What is Smart City?

From Seoul's Experience

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Hello
from SEOUL


Hello
from SEOUL


Hello
from SEOUL
LOTTE Mart


Hello
from SEOUL


Hello
from SEOUL


Hello
from SEOUL

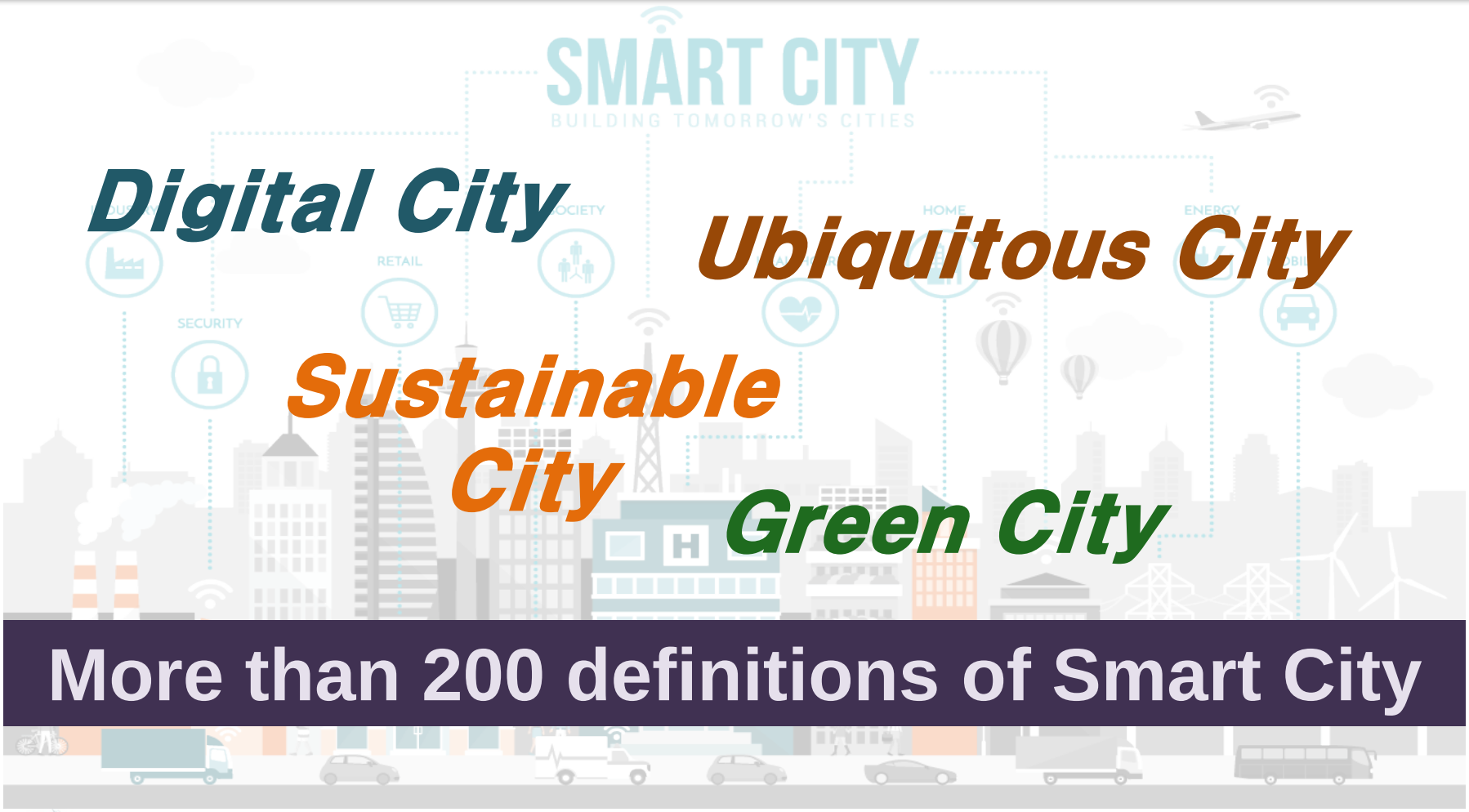

Hello
from SEOUL


Hello
from SEOUL


Hello
from SEOUL

Table of Contents

So what the heck is 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

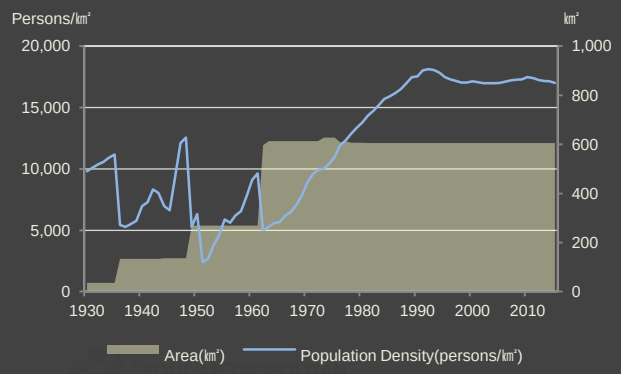
- Early adoption of cutting-edge digital technology
- Build state-of-the-art digital infrastructure
- Build capacity to grow digital business
- Share experiences with the world

Table of Contents

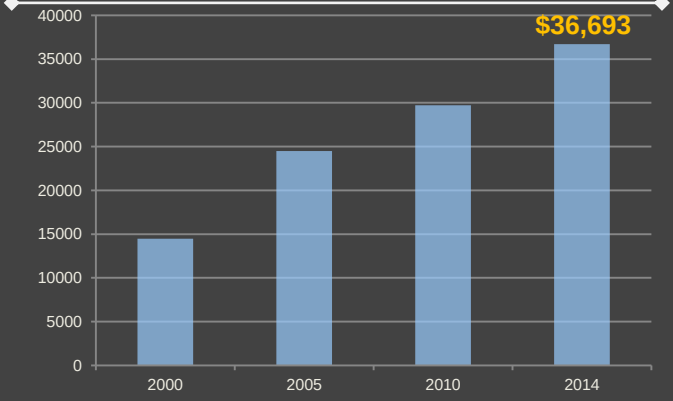
Seoul: A City Old and New

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

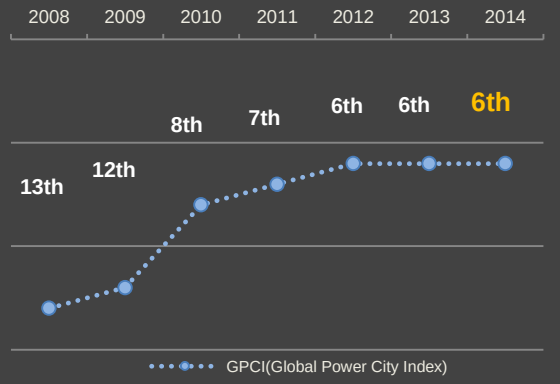
Population and Area Growth



Seoul's Gross Regional Product

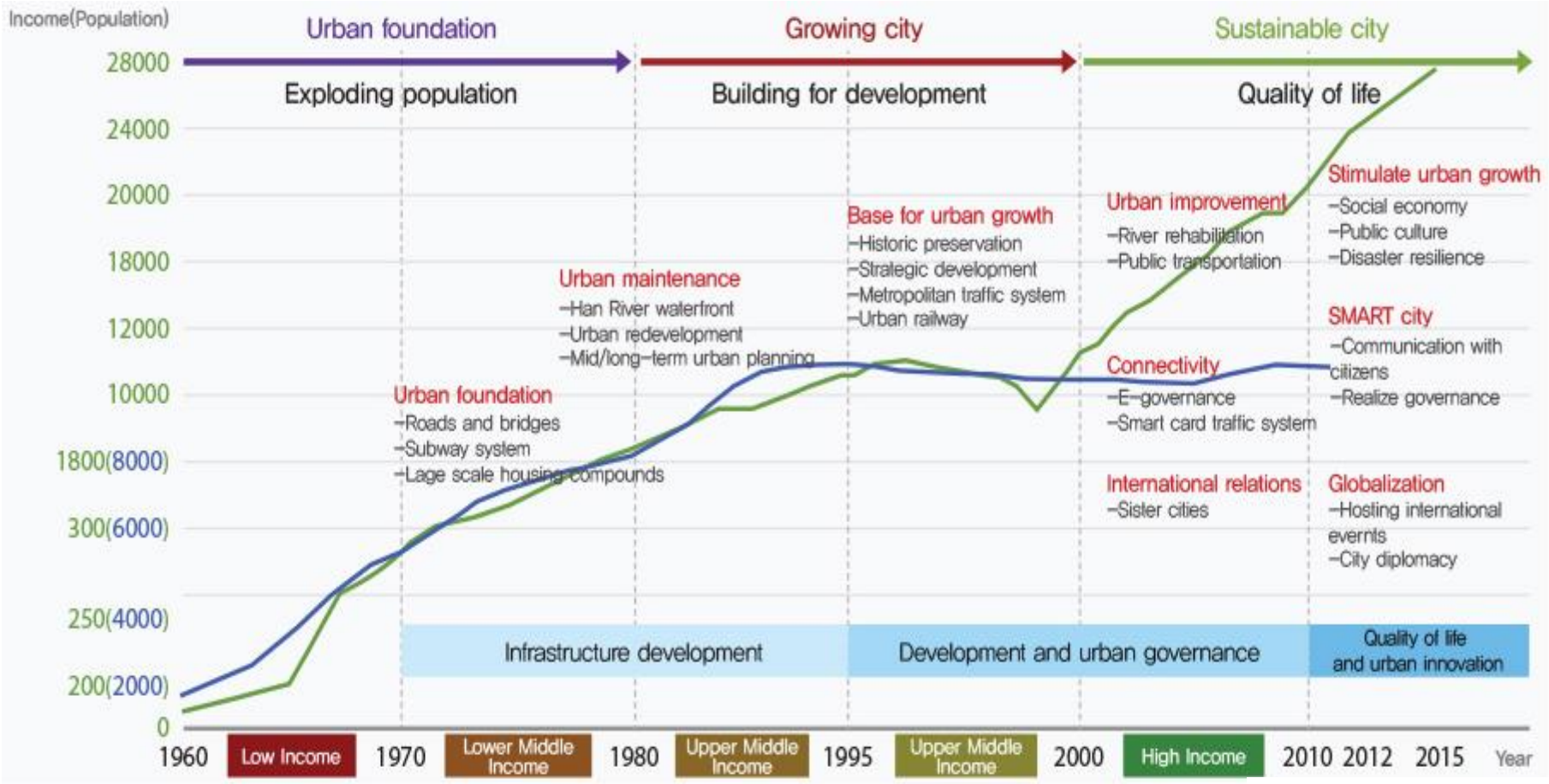


GPCI(Global Power City Index)



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

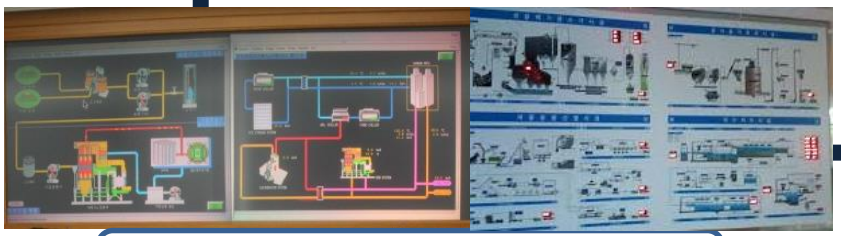
Water

Smart City

Infrastructure Technology + Information Technology

SEOUL TOPIS

Transportation



Waste Management

e-Government

Water quality and supply chain

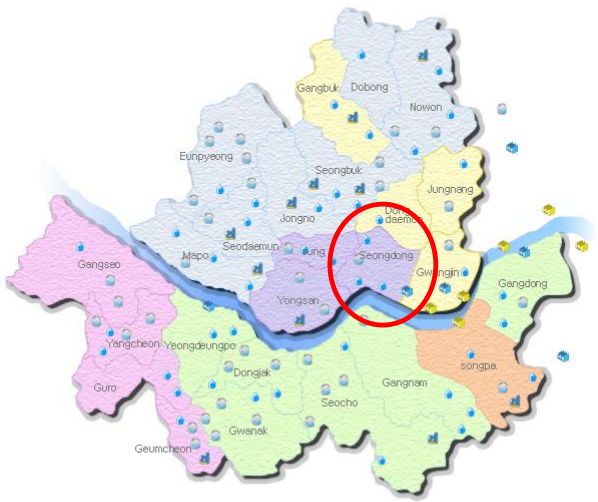
Realtime monitoring of water quality and supply chain management

SEOUL WATER NOW

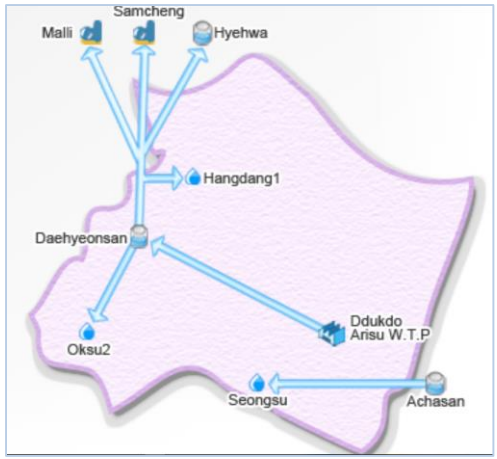
Online Realtime Water quality Opening Service Image

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

SeongdongWater Quality by monitoring site2019.03.07

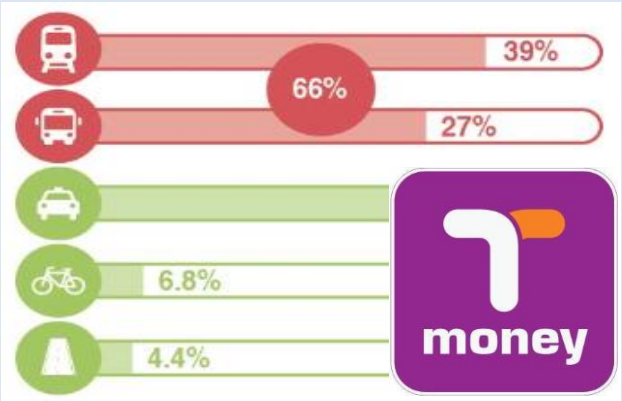
itemsite	Turbidity (NTU)		pH		R. Chlorine (mg/L)		Water Quality
	testing results	standard	testing results	standard	testing results	standard	
Ddukdo Arisu Intake P.S.	7.520	-	8.4	-	-	-	-
Ddukdo Arisu W.T.P	0.050	good	7.2	good	0.35	good	Normal
Daehyeonsan Reservoirs	0.050	good	7.2	good	0.23	good	Normal
Achasan 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
Seongsu1ga	0.060	good	7.3	good	0.24	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)		

Transportation – T-Money Card

Mobility

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 Street Lights

Safe | Sustainability

Smart use of basic and prevalent real estate in the city

- Since 2015
- All LED lights
- Automatic adjustment of brightness using censors 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

Safe city for women

Safe

‘*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

Providing time & cost effective civil service on online by interlinking different departments

Efficiency

+

Securing administrative trust via seamless access and authentic flow of information

Transparency

Citizen Participation

Improving citizen engagement in decision making via e-Governments' various channels

[Elements of e-Governance]

IT Infrastructure	Citizen Services	Citizen Participation
■ IT Super Highway ■ Public WiFi	■ Public smartphone charging station ■ Seoul website ■ Information Communication Plaza	■ Oasis of 10 Million Imagination ■ m-Voting ■ Smart complaint report

Citizen Engagement

Provision of citizen services and promoting participation

Eung-dap-so
Civil complaint and proposal integrated system

mVoting
"Simply ask and all can vote"

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

Oasis of 10 Million Imagination
Bringing ideas into reality

Integration of e-Gov't Services

A Day of Seoulites with Smart e-Government

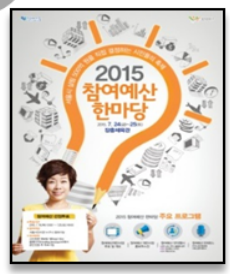
In the morning,
Check the e-mail
with smart devices

On the way to work,
Get the bus arrival information
at a bus stop or online
(http://topis.seoul.go.kr)

During lunch time, Pay taxes on the internet
(https://www.hometax.go.kr)

At work,
Get messages about delivery
information of parcels from a
client (https://parcel.epost.go.kr)

During a break,
Cast a vote on
Participatory
budgeting System
with smart devices



Receiving real-time
responses to any
inconveniences from
Complaint Center

Make a call 120 Dasan Call Center
for inquiring any questions about
Seoul city life
(http://120dasan.seoul.go.kr)

120 다산콜센터

At night,
Check and pay taxes
imposed on overseas
direct purchase

On the way home,
Issue Civil Documents
At a subway station

Use of Big Data

Evidence-based problem finding and solving

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
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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

Project Selection

- Relevant Data Search
- Big Data Analysis
- Draw Insights
- Offer Policy Recommendation

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

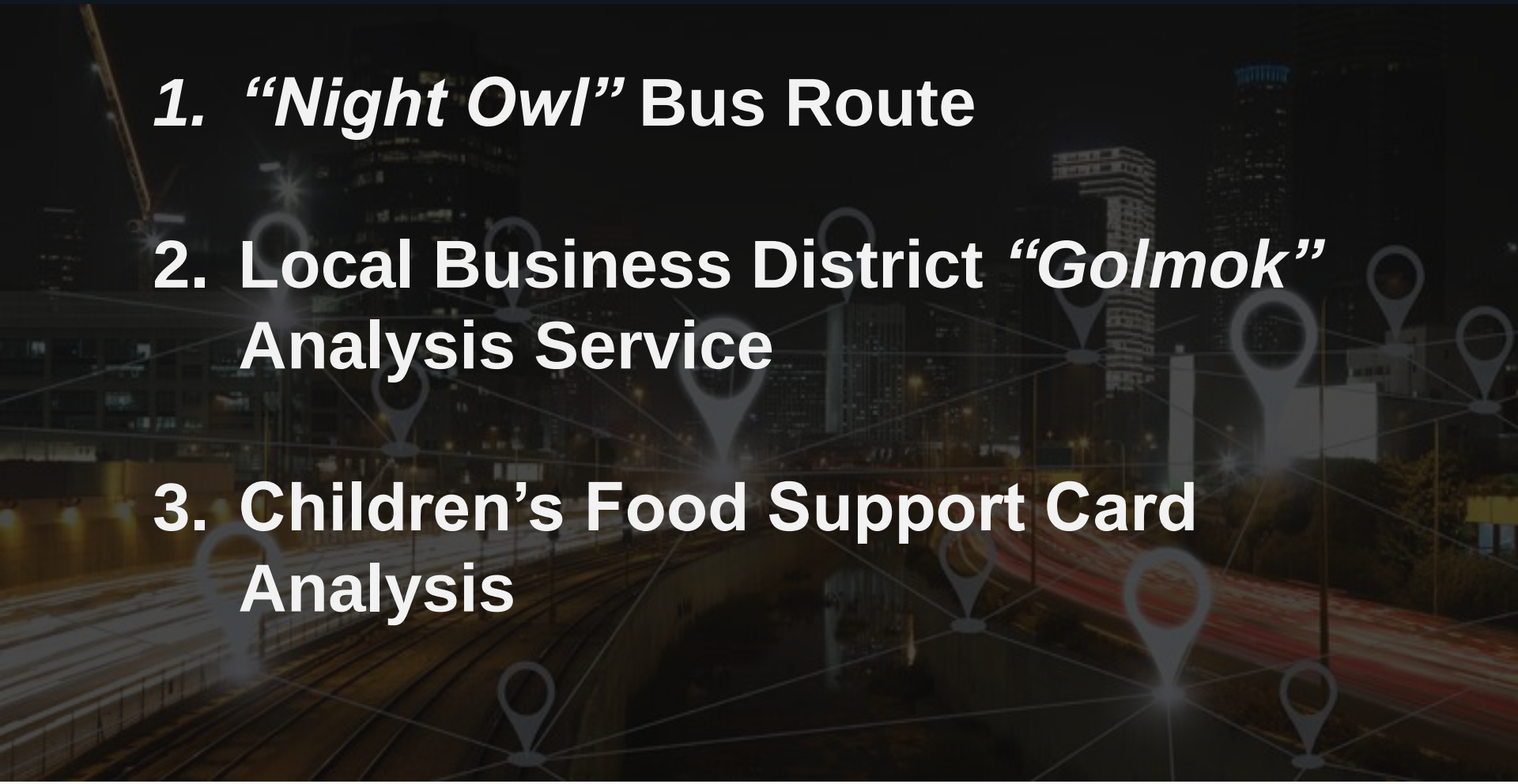
Administration

- 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

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


Thank You