Korean New Deal Policies & Implementation of Eco-friendly C-ITS

Ministry of Land, Infrastructure and Transport

Expert Workshop: International Best Practices to Promote Eco-friendly Cars, International Transport Forum
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Activities to COVID-19 & Korean New Deal Policies

Chapter 1

Activities to COVID-19

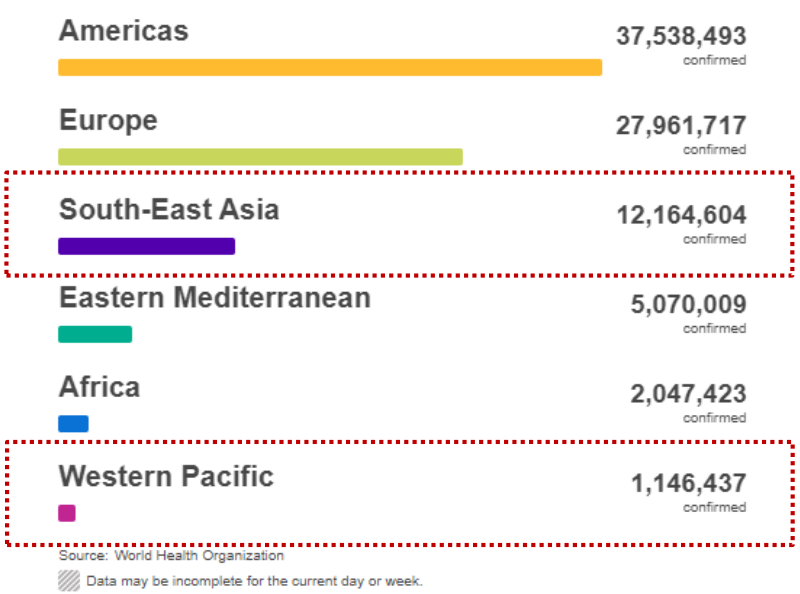
1. COVID-19
2. Impact of COVID-19
3. Activities to COVID-19

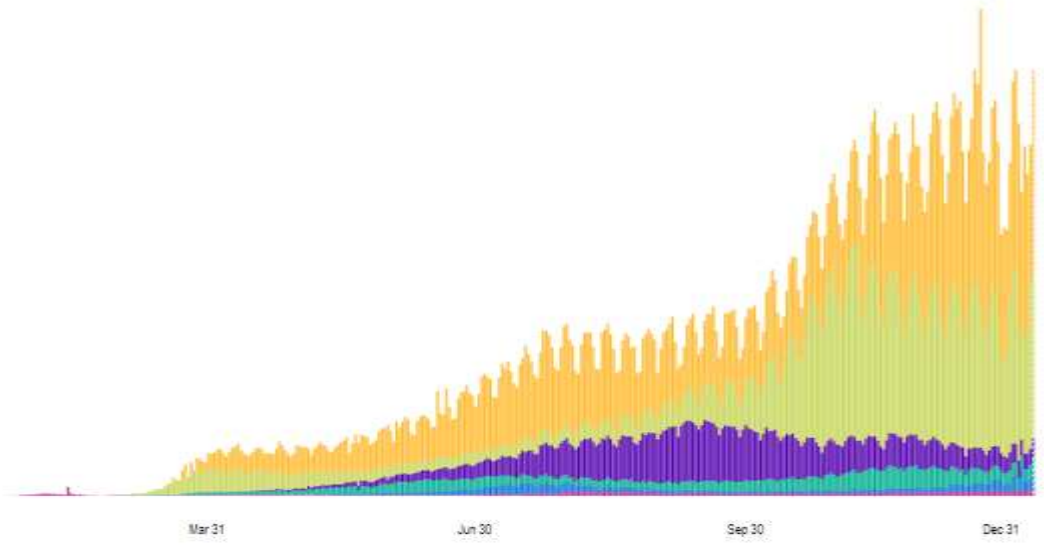
1. COVID-19

COVID-19 Cases Situation by WHO Region

- Globally, as of 5:04pm CET, 7 January 2021, there have been **85,929,428 confirmed cases of COVID-19**, including **1,876,100 deaths**, reported to WHO

Situation by WHO Region





- South-East Asia : Indonesia, Thailand
- Western Pacific : Australia, China, Japan, Malaysia, New Zealand, Singapore, South Korea, Taiwan

* Source: World Health Organization, 2021/01/07, 5:04pm

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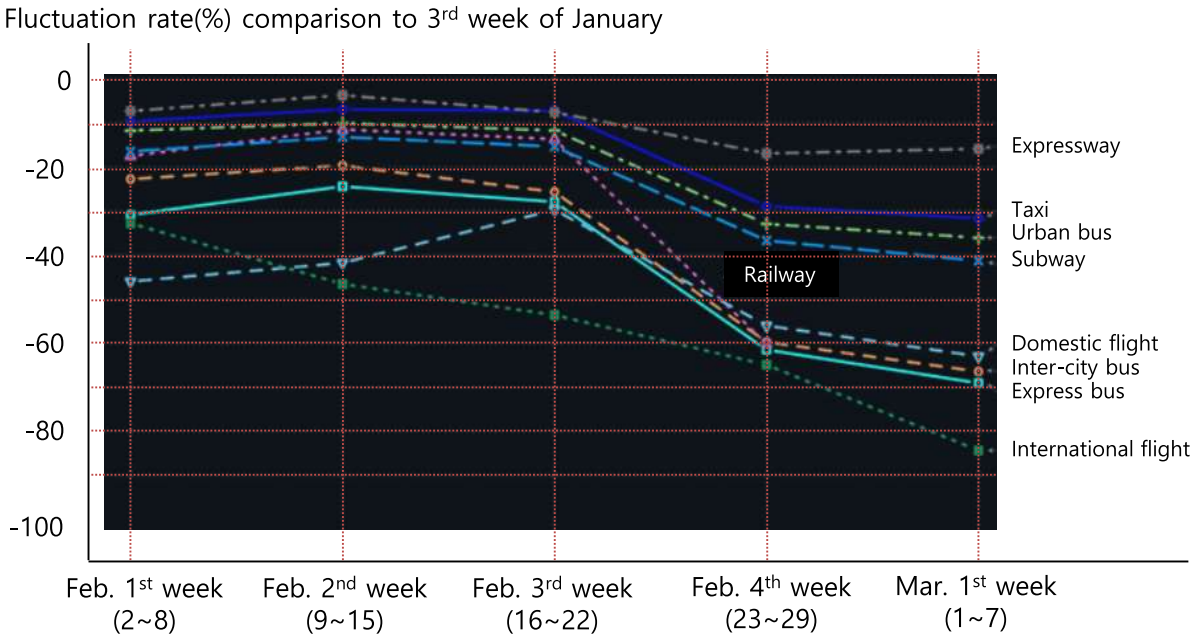
2. Impact of COVID-19

Changes on Transportation



< Changes in daily mean travel(%) >

- Travel volume on expressway showed the least decrease among major means of transport
- Inter-city travel decreased more than intra-city travel
- Sharp decline occurred in both domestic and international flight travel

<Passenger car : ▼7.2%>

<Car sharing : ▲21.0%>

<Public transport : ▼34.5%>

* Source: The Korea Transport Institute & http://mediahub.seoul.go.kr/archives/1273765 & https://news.joins.com/article/23738968

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3. Activities to COVID-19

Preventive Measures against Epidemics in Seoul

Subway

- Mandatory to wear masks when using public transportation
- ‘Application report’ system for non-mask wearers
- Increase disinfection in metro station
  - Inside station : Once a week → Twice a week
  - Restrooms : Once a day → Twice a day
  - Single-use transportation cards : Once in 5 days → Once a day
- Increase disinfection inside vehicle
  - Hand straps, Safety bars, Inside vehicle
- Supplement of manpower and equipment for disinfection
- Concentrated disinfection on routes, vehicles, and stations that a confirmed case of COVID-19 had used
- Improvement of disinfection manual for operator
- Education on disinfection for officials and operators
- Promotion on individual sanitary control for passengers
- Smart Bus Shelter
  - scan the temperature & refuse entry to anyone with fever

* Source: SeoulMetro, Seoul Metropolitan Government

Activities to COVID-19 & Korean New Deal Policies

Chapter 2

Korean New Deal Policy

1. Korean New Deal
2. Digital SOC_C-ITS
3. Future car expansion plan and preemptive marketing
4. ITS Investment Outlook in Korea

1. Korean New Deal

Overview of Korean New Deal Program

"Paradigm shift to leap forward into a pace-setting economic model"

From a chasing economy to a leading low-carbon economy with an inclusive society

Digital New Deal

- Strengthen D.N.A ecosystem
- Digitalization of education infra
- Promotion of un-tact industry
- **SOC Digitalization**

- Invest 13.1B USD / Create 193K jobs until 2025

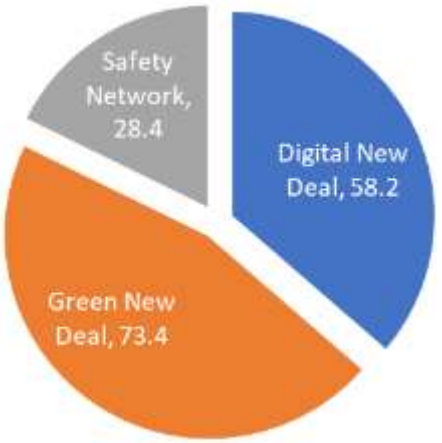
- Invest 3.4B USD for ITS & C-ITS

Green New Deal

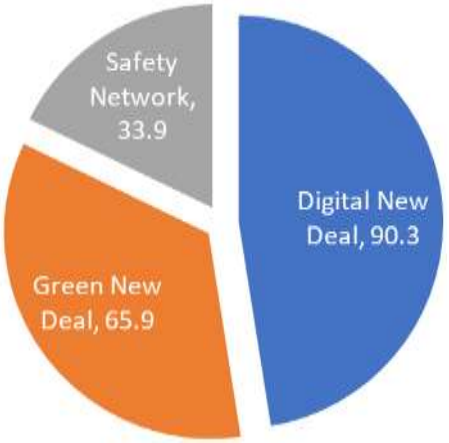
- Green convergence of urban & space & living infra
- Expansion of Low-carbon & dispersion energy
- Green industry innovation

Invest 160 trillion KRW* until 2025

* About 133 billion USD



<Investment by program>
(Trillion KRW)



<Job creation by program>
(10,000 Jobs)

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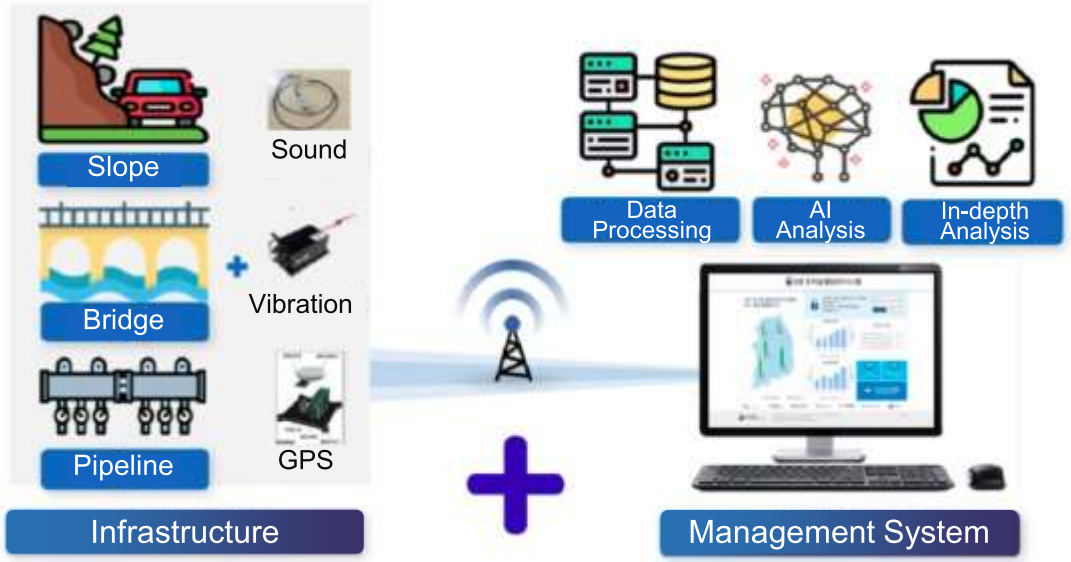
1. Korean New Deal

SOC Digitalization

- SOC(Social Overhead Capital) + Advanced Technology = Improvement of public safety and convenience

1. Real-time Monitoring

- IoT : Internet of Things



- IoT constant measurement system for bridges and slopes

- Detection faults in advance with IoT remote sensors of railroad

- Installation of CCTV for river management

- Monitoring in real-time, collecting and utilizing big data by combining **IoT Sensor , AI and High-speed communication networks.**

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1. Korean New Deal

SOC Digitalization

2. Smart Operation Technique

[Smart Airport]
- Untact Biometric System

[Smart Railway]
- Unmanned detection train

[Smart Tolling System]
- Highway automatic toll payment

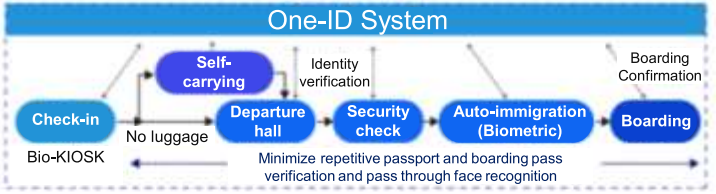
K-CITY

[Advanced testbed for automated vehicles(K-city)]

C-ITS

- Support for automated vehicles through C-ITS

- Simplified Check-in procedures through Untact biometric system



- Introduction and support of shared logistics center and smart logistics center

[Auto-Packing] [Auto-Classification] [Auto-Transfer]

- Building a more secure transportation network by introducing **advanced and smart digital operation systems** at airports, railways and roads.

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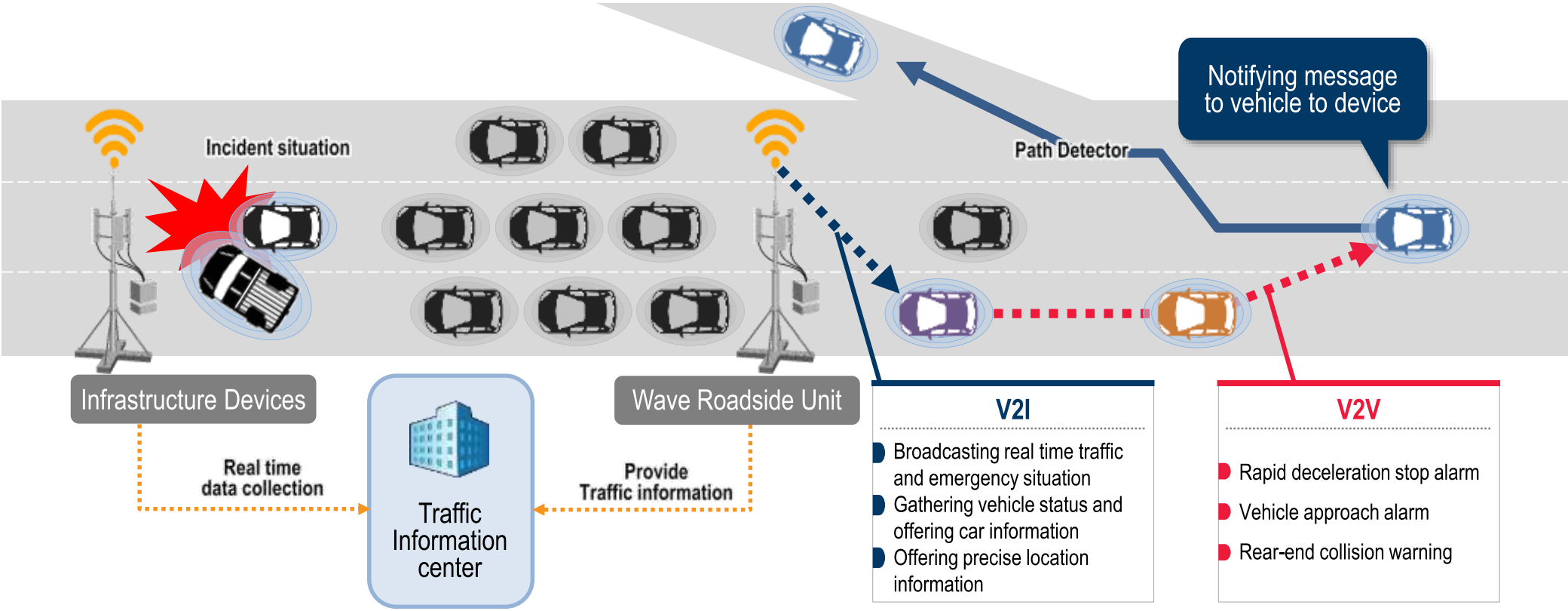
2. Digital SOC_C-ITS Cooperative-Intelligent Transportation Systems

Concept of C-ITS

- New Paradigm for ITS service on the open platform focusing on safety by V2V, V2I and V2P communication
- A system that provides accident-related information such as traffic conditions, sudden stop, and fallen objects to the driver in real time



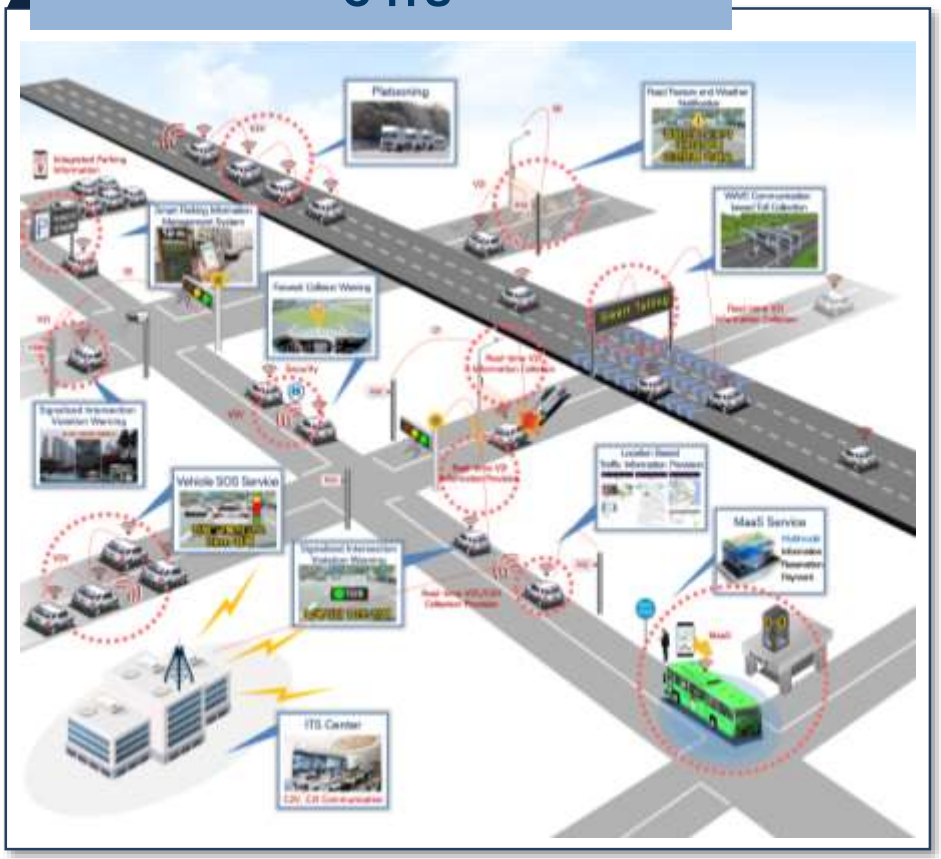
2. Digital SOC_C-ITS Cooperative-Intelligent Transportation Systems

Differences between ITS and C-ITS

ITS

- Collecting and providing **One-way** traffic information at a specific point takes a long time between the occurrence of events and the provision of information

C-ITS



- When the vehicle is driven, it communicates **Two-way** communication with road facilities and other vehicles to spread and share real-time risk information

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2. Digital SOC_C-ITS Cooperative-Intelligent Transportation Systems

C-ITS Deployment plans and project status

2014-2020

Expressway V2I safety Service standardization

OBU penetration rate 10%
Basic type OBU
(Safety information, Auto tolling)

2021-2025

Expansion of V2I application (metropolitan) & V2V Safety application

OBU penetration rate 50%
Cooperative vehicle control
Review of compulsory OBU installation
(Business vehicle)

2026-2030

Expansion of V2I application (small cities) & V2P Safety application

OBU penetration rate 70%
Automotive driving foundation construction
Review of compulsory OBU installation
(normal vehicle)

Daejeon-Sejong C-ITS Pilot phase I
RSU: 82, OBU: 3,000

Seoul City C-ITS pilot phase II
RSU: 99, OBU:1600

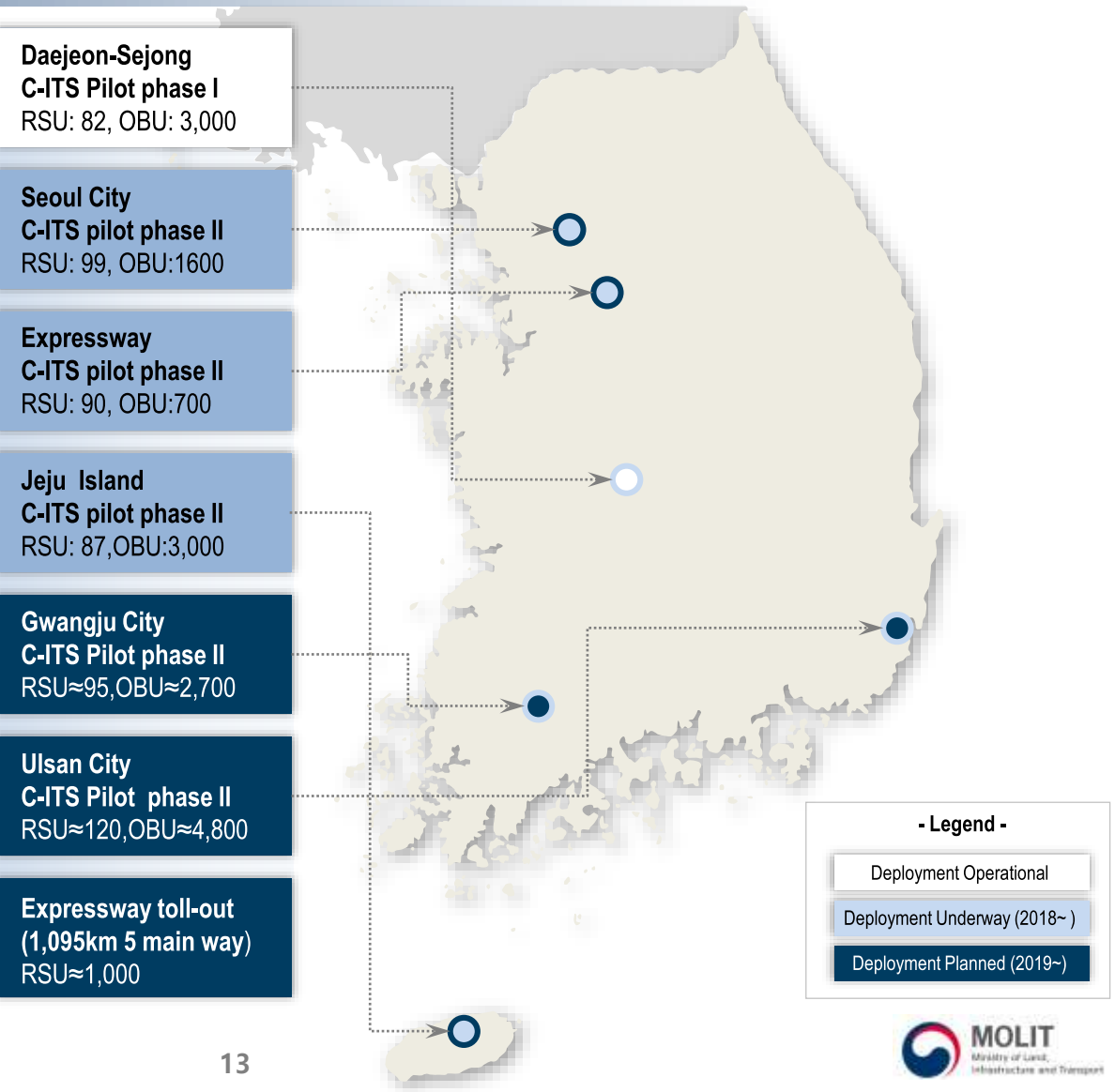
Expressway C-ITS pilot phase II
RSU: 90, OBU:700

Jeju Island C-ITS pilot phase II
RSU: 87,OBU:3,000

Gwangju City C-ITS Pilot phase II
RSU≈95,OBU≈2,700

Ulsan City C-ITS Pilot phase II
RSU≈120,OBU≈4,800

Expressway toll-out (1,095km 5 main way)
RSU≈1,000

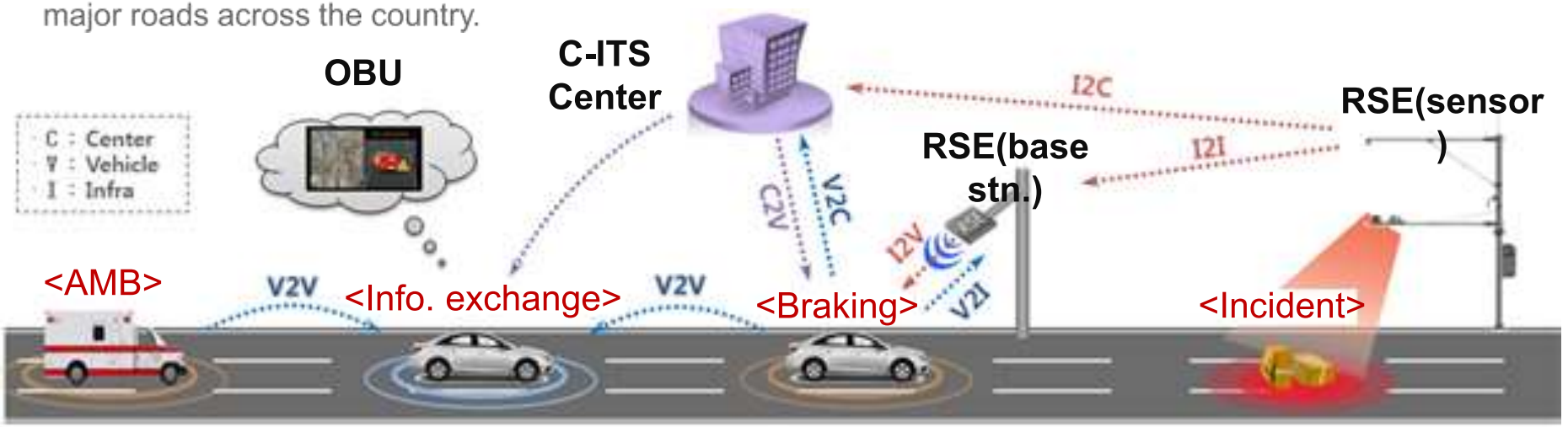


* As of Jan. 2019
** R&D Projects' RSUs(≈70) and OEM's OBU equipped car excluded

2. Digital SOC_C-ITS Cooperative-Intelligent Transportation Systems

Overview of the project

- Expand and build a digital road network (C-ITS) with the aim of commercialization full autonomous driving on major roads across the country.



< As-is >

ITS deployment
- National Highway – 3,413km
- Local Government – 8,334km

C-ITS deployment
- Expressway – 85 km
- National Highway – 3km
- Local Government – 210km

< 2022 >

ITS deployment
- National Highway – 9,361km
- Local Government – 12,995km

C-ITS deployment
- Expressway – 2,085km
- National Highway – 3,347km
- Local Government – 2,153km

< 2025 >

ITS deployment
- National Highway – complete(`24)
- Local Gov't – complete(17,483km)

C-ITS deployment
- Expressway – Completed
- National Highway – (4,075km, completed)
- 4-lane above local roads - complete(12,995km)

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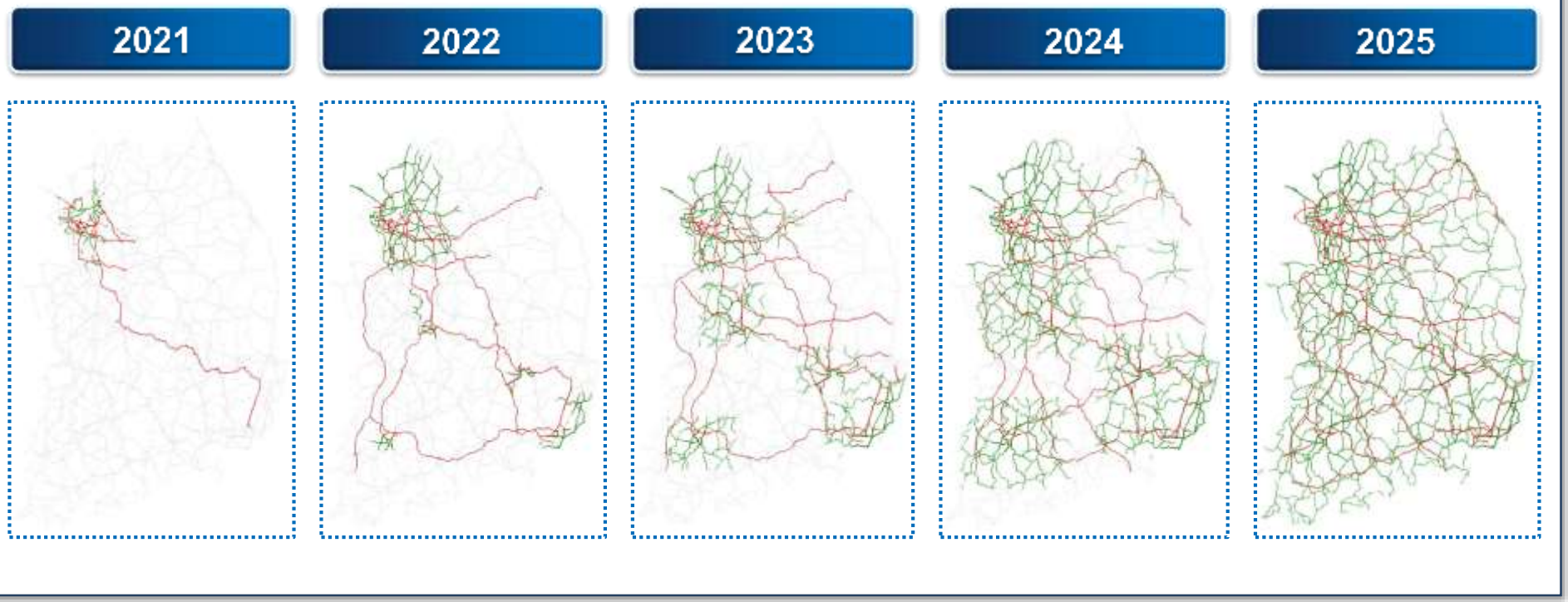
2. Digital SOC_C-ITS Cooperative-Intelligent Transportation Systems

C-ITS Implementation Plan by Road Type

- C-ITS will be established by region and annual basis.
- It will be gradually expanded after establishing the priority of metropolitan area.

Expressway & National Highway



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3. Future car expansion plan and preemptive marketing

Future car expansion plan & preemptive marketing

"Building a future car-oriented social ecosystem for 2025 through popularization of future cars by 2022"

As-is

- Cumulative supply of 120,000 EVs(Sep.19)
- Cumulative number of HFCVs has been expanded by 11 times since 2018
  ('18.12/0893 units →'20.9/9,494 units)
- Increased exports of EVs (▲79%) and HFCVs (▲46%)
- Increased global market share for EVs (5.0%→7.2%)
- World's No. 1 market share for secondary batteries
- Started to export HFCVs and HFCs

To-be

- Domestic distribution of 1.13 million EVs & 200,000 HFCVs by 2025
- Exports 530,000 units of Evs and HFCVs, Sales 50 trillion won of secondary battery by 2025
- Release of Autonomous driving level 3 by 2022, partial commercialization of Level 4 by 2024
- Converts into future cars 1,000 auto parts companies by 2030

- Source: Strata Max , https://www.stratamax.com/News/ArtMID/2506/ArticleID/63/The-Electric-Car-Revolution
  QUT, Queensland University of Technology
  Autonomous driving image by Chombosan/Shutterstock.com

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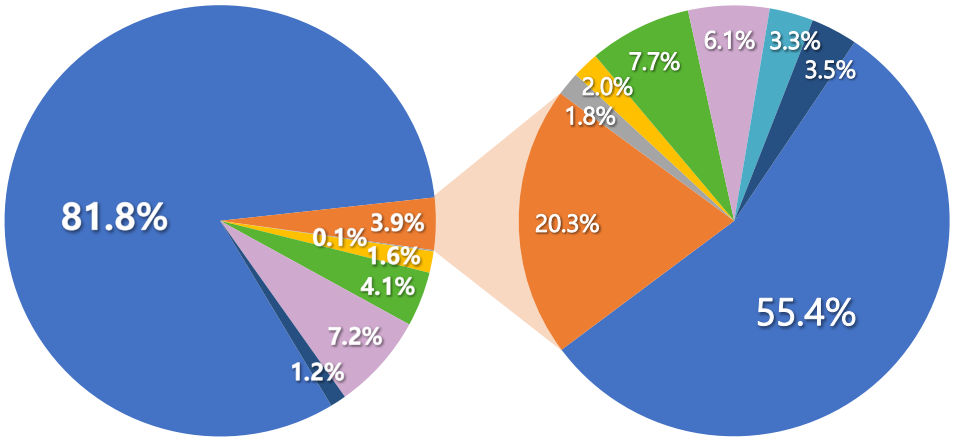
4. ITS Investment Outlook in Korea

ITS in the Automotive and Road Sector(2021)

Investment Outlook by Project



< 2016 > < 2021(Forecast) >

Insights

- Traffic Management segment held the leading share and its amount of investment is anticipated to increase by 30.2% to 576.4 billion won.
- C-ITS segment is anticipated to record high growth during the forecast period with Korean New Deal project.
- C-ITS(3.9%→20.3%), Automated Vehicle(0%→3.3%), Improvement of ETCS(4.1%→7.7%), Green Transportation(1.2%→3.5%)

Project	2016	2017	2018	2019	2020	2021 F
Expansion of Traffic Management using IOT	432,964	417,741	428,539	242,674	442,757	576,427
Expansion of C-ITS	20,786	28,520	34,455	70,252	73,115	210,733
Expansion of the Provision of Safety Information	468	160	450	673	738	18,348
Establishment of Traffic Communication Information System	8,720	12,961	9,191	15,457	17,182	20,621
Improvement of ETCS	21,449	45,437	12,806	59,728	42,208	79,788
Providing Public Transportation Information	38,331	42,001	32,847	55,590	54,887	63,848
Expansion of Automated Vehicle	0	0	0	22,213	26,778	33,823
Support of Low Carbon, Green Transportation	6,610	24,467	26,404	32,477	34,506	36,361
Total (Million KRW)	**529,328**	**571,287**	**544,692**	**499,064**	**692,171**	**1,039,949**

* Source : 2021 ITS Investment Outlook(2020.07), ITSK

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Thank you