



Smart city with ITS, Bucheon

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01

Dynamic Bucheon

01 Dynamic Bucheon

► 25 Unit service systems, 3,847 Field systems



Traffic Information Collection

Collection system
(UTIS, VDS, DSRC, Radar)
CCTV video
Signal (roof) detector
Parking lot parking information
Bus route information
(Record of bus routes /
Identification of bus plates)
External connection traffic information



Traffic Information Processing Analysis

Traffic information processing system
Traffic analysis system
Signal processing system



Provide Traffic Information

Web & Mobile service
Web: www.bcts.go.kr / Mobile web: hanune.bcs.or.kr
VMS service
GIS service
CCTV video service
Bus arrival information service
Parking information service
Bus route allocating service
Traffic Broadcasting
(FM 100.5, Gyeongin, CJ)



Manage Data and Center Operation

Traffic situation board
System management
Network management
Facility management server
Backup management
CCTV image management
Security management
Municipal network management
Standard-Node link management



Traffic Safety and regulation

Driver feedback sign
Parking violation enforcement
Exclusive bus lane violation enforcement
Business vehicle violation enforcement
Illegal street vendor enforcement

Traffic
& Transit
Information

Smart
Parking

Traffic
Signal
Operation

Traffic Safety
& Regulation

Traffic
Accident
Management

Big Data
& AI

Smart city
Management

02

Advanced
Bucheon

02 Advanced Bucheon

► **Infrastructure of Smart city Bucheon**

✓ **Fast growth to smart city (193km, 10Giga)**



Organization of Owned-Communication Network

Implemented length : Entire area of Bucheon-Si, approx. 192.8km

Laying media : Fibre optic cable 4 ~ 24 core

Transmission equipment : Metro-ethernet (112 sets)

- ITS network 01
- ITS network 02
- ITS network 03
- ITS network 04
- ITS network 05
- ITS network 06
- ITS network 07

Owned-Communication Network of Bucheon City

Establish the self-communication network for communication between the traffic information center and the equipment in site.

✓ **Annual budget savings of KRW 1 billion to operate approximately 4,000 field systems**

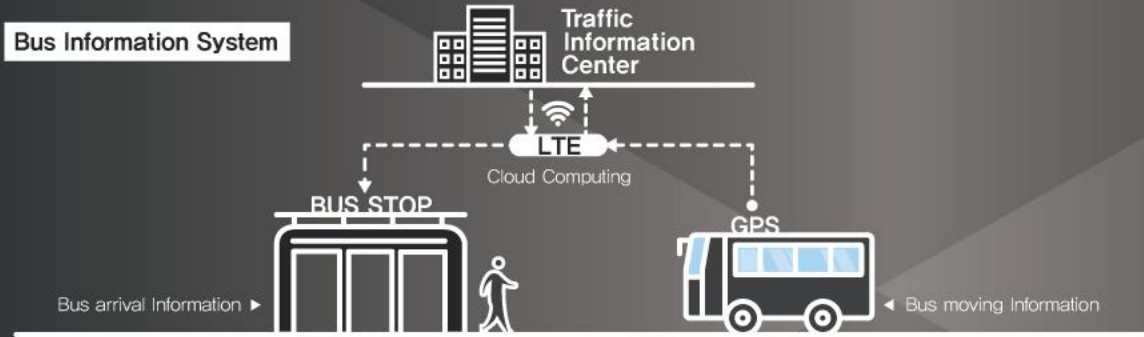
✓ **Sharing public & private services**

03

Sharing
Bucheon

03 Sharing Bucheon

► Sharing bus information system (BIS) based on cloud computing system



- ✓ 90% reduction in construction and operating costs
- ✓ Making collaborative governance with other cities and countries for sharing of Bucheon BIS
- ✓ Supporting & Sharing H/W, Human, Technology, Master plan, etc
- ✓ Shared cities & countries : Seosan, Namwon, Okcheon, Boeun and Ulaanbaatar, Mongolia

03 *Sharing Bucheon*

► **Ulaanbaatar Bus Information System**



- ✓ **Ulaanbaatar Smartcard Co.**
(2014. Smartcard,
private investment project)



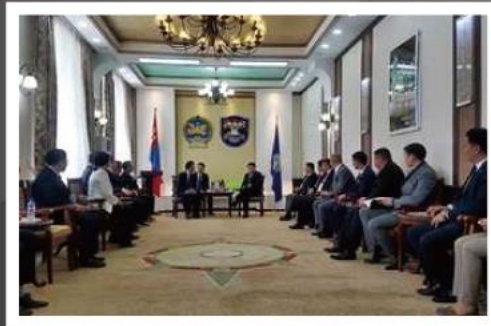
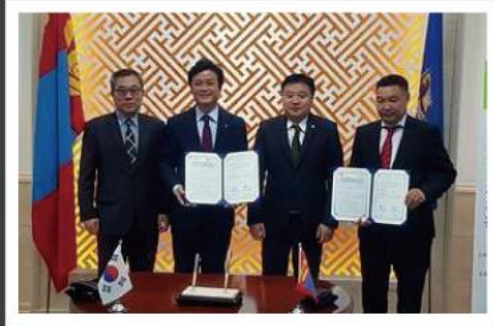
- ✓ **Ulaanbaatar Traffic
information Center**
(2009. SK C&C, ODA)



- ✓ **Bus Information Terminal**
(2018. Bucheon city, MoU)

03 Sharing Bucheon

► MoU for cooperation for development and operation of ITS



04

Innovation
Bucheon

► **Real-time Dynamic Bus Stop Allocation System**

Before



After



- ✓ The world's first solution to allocate buses to multiple stops
- ✓ Space constraints : 14 stops → 6 stops
- ✓ Solution : Intergration & convergence of ITS unit services

▶ Three steps for automatic bus stop allocation



Bus plate number cognition at the entrance zone of the transfer facility



Assign the bus stop on the electronic board



The bus stops at the allocated stop

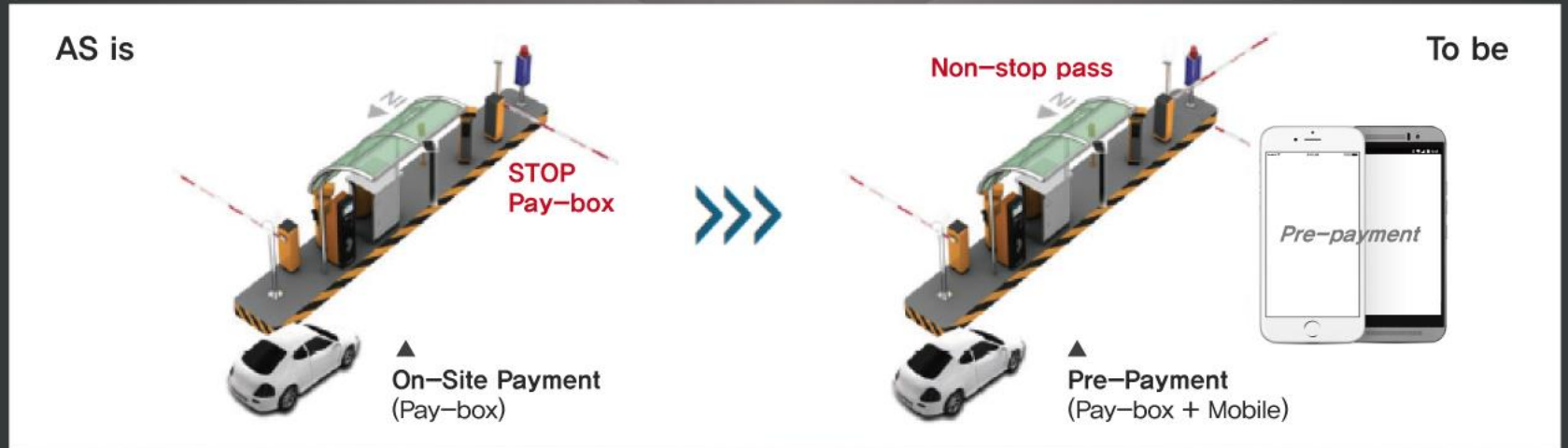
- ✔ The plate number of the bus entering the transfer center is recognized as deep learning image recognition technology
- ✔ 6(six) bus stops be divided into A, B and C zones, and the bus route number be confirmed by matching the recognized plate number with the bus route based information, and the unassigned stops be detected in real time, and buses be assigned to empty stops
- ✔ Provide bus drivers and bus users with assigned stop and bus route information

05

Smart
Bucheon

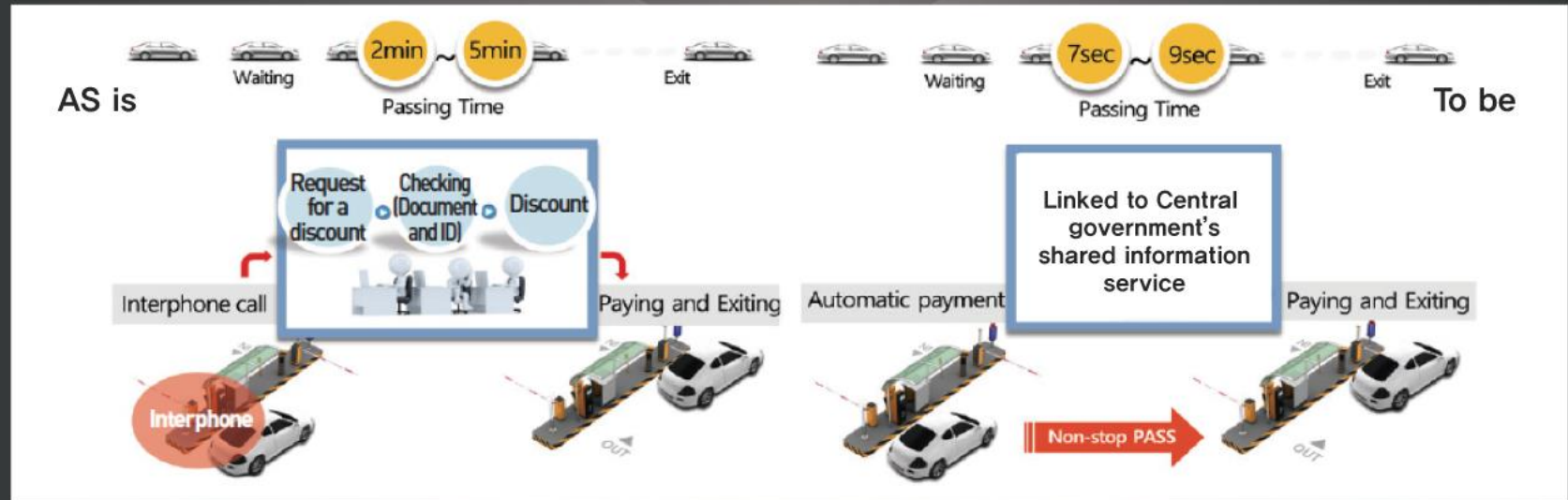
► **Pre-payment system with Mobile**

- ✓ Electronic mobile pre-payment system instead of on-site payment
- ✓ Reduction in waiting time and congestion at parking gates



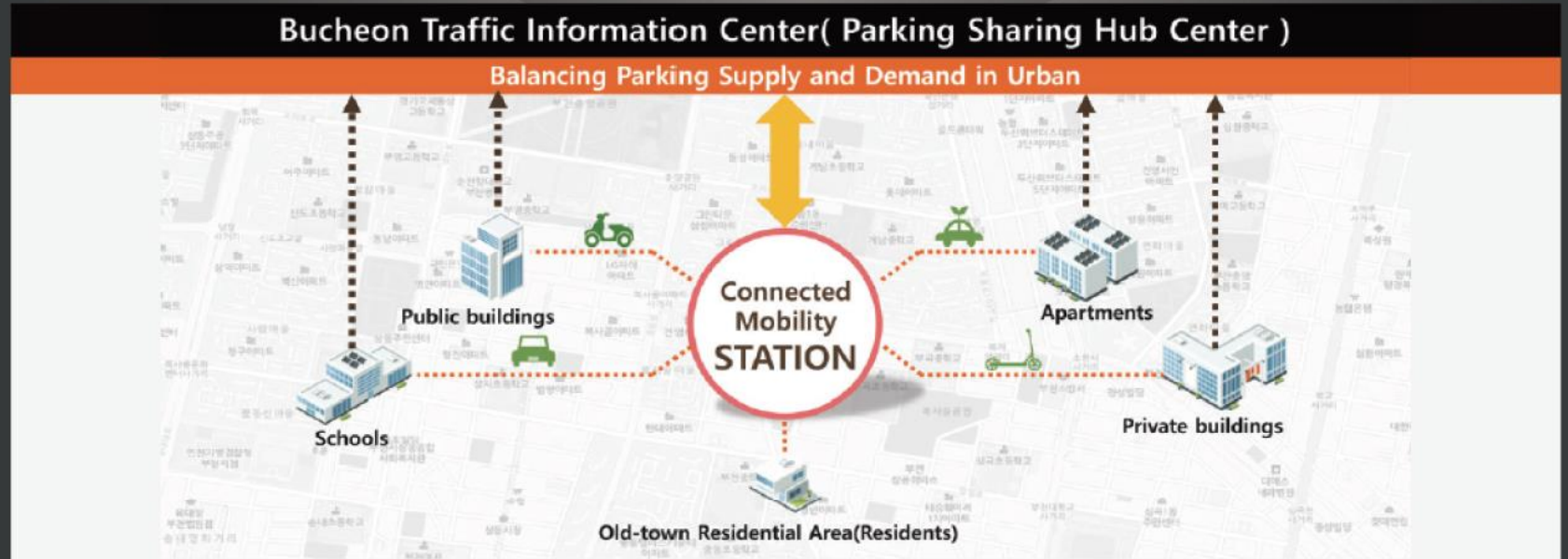
▶ Automatic Parking Fee Discount System

- ✓ Automatically reduces parking fees without providing a certificate in connection with the central government's shared information service
- ✓ Saving reduction time : Before) 2~5 min → After) 7~9 sec



► Parking lots & Information Sharing

- ✓ Limitation of the physical parking lot supply
- ✓ Share idle parking lot & parking information with public and private buildings





Dynamic
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Sharing
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Innovation
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UNESCO Creative City Bucheon is with the World
