by monitoring site 2019.03.07

item site	Turbidity (NTU)		pH		R. Chlorine (mg/L)		Water Quality
	testing results	standard	testing results	standard	testing results	standard	
Ddukdo Arisu Intake P.S.	7.520	-	8.4	-	-	-	-
Ddukdo Arisu W.T.P	0.050	good	7.2	good	0.35	good	● Normal
Daehyeonsan Reservoirs	0.050	good	7.2	good	0.23	good	● Normal
Ahasan Reservoirs	0.040	good	7.4	good	0.32	good	● Normal
Malli Pumping S.	0.060	good	7.2	good	0.19	good	● Normal
Samcheng Pumping S.	0.050	good	7.2	good	0.21	good	● Normal
Seongsu 1 ga	0.060	good	7.3	good	0.34	good	● Normal
Oksu2	0.060	good	7.2	good	0.20	good	● Normal
Hangdang1	0.040	good	7.2	good	0.17	good	● Normal
Hyehwa	0.050	good	7.4	good	0.19	good	● Normal
quality standard criteria (Ministry of Environment)	Under 0.5NTU		5.8 ~ 8.5		0.1 ~ 4.0(mg/L)		

Collection and use of big data

Mode share



[Smart Card]

Integrated distance-based transit fare system

- Free transfer between bus-bus and bus-subway, within 30 min. (max 4 times)
- Introduction of “smart card”



- Population: 10M in Seoul, 25M Metropolitan
- Public transportation: 66% mode share
- T-Money card (smart transportation card) in 2004
 - 13 million users
 - 100% for subways
 - 99% for buses
 - 67% for taxis
- * Also used for highway tolls, express buses, trains
- ** Nation-wide compatibility
- Data collected: 85M instances daily
 - O/D data, # of transfers, travel time
 - Busiest, least busy stations
- Data usage for evidence-based policy
 - +/- number of fleets; frequency
 - Route adjustments
 - New subway lines, additional bus routes

Smart use of basic and prevalent real estate in the city



- Since 2015
- All LED lights
- Automatic adjustment of brightness using sensors depending on road and foot traffic
- Reduction of electricity cost by 50%
 - Electricity usage: 158GWh per year
 - Cost: ~USD13M per year
- Connect to Seoul's ITS
- Expand usage of the light poles gradually

Potential usage of smart street lights

- Traffic flow monitoring
- Provision of Wifi
- Crime prevention
- Opportunity for Public Private Partnership

Solid Waste Management

Healthy

Sustainability

RFID based collection and charge system



IoT Connections for citizen convenience

Safe

Healthy

Mobility

Sustainability

Economic
Opportunities

Equal Access to
Public Goods

Connecting people, things and places thru concerted public-private efforts



Smart garbage bins



Smart tourism



Parking lot sharing



Auto indoor temp.
regulation



Children location
tracker



Elderly care service



Fire prevention

‘Anshimi’ Women’s Safety App



- Since 2017
- Crime prevention application especially for women
- Partnership with mobile phone carriers
- Cooperation between SMG and Police Dept.
- Linked to network of CCTVs throughout the city
 - Approximately 20,000 CCTVs
 - 1 per 1km²

Step 1



- App “on”
- Set destination

Step 2



- Monitoring starts

Step 3



- Shake the phone for SOS
- Monitor links with nearest CCTV

Step 4




- Auto delivery of pictures
- Alarm and/or police dispatch

Provision of platform to stimulate economic growth

Economic
Opportunities

Equal Access to
Public Goods

Support Digital Innovation



Seoul Open Data Plaza

- 4,604 datasets
- 10 areas (transportation, public works, welfare, etc)



서울특별시 빅데이터 캠퍼스
SEOUL METROPOLITAN GOVERNMENT BIG DATA CAMPUS



서울앱비즈니스센터
Seoul App Business Center

**URBAN
INNOVATION
CHALLENGE
: CITYPRENEURS**

Young SDGs Start-up Competition in Seoul

#Citypreneurs #UN # SDGs #2030Agenda #startup # innovation
#SmartSustainableCities #youth #LeaveNoOneBehind



Seoul Digital Foundation
서울디지털재단

Facilitate transparency and support citizen participation

Seoul's e-Government has three objectives



[Elements of e-Governance]

IT Infrastructure	Citizen Services	Citizen Participation
<ul style="list-style-type: none">■ IT Super Highway■ Public WiFi	<ul style="list-style-type: none">■ Public smartphone charging station■ Seoul website■ Information Communication Plaza	<ul style="list-style-type: none">■ Oasis of 10 Million Imagination■ m-Voting■ Smart complaint report

Citizen Engagement

Provision of citizen services and promoting participation

Quick and Easy 'Civil Complaint / Proposal Integrated Service'

Eung-dap-so Civil Complaint / Proposal Integrated Service

Main Feature

- Register complaints / suggestions and check results
- View complaints / suggestions / responses and frequently asked questions
- Complaints received and answered through SNS

PC
Smartphone
Request complaint/suggestion

Eung-dap-so Civil complaint and proposal integrated system

Simply ask and all can vote 'Mobile Voting App'

mVoting

Main Feature

Seoul- Policy voting for the public or designated individuals

- voting targeting all Seoul citizens
- Vote targeting all the Seoul citizens
- Target voting through the database
- Target voting through use of data
- Location based voting (Patent app)
- Targeted vote participating and

Citizens - Home / Basic, User Voting

- voting targeting all Seoul citizens
- Vote targeting all the Seoul citizens
- Mobile vote through text message
- Mobile voting through external Kakao Talk
- Vote targeting designated individuals

mVoting "Simply ask and all can vote"

Quick question and answer, citizen-centered call center

120 Dasan Call Center

Main Feature

- 120 telephone, SMS counseling: For necessary information and/or complaints, call or text 120, or alternatively, send a photo.
- 120 Chatting, sign language, hearing/language services.
- 120 Foreign language call center can call 120+9 for consultation

Phone
Cellphone

120 Dasan Call Center Quick QnA: Citizen-centered call center

Bringing ideas into reality

Oasis (Oasis of 10 Million Imagination)

Main Feature

1. Citizens can directly make proposals easily anytime, any place
 - Related free opinions and/or policy ideas are submitted through the website or mobile page.
2. Status check (Review, Pending, Acceptance)
 - If there are votes from at least ten citizens, the relevant responsible department will be shared with the public.
3. Mileage Membership System
 - Graded mileage will be given to all users who submit 'ideas' and use any direct/supplementary system to be improved through objective evaluation.

Oasis of 10 Million Imagination Bringing ideas into reality

Integration of e-Gov't Services

A Day of Seoulites with Smart e-Government



Use of Big Data

Evidence-based problem finding and solving

1

Understand my city upon Big Data

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**Citizen Life
City Admin**



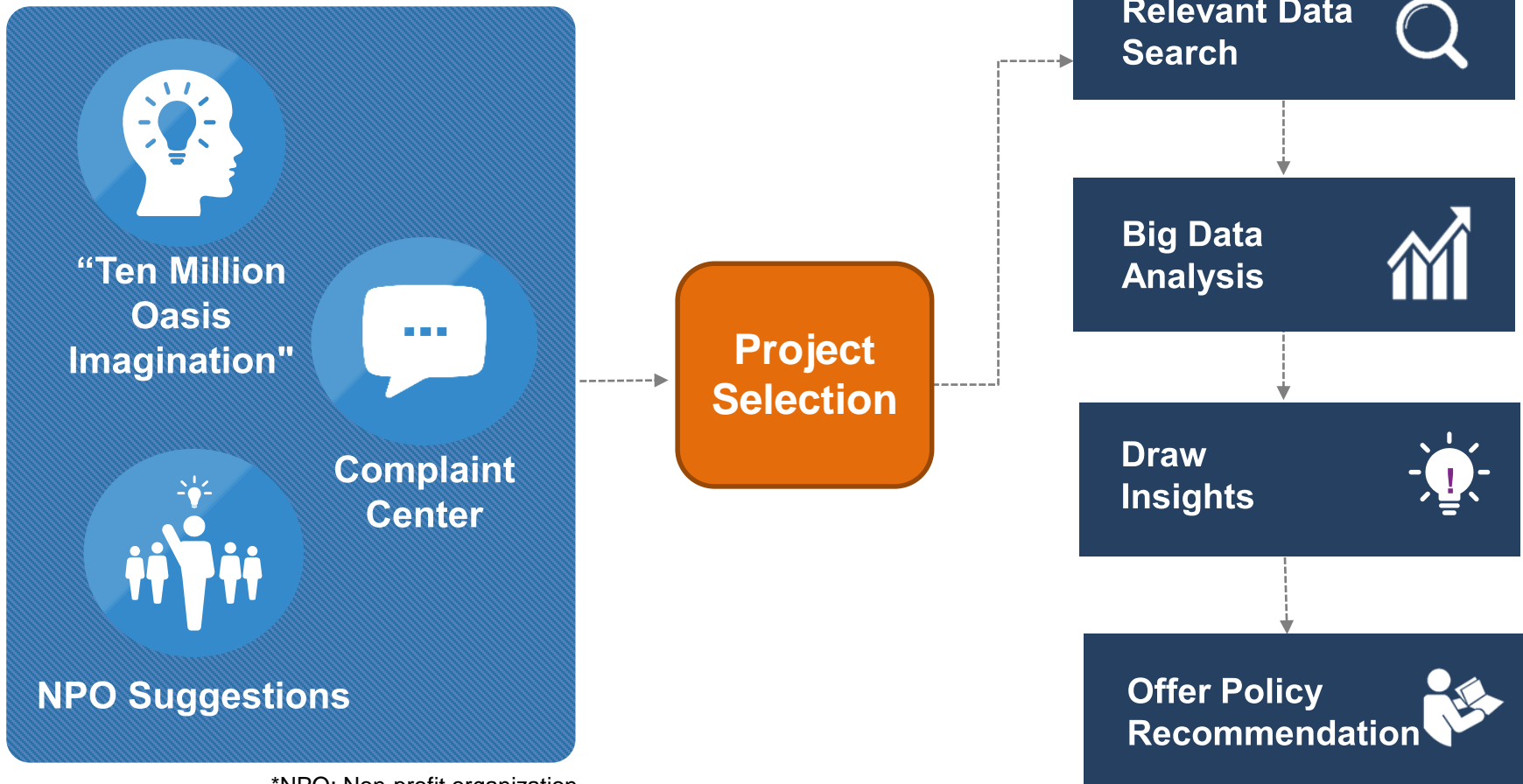
INCREASE

- Impact
- Efficiency
- Transparency
- Speed

Big Data for Problem Solving

Demand based project identification and process of analysis

[Capture Citizens' Voice]



*NPO: Non-profit organization

Seoul's Big Data based Services

36 projects in 4 sectors (2013~2018)



Transportation

- Night bus optimal route analysis
- Taxi operation data analysis
- Optimization of local bus routes
- Analysis on road accident blackspots
- Analysis on parking problems
- Impact analysis on traffic signs
- Location analysis for Taxi station



Welfare

- Location analysis for life/job planning for retired people
- Location analysis for senior leisure and welfare center
- Traffic accidents analysis for transportation vulnerable
- Tuberculosis trait analysis
- Operation of taxi service for disabled
- Analysis of moving range of disabled
- Location analysis for braille block
- Adjustment for free shuttle bus for transportation vulnerable



Economy

- Local business district analysis service
- Public Wi-Fi Locational Analysis
- Social data for crime investigation
- Shinchon Water Gun Festival
- Local festival analysis
- Tourist consumption pattern analysis



Administration

- Public Wi-Fi optimal location analysis
- Location analysis for E-Civil Service
- Gentrification Analysis
- Location analysis for city publicity



Analysis
Method



Location
Analysis



Demand
Forecast



Effect
Analysis



Unstructured
Data Analysis

Solving Urban Issues through Big Data

Seoul's cases

1. ***“Night Owl”* Bus Route**
2. **Local Business District *“Golmok”* Analysis Service**
3. **Children’s Food Support Card Analysis**

Table of Contents

- Smart City?
- Seoul's Cases
- **Lessons**

Lessons and Main Takeaways – Smart City

Considerations

- **Smart City direction needs to fully aligned and embedded into the city's vision**
 - Smart City vision, goals/objectives
- **Factor in “smart” technology as integral element in urban planning**
 - “Integrated” urban developing/planning/design/solution
- **Target what is “doable” and beneficial**
 - High tech is not always the right answer, finding the right technology is
- **Governance and regulatory readiness**
 - The role of national and local governments and their collaboration model
 - Digital and data governance
- **Engaging private sector**
 - How much will be led by the private sector?
 - Define the role of public and private sectors

An aerial night photograph of a city street intersection. In the center, a traditional Chinese-style gatehouse with a tiled roof and arched entrance is illuminated. The surrounding area is filled with modern high-rise buildings, many of which have lit-up windows and signs. A multi-lane road curves around the central gatehouse, with several vehicles, including trucks and cars, visible. The overall scene is a blend of traditional architecture and modern urban development.

Thank You