The 19TH ITS ASIA-PACIFIC Leaders Forum

Current Status and Planning ITS in Korea

28 May 2024

Jooil LEE,
Executive Director, ITS KOREA

CONTENTS

01 Current Status of ITS in Korea

02 Future ITS in Korea

01

Current Status of ITS in Korea

Milestones of ITS in Korea

1993-1999

2000-2004

2005-2010

2011-2020

2021-

STAGE 01

Introduction

- **'93** Review of ITS
- **'94** Expressway ITS Pilot Project
- **'97** Establish 1st National ITS Master Plan, National road ITS Pilot Project
- **'98** Host the 5th ITS World Congress in Seoul

STAGE 02

Foundation

- **'99** Enactment of National Transport Systems Efficiency Act
- **'01** Establish 2nd National ITS Master plan
- **'01** ETCS Pilot Project
- **'02** Host the 5th ITS AP Forum in Seoul
- **'03** Project on Establishing ITS Model City

STAGE 03

Growth

- **'07** Nationwide Expansion of ETCS
- **'09** Projects to support the establishment of ITS in local government
- **'10** Host the 17th ITS World Congress in Busan

STAGE 04

Next Generation

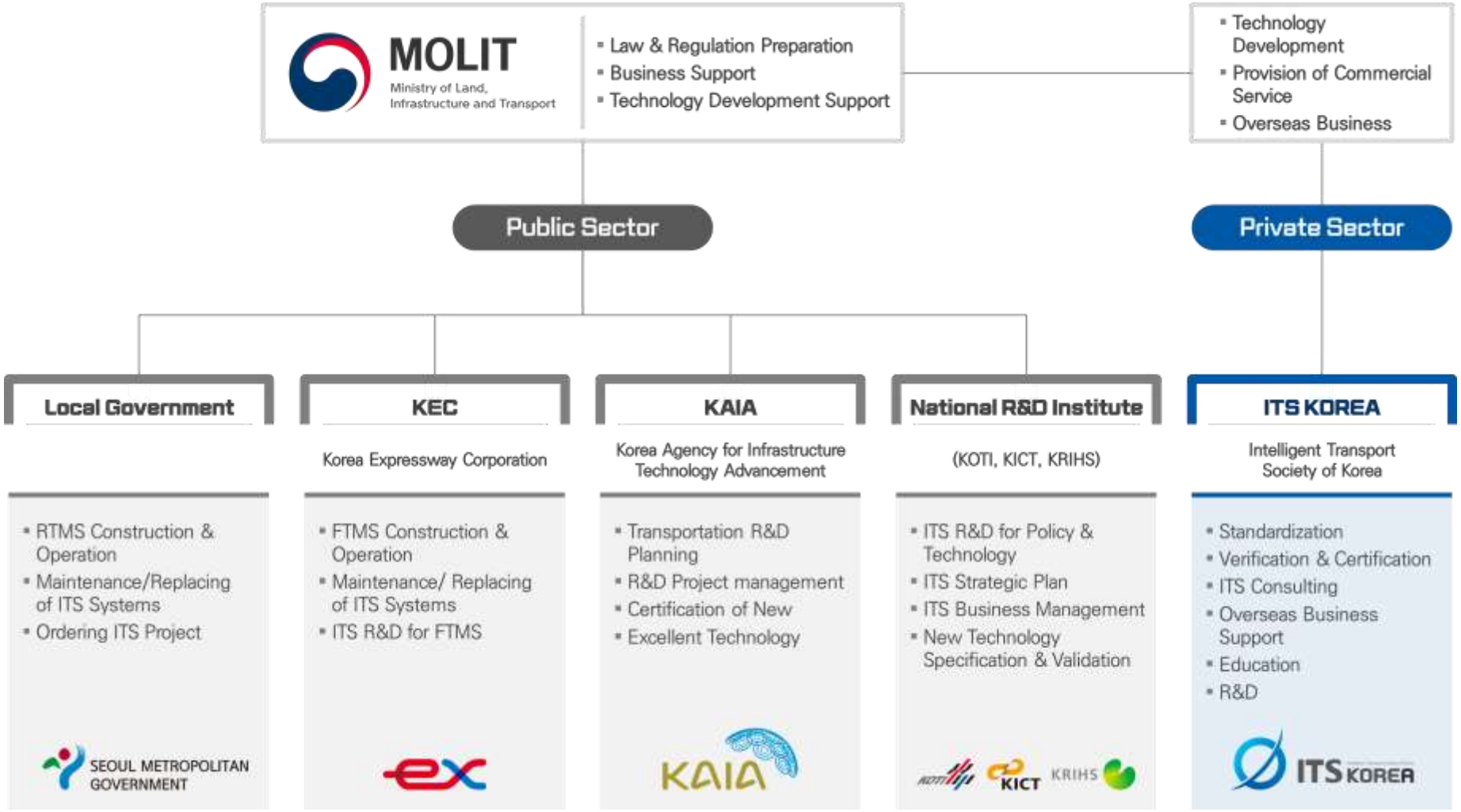
- **'13** Establish C-ITS Master Plan
- **'14** Private-Public Cooperation in Traffic Information
- **'16** C-ITS Pilot Projects
- **'18** C-ITS Demonstration Projects
  - -Expressway · Seoul · Jeju · Ulsan · Gwangju

STAGE 05

Digital Infrastructure

- Nationwide Expansion of ITS
  - National road(~'24)
  - Provincial road (main urban road ~'25)
- **'21** Pilot Deployment of Expressway C-ITS
- **'21** Establish Korea National ITS Master Plan 2030
- **'22** Establish Mobility Innovation Roadmap
- **'25** Host the 20th ITS AP Forum in Suwon
- **'26** Host the 32nd ITS World Congress in Gangneung

ITS Organizations in Korea



ITS Technology Development Stage

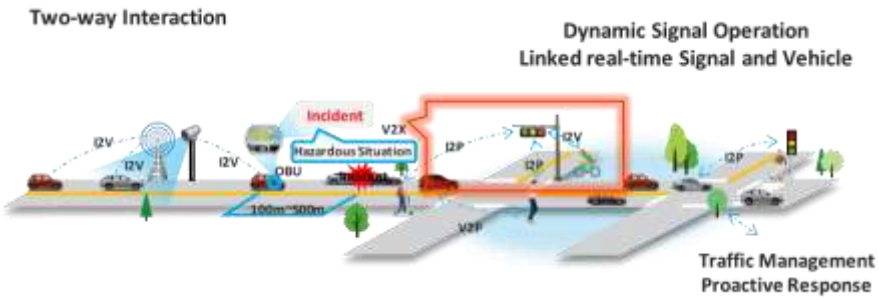
ITS 1.0 ('90~'10)

One-way collection and provision of information on traffic information center and RSE

ITS 2.0 ('10~'20)

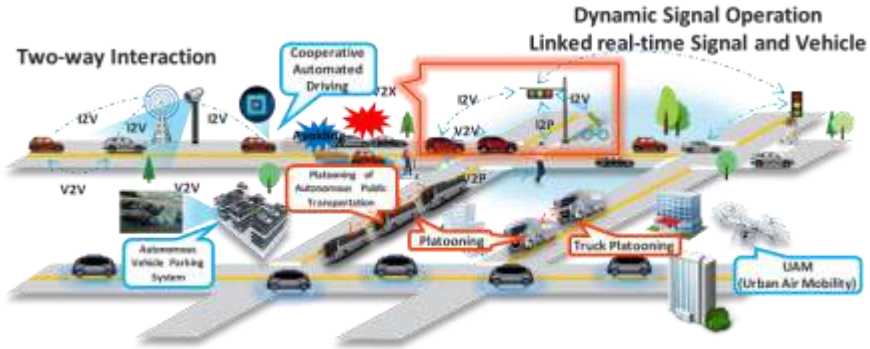
Two-way collection and provision of information via communication device and Traffic Information Center

ITS 3.0 ('20~'25)



Two-way interaction between RSE and OBU

ITS 4.0 ('26~)

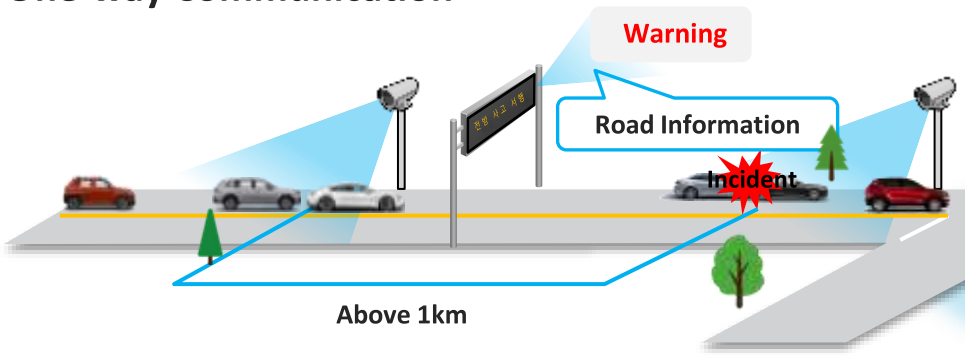


Two-way interaction between RSE and Autonomous Vehicle

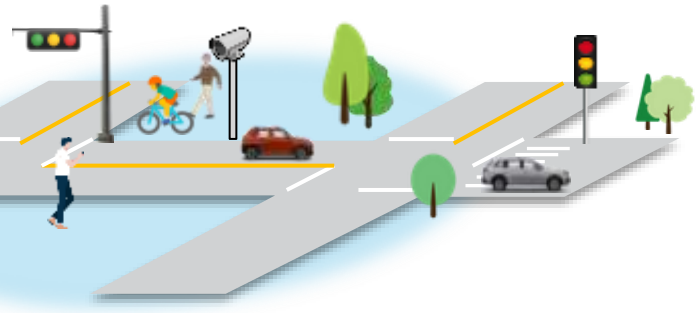
ITS Technology Development Stage – 1st Generation

ITS 1.0 ('90~'10)

One-way Communication



Dynamic Signal Operation based on real-time traffic Volume



One-way collection and provision of information on traffic information center and RSE

Main Projects

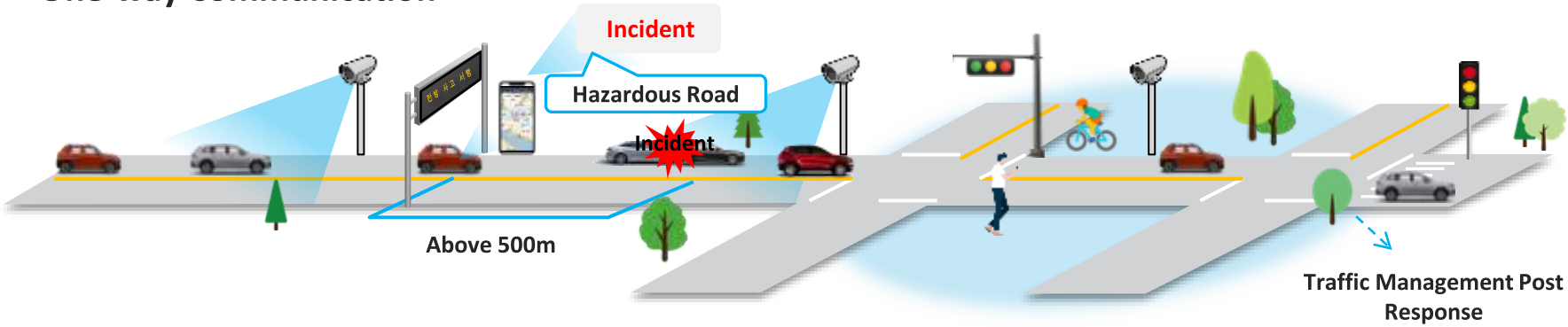
- Bus Information Management System
- Advanced Traffic Management System
- Electronic Toll Collection System
- National road ITS Pilot Project
- Urban Traffic Information System
- Automatic Fare Collection
- Freeway Traffic Management System
- ITS on major Urban roads

ITS Technology Development Stage – 2nd Generation

ITS 2.0 (‘10~’20)

One-way Communication

Dynamic Signal Operation based on real-time traffic Volume



Two-way collection and provision of information via communication device and Traffic Information Center

Main Projects

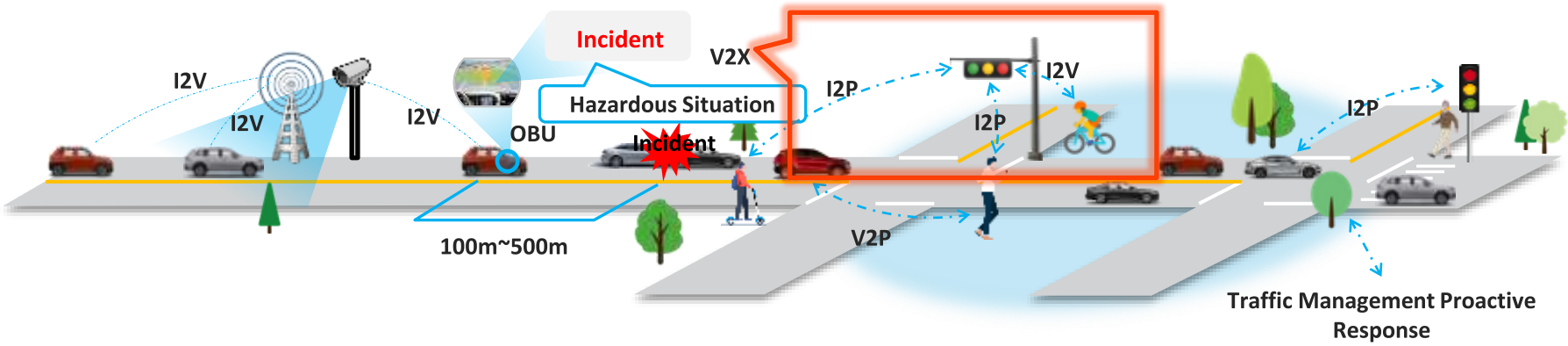
- C-ITS Pilot Projects
- C-ITS Pre deployment for Expressway
- K-City (AV Testbed)
- Traffic Center for 63 cities
- C-ITS Pre deployment for local cites
- Smart Highway Projects
- R&D for Cooperative Automated Driving
- Private-Public Cooperation For Data Sharing

ITS Technology Development Stage – 3rd Generation

ITS 3.0 (’20~’25)

Two-way Interaction

Dynamic Signal Operation
Linked real-time Signal and Vehicle



Two-way interaction between RSE and OBU

Main Projects

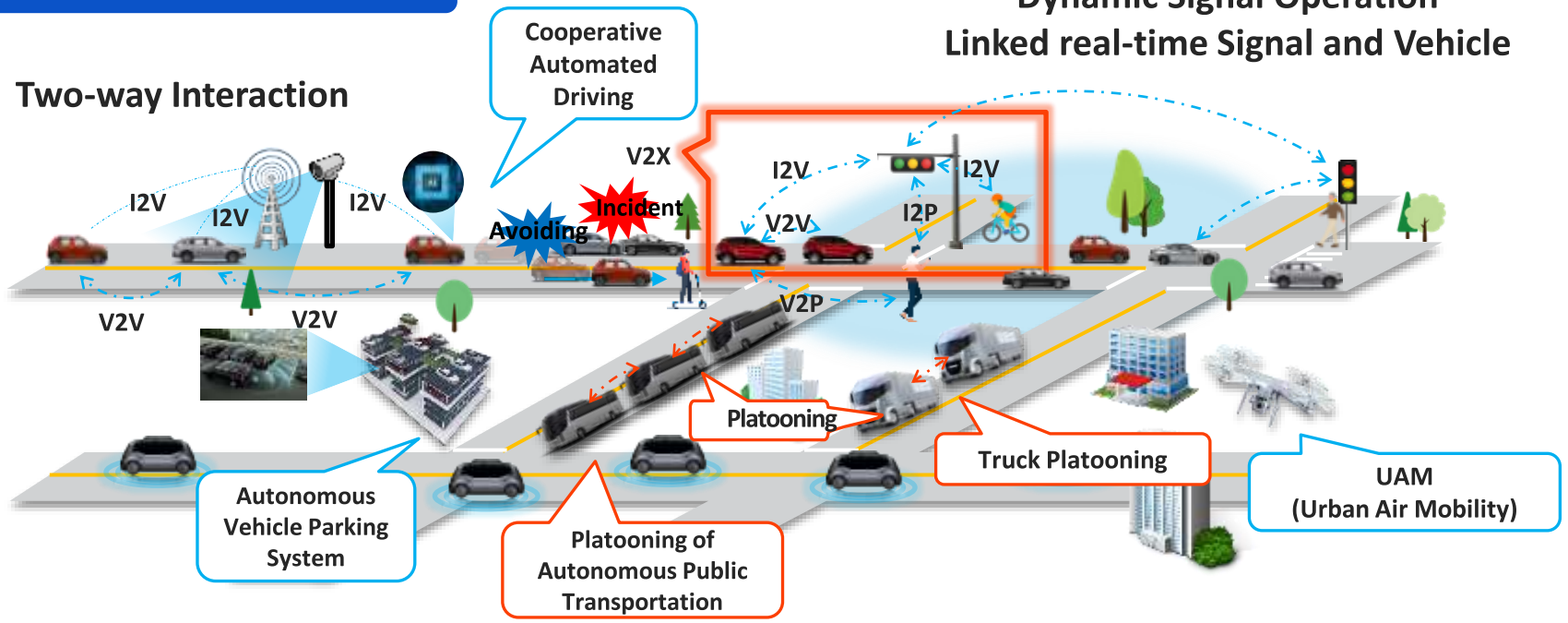
Status of ITS development(‘22.12)

Express way	National road	Local road
4,939km (100%)	9440.5km (68%)	12,540km (16%)

- Nationwide ITS implementation Expressway /Nation highway
- Foundation (Legislation, Infra) for commercialization of AV
- Expansion of Smart tolling
- ITS Expansion for Local road
- Expansion of C-ITS, HD Map)
- Technology Development For Level 4 AV

ITS Technology Development Stage – 4th Generation

ITS 4.0 (’26~)



Two-way interaction between RSE and Autonomous Vehicle

Early Commercialization of Future Intelligent Mobility

- Commercialization Of AV
- Urban Air Mobility (UAM)
- Drone/Hyperloop
- Personal Mobility (PM)
- Green Mobility

Status of ITS Implementation by Service

01 ETCS

- Expressway Hi-pass*
  - ('07) 262 → ('20) **376 Toll plazas**
- Multilane Hi-pass : ('20) **34 Toll plazas**
- Usage rate : ('12) 56.9% → **('23) 89.8%**

* Hipass : Korea ETCS System

02 BIMS

- Bus Information System(BIS)
  - **('23) 161 cities, BIT 43,182ea**
- **Information Satisfaction (Over 90%)**
  - Arrival information, route guidance, etc.

03 ATIS

- ITS Information Centers
  - **('23) 63 cities**

(* Most cities with more than 0.2 million citizens operates)

- ITS Information Provision

- Private companies use public open data to provide additional traffic info.

04 ATES

- Automatic Traffic Enforcement System
  - Speeding : **3,401 sites**
  - Signal violation : **3,339 sites**
  - Illegal parking : **4,605 sites**
  - Dedicated line violation : **33 sites**
  - Multi Enforcement : **1,731 sites**
  - Others : **124 sites**

* Until January 2020

05 Signal Control

- Priority Signal System
  - **('23) 50 cities**
- Smart Intersection
  - **('23) 45cities**

* Until end of 2020

06 Intelligent Road

- **('14-'20)**

  C-ITS Pilot/ Pre Deployment Projects
- **('17~)**

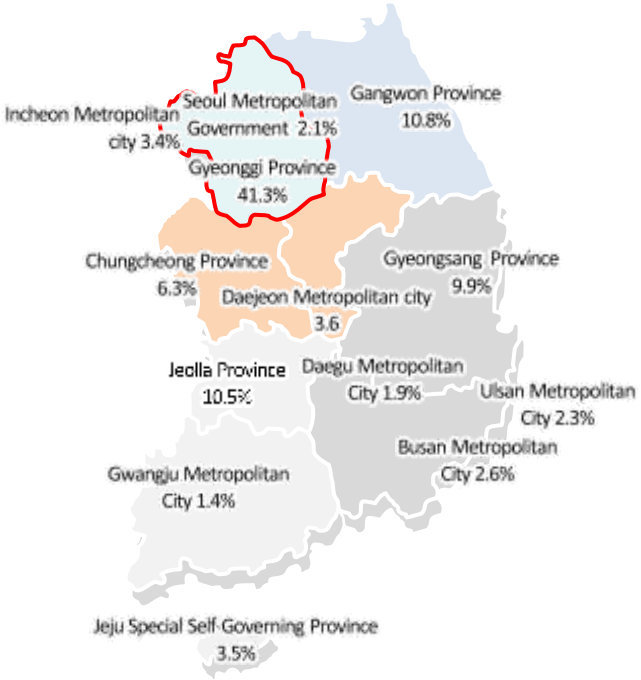
  Automated Vehicle Test-bed (K-City)

* Until end of 2020

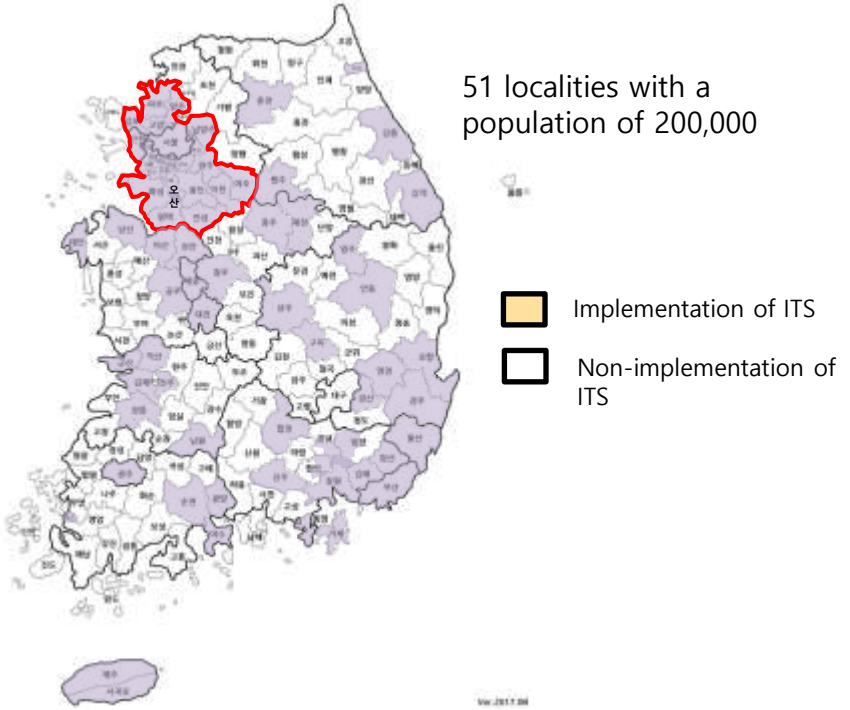
Status of Local Government ITS

- Since 2009, there has been government support with a matching grant ratio of 60% from national funds and 40% from local funds.
- Government support from national funds has been provided to 72 local governments, totaling over 500 billion won.
- Among the 168 local governments nationwide, 63 have implemented ITS

✓ **National Government Funding Ratio**



✓ **National Government ITS Implementation**



ITS/C-ITS Implementaion status in Korea

ITS Implementation Status

Expressway					
4,939 km	100.0%	VDS	2,514	CCTV	2,791
		VMS	1,165	AVC	313
		DSRC	1,081	VSL	848
National Highway					
9,440.5 km	67.5%	VDS	1,767	CCTV	5,799
		VMS	2,151	AVI	54
		DSRC	321		
Local Road					
12,540 km	15.7%				

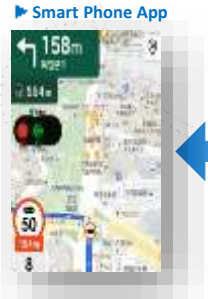
Legend

- Expressway
- C-ITS Pilot Deployment Section (800km)
- ITS Center (56 cities)
- Autonomous Vehicle Pilot Zone

C-ITS Deployment Plans and Status

2018-2021	Seoul City C-ITS Pilot phase II RSU: 100, OBU: 5,260	2014 - 2020 Expressway V2I safety Service Standardization OBU Penetration Rate 10% Basic type OBU (Safety Information, Smart Tolling)
2018-2019	Expressway C-ITS Pilot phase II RSU: 90, OBU: 700	
2014-2017	Daejeon-Sejong C-ITS Pilot phase I RSU: 95, OBU: 3,000	2021 - 2025 Expansion of V2I application (Metropolitan) & V2V Safety Application OBU Penetration Rate 50% Mandatory OBU Installation for Commercial Vehicles
2019-2021	Ulsan City C-ITS Pilot phase II RSU : 119, OBU : 2,700	
2019-2021	Gwangju City C-ITS Pilot phase II RSU : 110, OBU : 2,072	2026 - 2030 Expansion of V2I Application (Small Cities) & V2V Safety Application OBU Penetration Rate 70% Mandatory OBU Installation for Normal Vehicles
2019-2020	Jeju Island C-ITS Pilot phase II RSU: 133, OBU: 3,120	

* As of the end of 2021



▶ Smart Phone App

Public-Private Cooperation

Public Sector

MOLIT

Private Sector

kt SK telecom LG U+ kakaomobility

▶ Tele-communication company

02

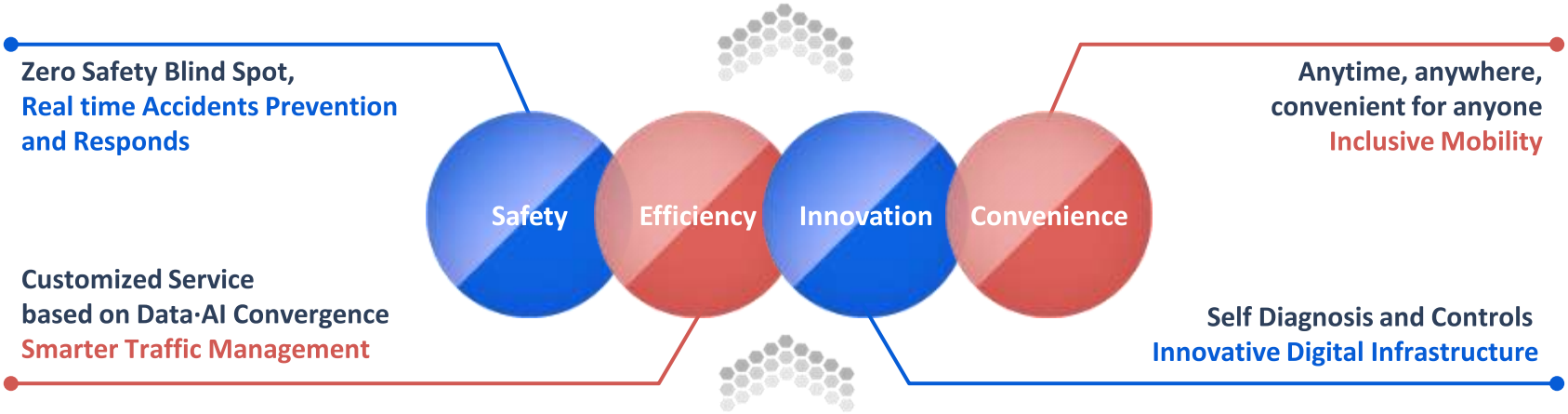
Future ITS in Korea

Overview of ITS Master Plan 2030

“ DREAMS on ITS ”

Digital Road for Eco-friendly and Advanced, Mobility Service

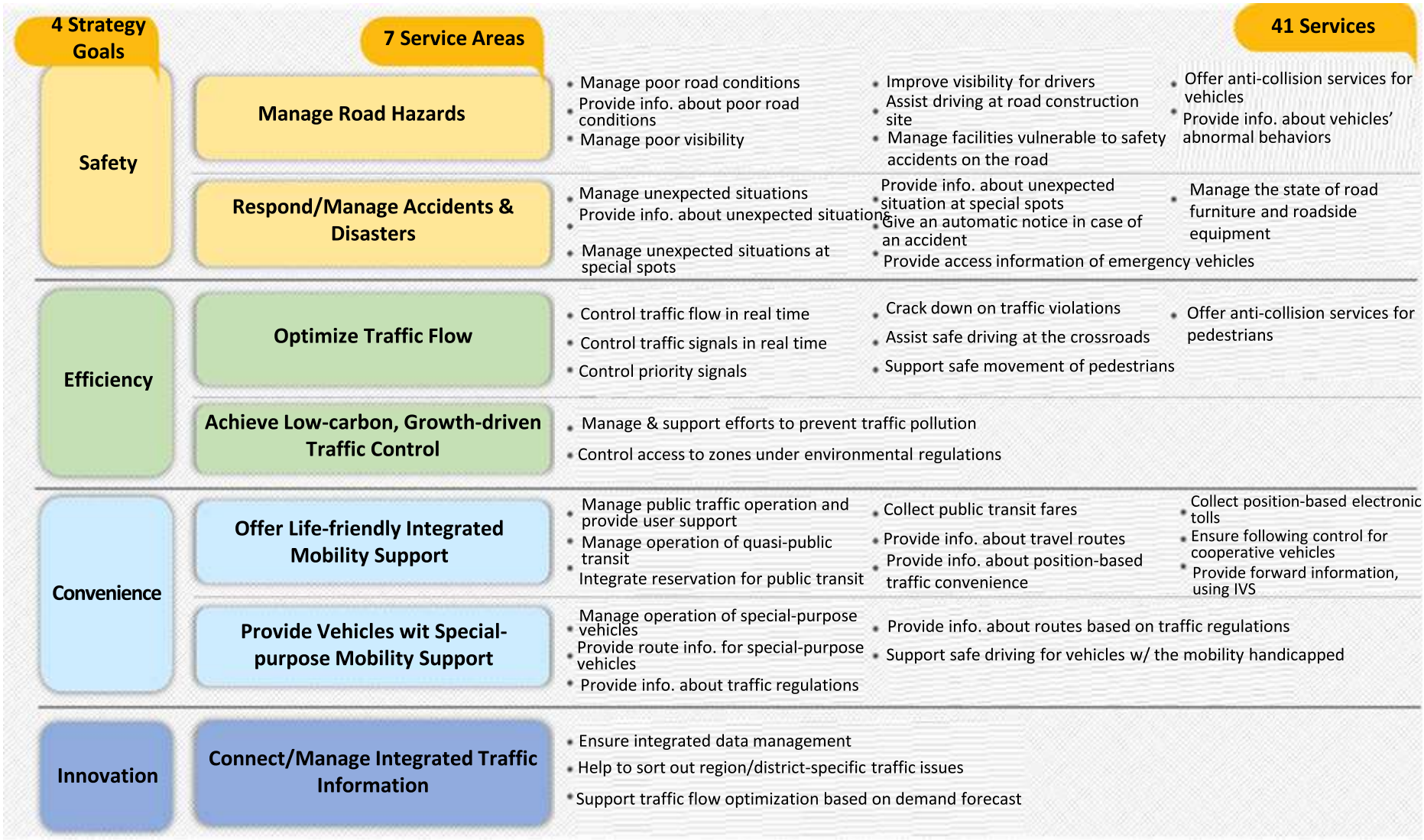
Innovative Road & Competitive International Technologies
By Implementing a Digital Road Network for Autonomous Vehicles and MaaS



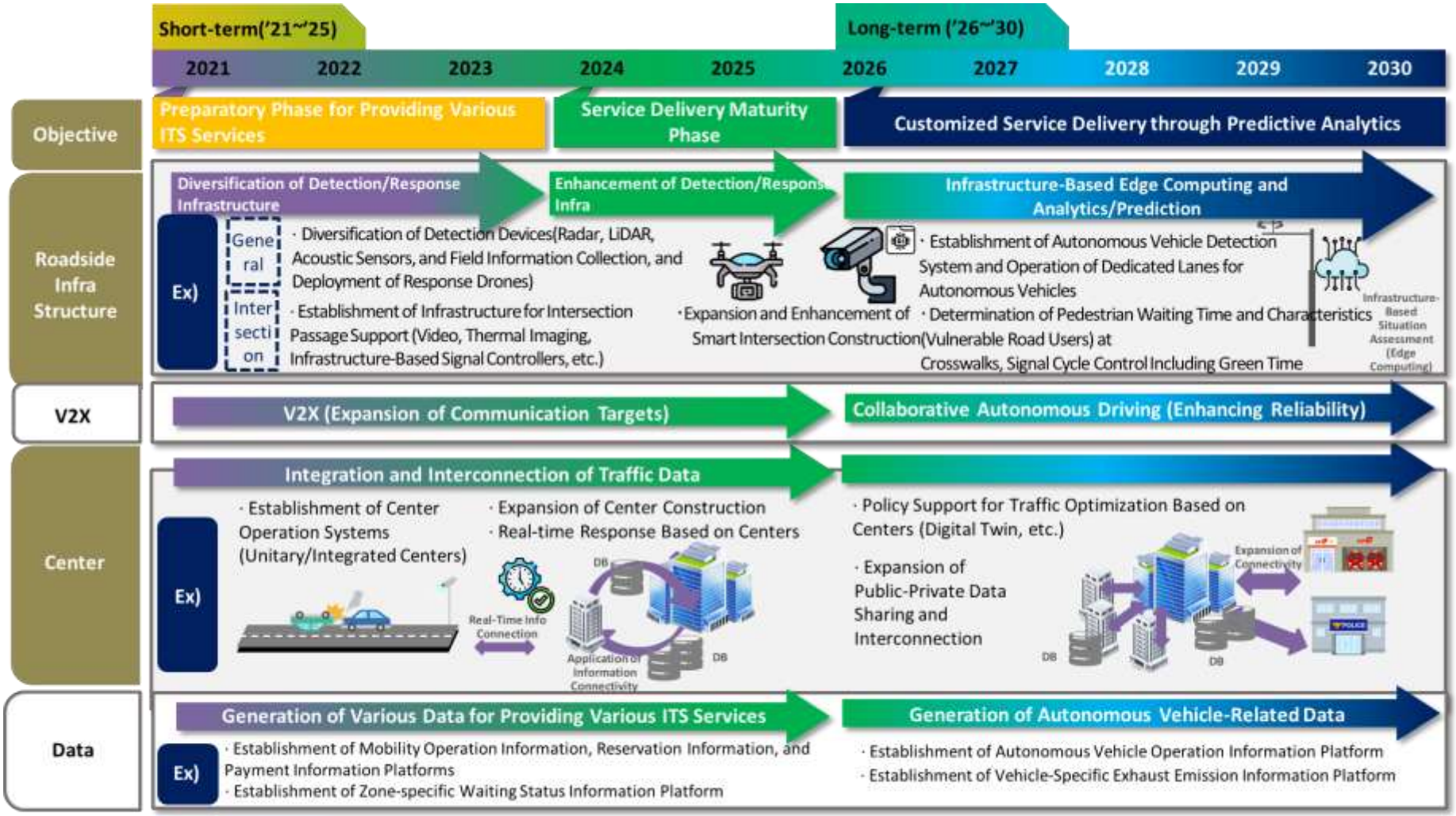
Strengthen technological competitiveness internationally

- Improvement of Legal/Policy
- Standardization
- International Cooperation
- Nurturing Manpower
- Industry Promotion

Introduction of Korean ITS Service



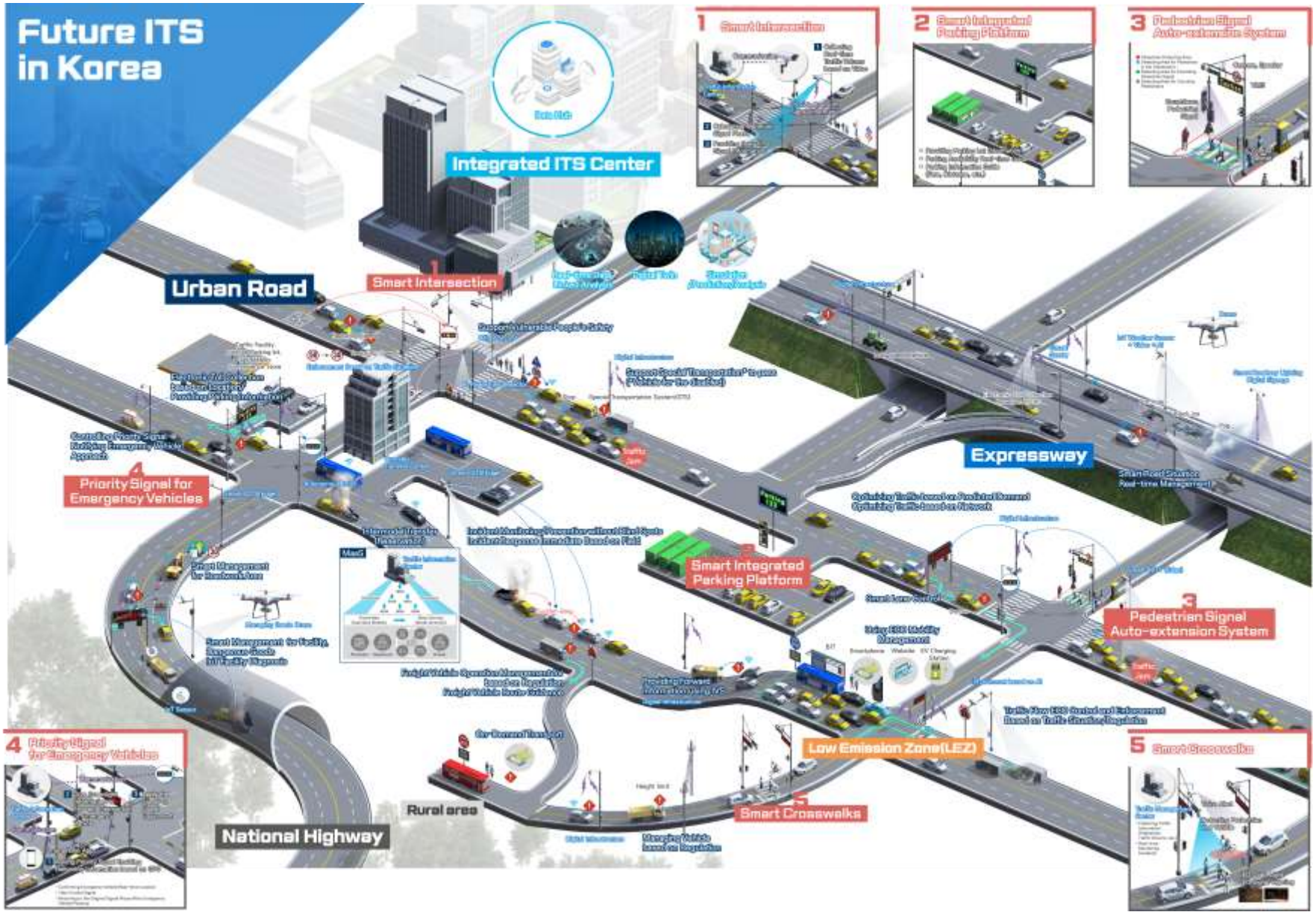
Comprehensive Roadmap for ITS Services



Mobility Innovation Roadmap (2022)

- Development of C-ITS Integrated Safety Services and More (2023~
- Promotion of Mobility Big Data Platform(2023~)
- Determining Communication Methods(2024~)
- Introduction of Urban Air Mobility (UAM) and Commercialization of Drones(2025~)
- Commercialization of Fully Autonomous Driving (Level 4)(2027~)
- Development of High-Precision Maps to Support Digital Twin(2027~)

ITS Mater Plan 2030 - Future ITS Roadmap



ITS Asia Pacific Forum & ITS World Congress in Korea

2025 Suwon ITS Asia Pacific Forum

Period	May 28-30, 2025
Location	Suwon Convention Center
Scale	20 countries, 2,500 participants
Subject	Hyper-Connected
Program	High-level Bilateral Meeting, Opening & Closing Ceremony, AP BOD Meeting, Sessions, Exhibition, Tech Tour & Demonstration, VIP/ITS Dinner, Business Matching

2026 Gangneung ITS World Congress

Period	October 19-23, 2026
Location	Gangneung Convention Center
Scale	60 countries, 20,000 participants
Subject	Beyond Mobility, Connected World
Program	High-level Bilateral Meeting, Opening & Closing Ceremony, WC BOD Meeting, Sessions, Exhibition, Tech Tour & Demonstration, VIP/ITS Dinner, Business Matching

Opening Ceremony

Session

Exhibition

Technical Demonstration

Thank you.

ITS Korea