



KGID
2026
SEJONG

Smart City and Smart Mobility Projects in South Korea

Dr. Sunghoon Kim

Associate Research Fellow

Korea Transport Institute



1. Why Smart City?

■ Smart City

- A smart city uses **IoT** sensors and technologies to **connect** components across a city to derive **data** and improve the lives of citizens and visitors.

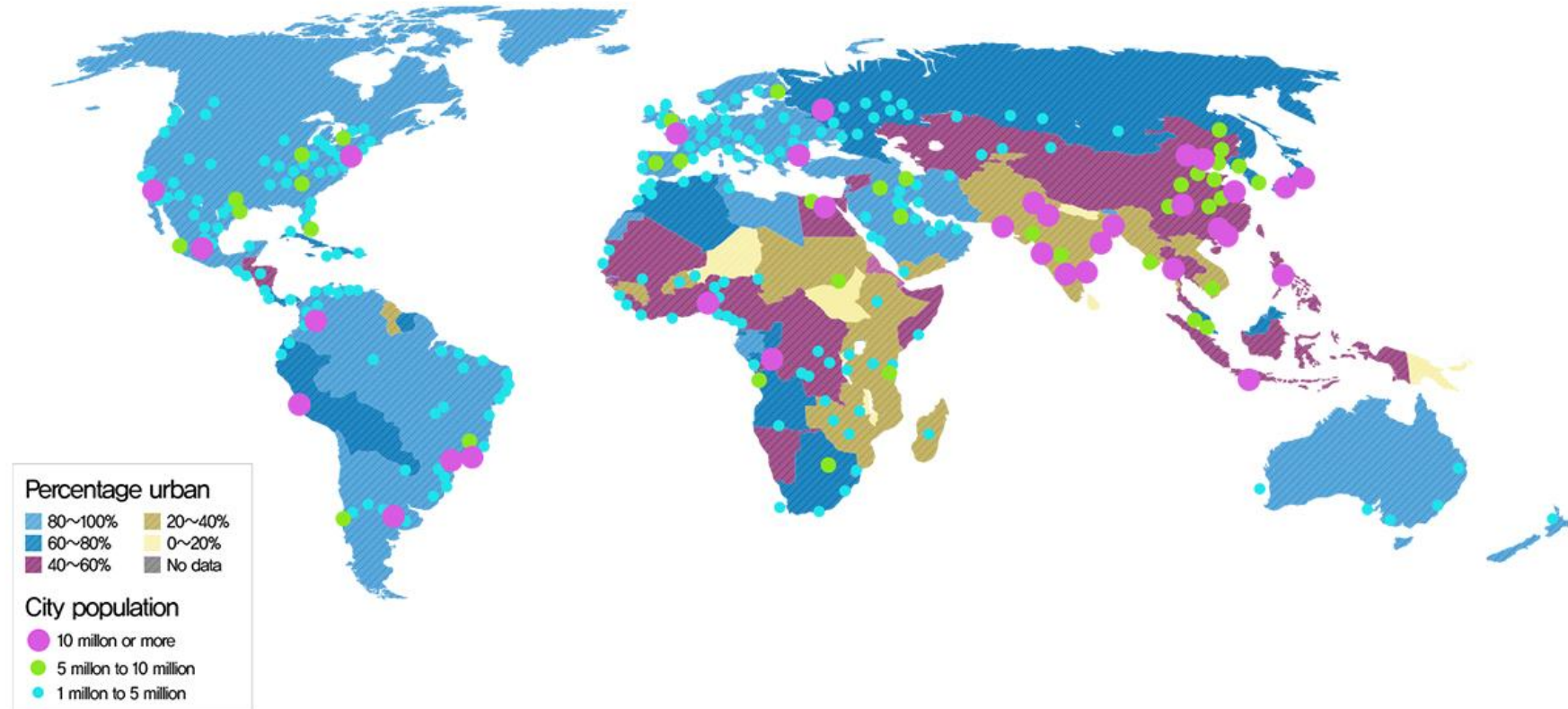


**SCI-FI
Utopia?**

1. Why Smart City?

■ Urbanization Trend

- According to the UN, by 2050 the world's population will grow from 5 billion to **9 billion**
- By 2050, about **66%** of the developing countries and **87%** of the developed countries will be urbanized



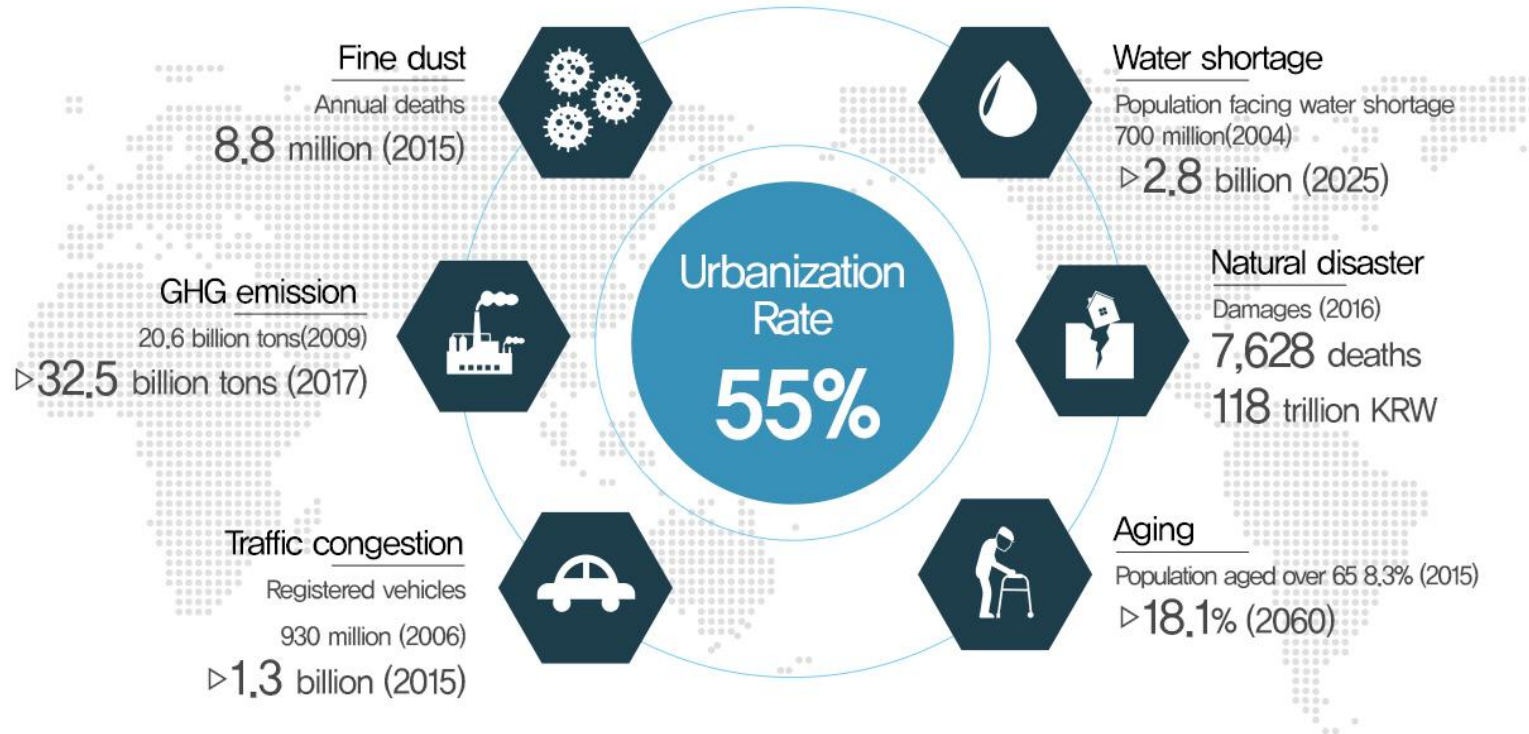
Data source : World urbanization Prospects : The 2018 Revision

* Reference : UN DESA, 2018 World Urbanization Prospects

1. Why Smart City?

■ Consequent Social Problems

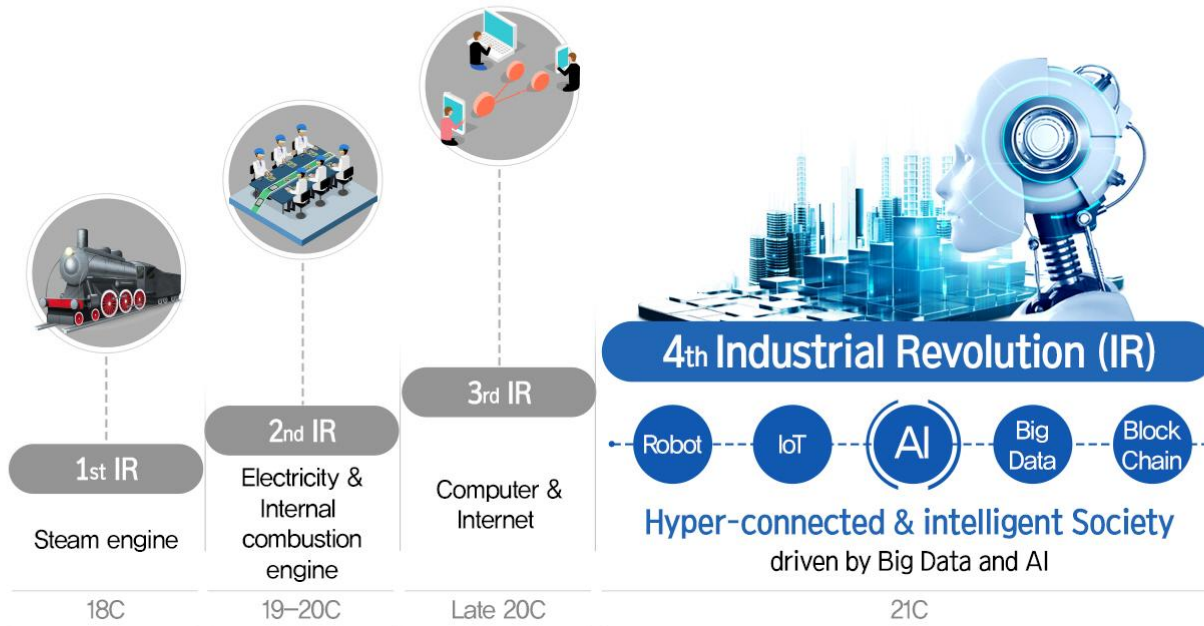
- Population and resource consumption are concentrated in cities
- Various social problems: **fine dust, traffic congestion, disaster safety, water shortage**
- Major **threats to the city's sustainability**



1. Why Smart City?

■ Use of Innovative Technology to Solve Urban Problems

- **Smart cities:** a new alternative to **solve urban problems**
- Countries are making full-fledged efforts to promote smart cities using **big data** and **artificial intelligence (AI)**
- Major countries pursuing smart cities: **living lab**, **data platforms**, and solution development



1. Why Smart City?

■ Perspective Changes

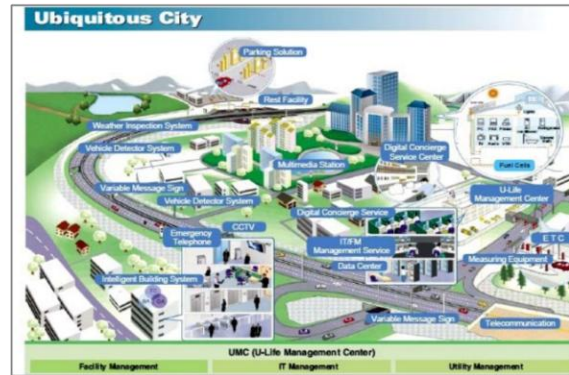
Traditional

- Infrastructure **construction**
- Roads
- Buildings



Ubiquitous City (U-City)

- Data acquisition
- Monitoring
- Resource **managements**



Smart City

- Big data usage
- Urban problem solving
- Providing **“services to people”**



Thinking of urban issues from the **perspectives of each individual person!**

1. Why Smart City?

■ Korea's Smart City Base Strategy and Policy

Vision

Smart City: a platform that changes people's lives

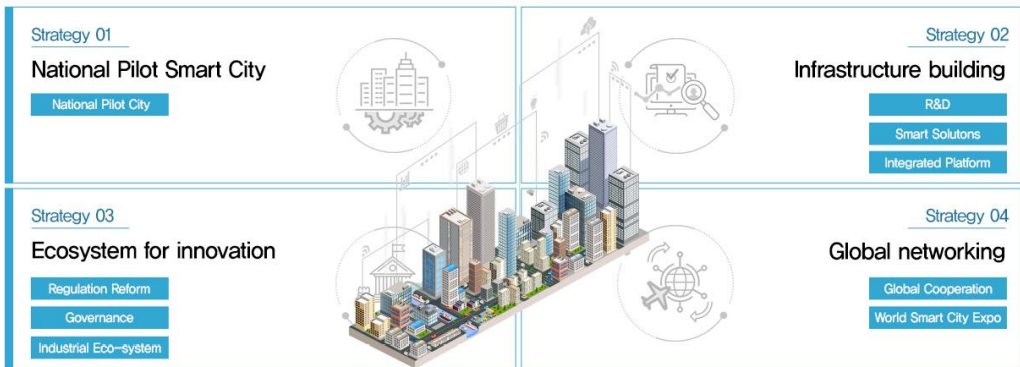
VISION 01 + Quality of Life
Offer location & data-based services to solve urban problems



VISION 02 + Inclusive Smart City
Build a city that embraces all citizens



VISION 03 + Smart Eco System
Spur global collaboration by creating an innovation eco system



Base Policies

Specific approach for each phase of urban growth

- (New) National pilot city + cultivating regional base
- (Existing) Upgrading existing cities to smart cities
- (Old) Smart urban regeneration

Customized Technology

- Foster future new technologies and human resources
- Expand smart city services for citizen experiences

Public-Citizen Participation

- Establishing smart city innovation ecosystem
- Legal/Regulatory improvements
- Corporate and civic engagement governance

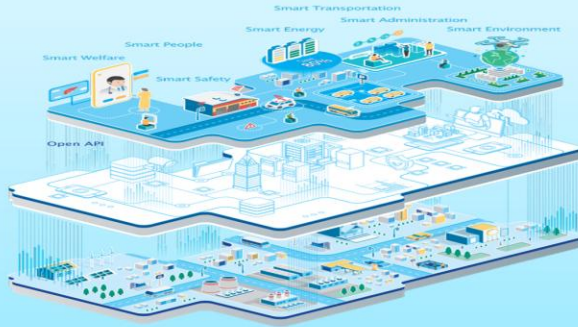
Global Network

- Strengthen overseas cooperation and exports
- To share insights and experiences

2. Smart City Projects in South Korea

■ National Projects Big 4

Innovation Growth Engine



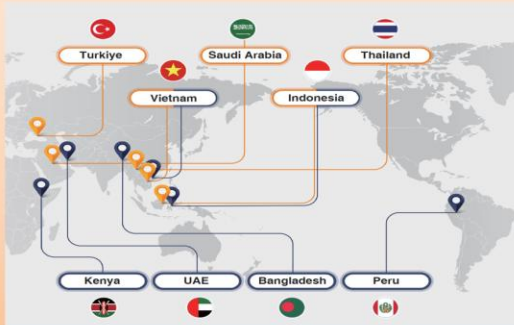
- R&D of base technologies
- Data hub
- IoT infrastructure
- Digital twin
- Mobility services

Smart Challenge



- Problem-oriented urban solution (local government)
- AI-based traffic control
- Smart medical service
- Smart tourism

K-City Network



- Global cooperation program
- Supporting smart city planning for foreign governments
- Sharing smart city development experiences

National Pilot Cities



- Pilot cities for the future
- Free demonstration of most advanced technologies
- Presenting leading models for future smart cities

2. Smart City Projects in South Korea

■ National Pilot Cities

- To freely demonstrate various innovative technologies
- Promoted for presenting leading models for future smart cities

Sejong



- Keywords: **Smart Mobility, Smart Health Care**
- Others: Smart education, Energy & Environment, governance, culture & shopping, and safety

Busan



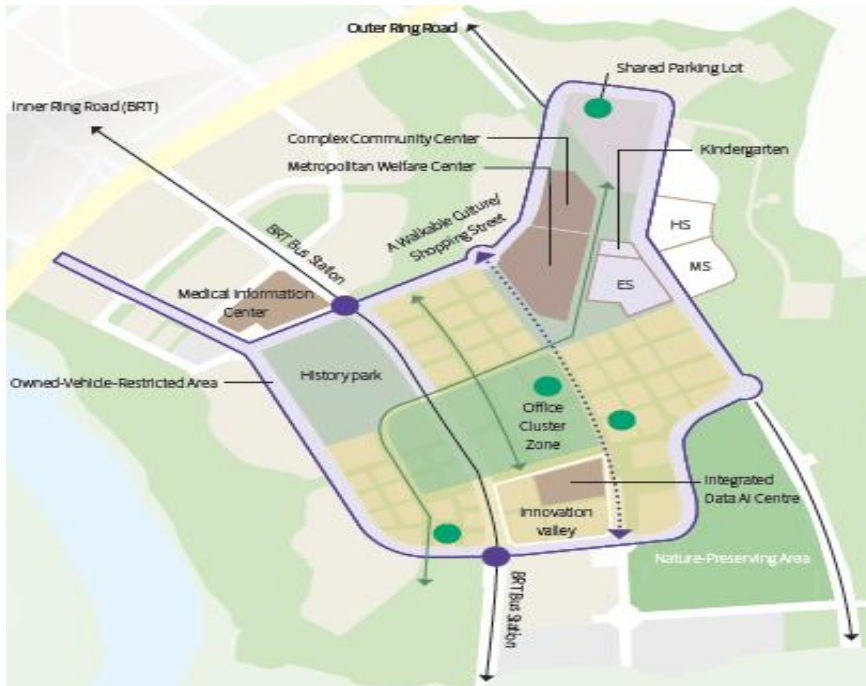
- Keywords: **Smart Water, Robot-based Services**
- Others: Intelligent urban management, Smart education, Smart health, Smart mobility, Safety,

3. National Pilot City - Smart Mobility Services (Sejong 5-1 Living Area)








■ Sejong Pilot City

- Location: Sejong **5-1 Living Area**
- **Human-centered**(post-materialism), **Sharing & Distributed**(decentralization), with **AI-based** (data-driven technologies)
- 7 innovative fields including **mobility** and health care

Urban planning



7 fields for innovation

 Mobility Shared mobility(car sharing, ride hailing) Automated driving(self-driving shuttles, C-ITS)	 Governance Digital Twin, M-Voting(block chain based) Living lab(citizen-led initiative)
 Health Care Telemedicine, AI medical examination, Smart emergency call, Drone rescue	 Culture Personalized cultural recommendations Community currency payment, Unmanned delivery
 Education Edu-tech, On-line education, Personalized education, Making Space	 Job Creation of start-up incubators Global cross-experiment program
 Energy CEMS, Neighborhood Electricity Trading Zero-energy building	



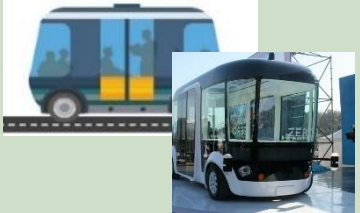
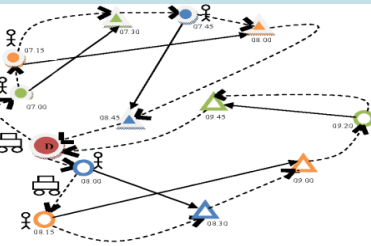


3. National Pilot City - Smart Mobility Services (Sejong 5-1 Living Area)

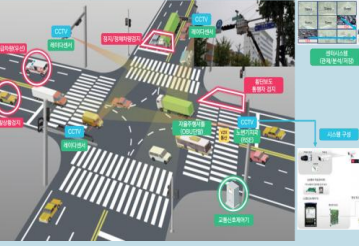
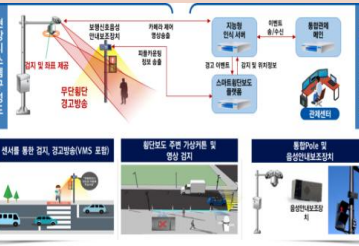
8 Services of Smart Mobility

- Dedicated organization: **Korea Transport Institute (KOTI)**

[Private Business Services]

[Public Services]

<p>Personal Mobility (PM)</p> 	<p>Car Sharing</p> 	<p>Automated Shuttle</p> 
<p>Demand Responsive Transit (DRT)</p> 	<p>Smart Parking</p> 	<p>Mobility as a Service (MaaS)</p> 

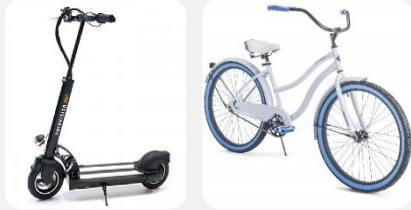
<p>Smart Intersection</p> 
<p>Smart Crosswalk</p> 

3. National Pilot City - Smart Mobility Services (Sejong 5-1 Living Area)

Personal Mobility Sharing



Source: <https://www.dhgate.com/product/new-15-inch-big-tire-electric-skateboard/410325967.html>



Source: <https://www.toyota.com.bh/about/innovation/personal-mobility/>

- First & Last-mile travel
- Eco-friendly
- Wireless charging station

Car Sharing



Free-floating
Pick-up/drop-off anywhere

- Free Floating areas
- Underground parking lot for shared vehicles
- Parking facilities

- Station-based service
- Free-floating service
- Reducing vehicle ownership

3. National Pilot City - Smart Mobility Services (Sejong 5-1 Living Area)

■ Demand Responsive Transit (DRT)



Real-time matching service

Fixed route/dynamic schedule

Dynamic route and schedule

■ Smart Parking



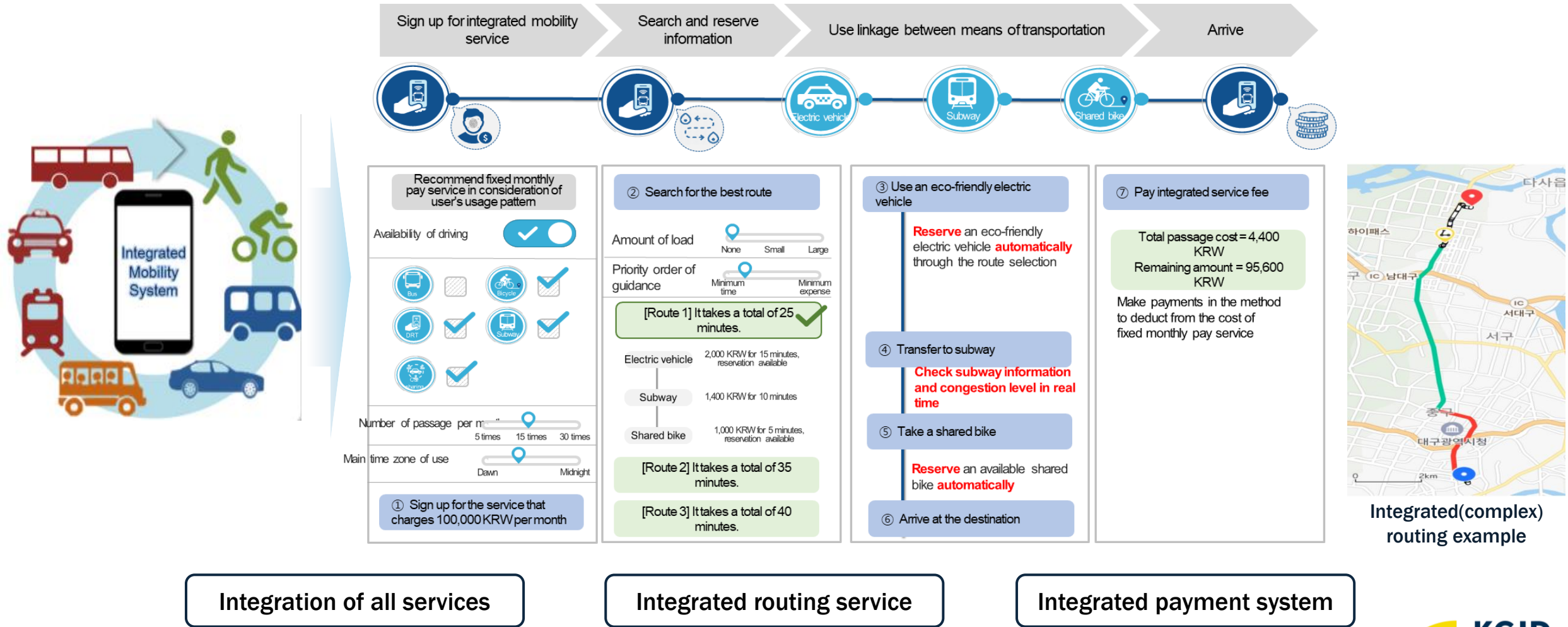
Parking space information

Parking space reservation

Indoor navigation system

3. National Pilot City - Smart Mobility Services (Sejong 5-1 Living Area)

■ Integrated Mobility - Mobility as a Service (MaaS)



3. National Pilot City - Smart Mobility Services (Sejong 5-1 Living Area)

Smart Intersection

AI-based vehicle detection

Real-time traffic information

Traffic responsive signal control

Smart Crosswalk

AI-based pedestrian detection

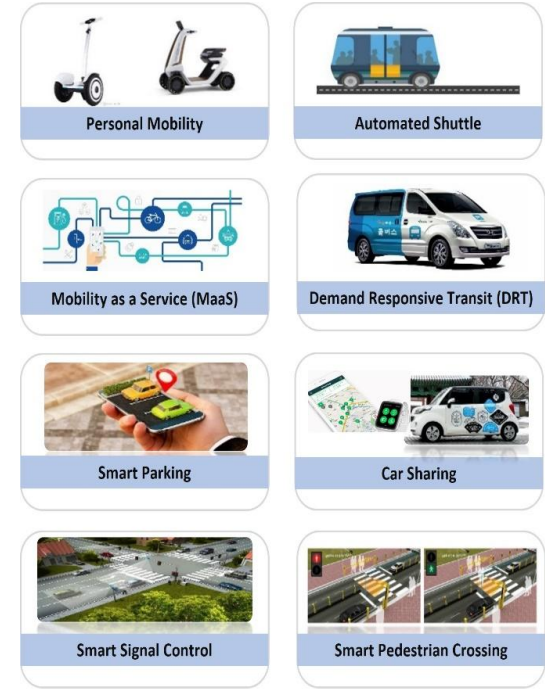
Pedestrian safety information

Pedestrian priority signal

4. Smart Mobility Living Lab (Sejong 1 Living Area)

Smart Mobility Living Lab

- Dedicated organization: **Korea Transport Institute (KOTI)**
- Promotion for participation and selection of volunteers
- **Service verification** with volunteers in Sejong 1 District
- **Feedback** to Sejong 5-1 District (National Polit City)



4. Smart Mobility Living Lab (Sejong 1 Living Area)

■ Smart Mobility Living Lab

● Service operation status

Personal Mobility Service

- **Service launch:**
 - Electric Bikes: '23.01.30
 - Electric Kickboard: '23.02.13
- **Operation scale:**
 - Electric Bikes: 700 covering entire Sejong
 - Electric Kickboard: 20 covering entire Sejong
- **Operating hours: 24/7**

Car-sharing Service

- **Service launch: '23.01.30**
- **Operation scale:**
 - Entire Sejong (16 service hubs)
 - Fleet size: 13 electric vehicles
- **Operating hours: 24/7**

Demand-responsive Transit

- **Service launch: '23.04.14**
- **Operation scale: 2 shuttles**
- **Operating hours:**
 - 08:00 - 17:00 (weekdays)
 - 10:00 - 19:00 (weekend)

Autonomous Shuttle

- **Service launch: '23.03.02**
- **Operation scale: 2 shuttles**
- **Operating hours:**
 - 10:00 - 16:00

Smart Parking Service

- **Service launch:**
 - Information display: '23.03.02
 - Reservation service: '23.07.03
- **Operation scale:**
 - 16 parking lots covering entire Sejong
 - 4 parking lots with indoor navigation (testing)
- **Operating hours: 24/7**

Integrated Mobility (MaaS)

- **Service launch:**
 - AOS: '23.01.30
 - iOS: '23.07.03
 - Public transit connection: '24.05.20
- **Operation scale:**
 - All area where the 5 services operate
- **Operating hours: 24/7**

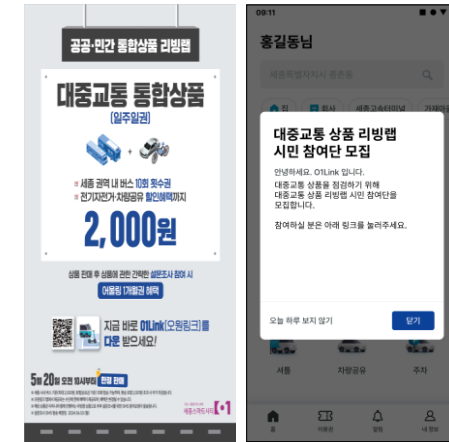
4. Smart Mobility Living Lab (Sejong 1 Living Area)

Smart Mobility Living Lab

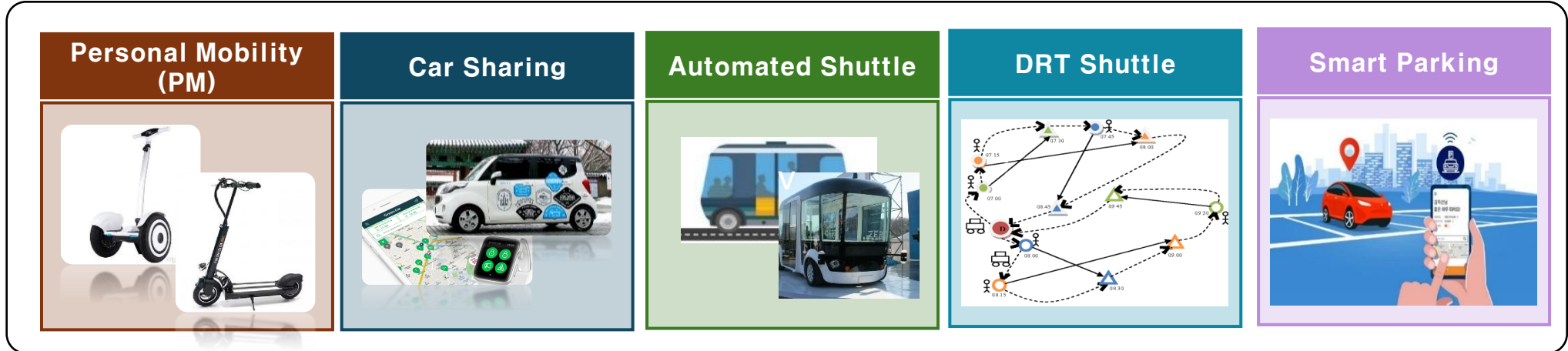
Service Evaluation

- Evaluation Periods: May 20, 2024 - June 30, 2024 (6 weeks)
- Purpose: To test the **integrated mobility service** for a **citizen evaluation group**
- Integrated Product Composition: KRW 20,000, including the following
 - Public transit pass for 10 rides, 7 days
 - Discounts on car-sharing and electric bikes (up to 10%)
- Number of users (evaluation group): 105

Recruitment and promotion of citizen evaluation group



MaaS App



4. Smart Mobility Living Lab (Sejong 1 Living Area)

■ Smart Mobility Living Lab

● Service Evaluation

■ Public transport trip inducement effect:

- (Usage rate) average weekly usage per person: 3.7 times → 7.6 times
- (Repurchase rate) Users' willingness to repurchase the integrated product: 52%

■ Travel time and cost effect:

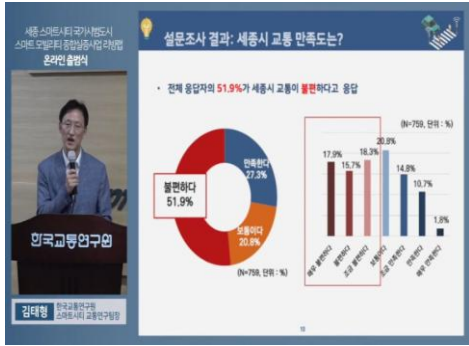
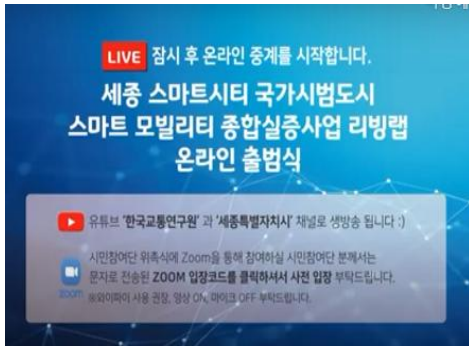
- (Walk → PM) Travel time reduced by 7.5 minutes (4.1% of the entire travel time values) with KRW 725 more cost
- (Car-sharing) 32% reduction in travel time compared to public transit (13 minutes)
70% reduction in travel cost compared to taxis (KRW 24,900 → 7,360)

■ User satisfaction:

- Overall satisfaction 92%, product composition 92%, usage method 80%, product price 100%
- Providing various travel modes in a single app was evaluated as the strongest merit.

4. Smart Mobility Living Lab (Sejong 1 Living Area)

Connecting Public Institutions–Citizens–Private Service Providers



스마트 모빌리티 리빙랩 페르소나 기반 시나리오 개발 및 평가

#1 퍼스널 모빌리티 (Personal Mobility) 공유 서비스
 제출기한 : 9/27(일) 저녁 6시까지

14 중 1 세션

#1 퍼스널 모빌리티 페르소나

퍼스널 모빌리티 페르소나 시나리오 개발 및 평가입니다.
 모바일에서도 체험하실 수 있지만, 컴퓨터나 태드와 같이 가로로 긴 디스플레이를 이용하시면 가독성이 더 좋을 수 있습니다.
 퍼스널 모빌리티는 PM(Personal Mobility)으로 표기될 수 있으며, 중립적인 의미입니다.



리빙랩 시민참여단 위촉 선언문

나는 스마트 모빌리티 리빙랩 시민참여단원으로
 제1회 위촉식을 가진 것을 환영합니다.
 스마트시티를 위한 혁신을 선도하는
 퍼스널 모빌리티, 공유 서비스, 자율주행 서비스
 대중교통 모빌리티 서비스, 수소 운송 플랫폼 서비스, 자율주행 모빌리티 서비스, 스마트 주차 서비스,
 스마트 교통 서비스, 스마트 교통 서비스 관련
 원주민의 다양한 특성을 적극적으로 반영하여
 세종시의 일터와 레저
 서비스의 질을 높이고 지역경제에 기여
 할 수 있도록 하기 위하여 위촉되었습니다.
 현안사항과 다양한 의견과 아이디어를
 모은 프로그램에 적극적으로 참여하고,
 세종시 교통의 질을 높여주세요.
 세종 스마트 모빌리티 리빙랩
 위촉합니다

스마트 리빙랩 안내서



"통합 모빌리티서비스(MaaS) 개선의견 수렴, 서비스 고도화 반영"

태그 인시 시연 "태그 인시 속도 개선기술 적용" / "변경 예약시스템 도입"

미래 시점 출발 예약 기능 기반 "미래 시점 출발 예약 기능개발" / "도학 자동안인 시스템 적용"

다양한 구매 불가 "이용권 구매 불가"

비적용된 내부 시연성 저하 "UI/UX 디자인 도입"

위치정보 부정확성으로 서비스 신뢰도 저하 "위치 정확도를 위해 고도화된 GPS 기술 적용"

자율주행 이송준비 시 도착여부 자동 인식 미흡

MaaS

사람·환경·교통의 조화 속에 미래의 삶을 풍요롭게 바꾸는
한국교통연구원

감사합니다
Thank you