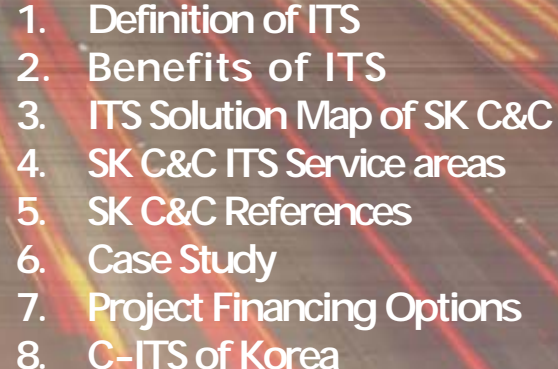


ITS Service of SK C&C & C-ITS of Korea

- 
1. Definition of ITS
 2. Benefits of ITS
 3. ITS Solution Map of SK C&C
 4. SK C&C ITS Service areas
 5. SK C&C References
 6. Case Study
 7. Project Financing Options
 8. C-ITS of Korea

1 Definition of ITS

Intelligent transportation system (ITS) is a next-generation transportation system that integrates ICT with existing transportation infrastructure to enable efficient management and to secure a fast and safe transportation environment

What is ITS?

Existing transportation infrastructure



Cutting-edge ICT



Intelligent transportation system



e.g., road, rail, road signs



e.g., cutting-edge equipment, communication technology, system integration

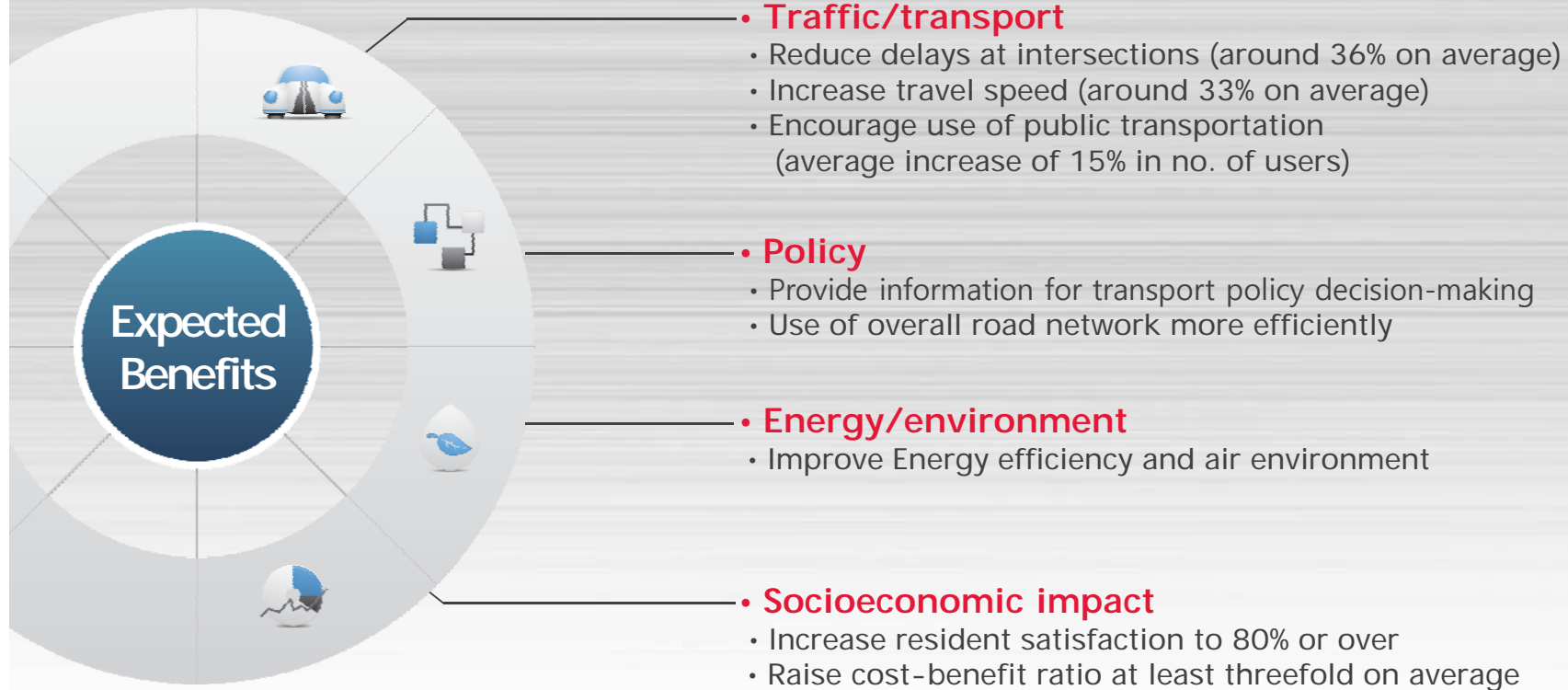
Seamless integration and operation upon separate implementation of individual systems

- Collect and analyze real-time traffic data
- Maximize traffic flow and facility utilization
- Improve safety

2 Benefits of ITS

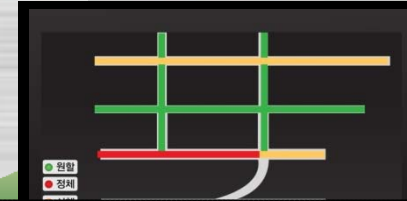
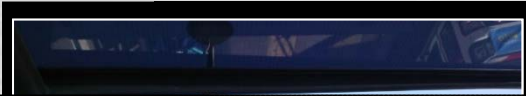
ITS is expected to contribute to urban development and improve the quality of residents' lifestyle in terms of traffic/transport, socioeconomic impact, policy, and energy/environment

Benefits of ITS Implementation



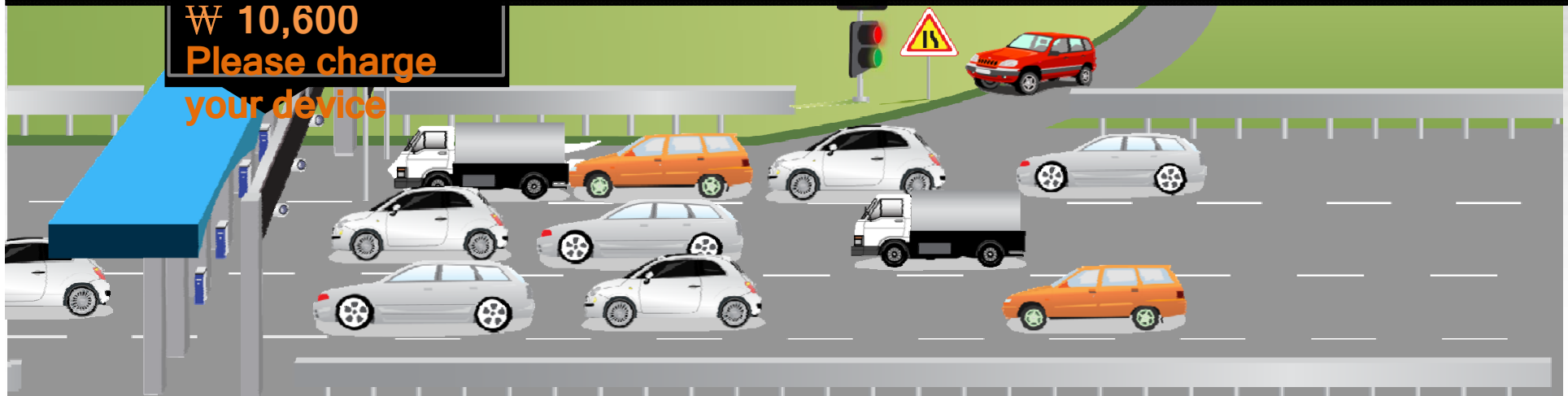
Anticipated benefits listed above are based on quantitative data from ITS implementation cases in Korea (Yongin City, Ansan City, Gwangju City)

3 ITS Solution Map of SK C&C



CASE3_RMS & ETCS

₩ 10,600
Please charge
your device



4 SK C&C ITS Service areas

ITS is comprised of four key service areas according to service target and content along with the convergence business service area, which is comprised of the integration and reorganization of the four key services with related areas as per varying needs

Key Service Areas



1. Traffic management



2. Public transport management



3. Freight transport management



4. Electronic payment

Convergence with Related Areas

- Municipal facilities management
- Security and crime prevention
- Metropolitan transportation services (e.g., rail, air, ship)
- Logistics

Reorganization as per needs

- City size (e.g., floating population, surface area)
- Traffic conditions
- Business sectors

Convergence Business



1. City combination type (ITS+Surveillance)



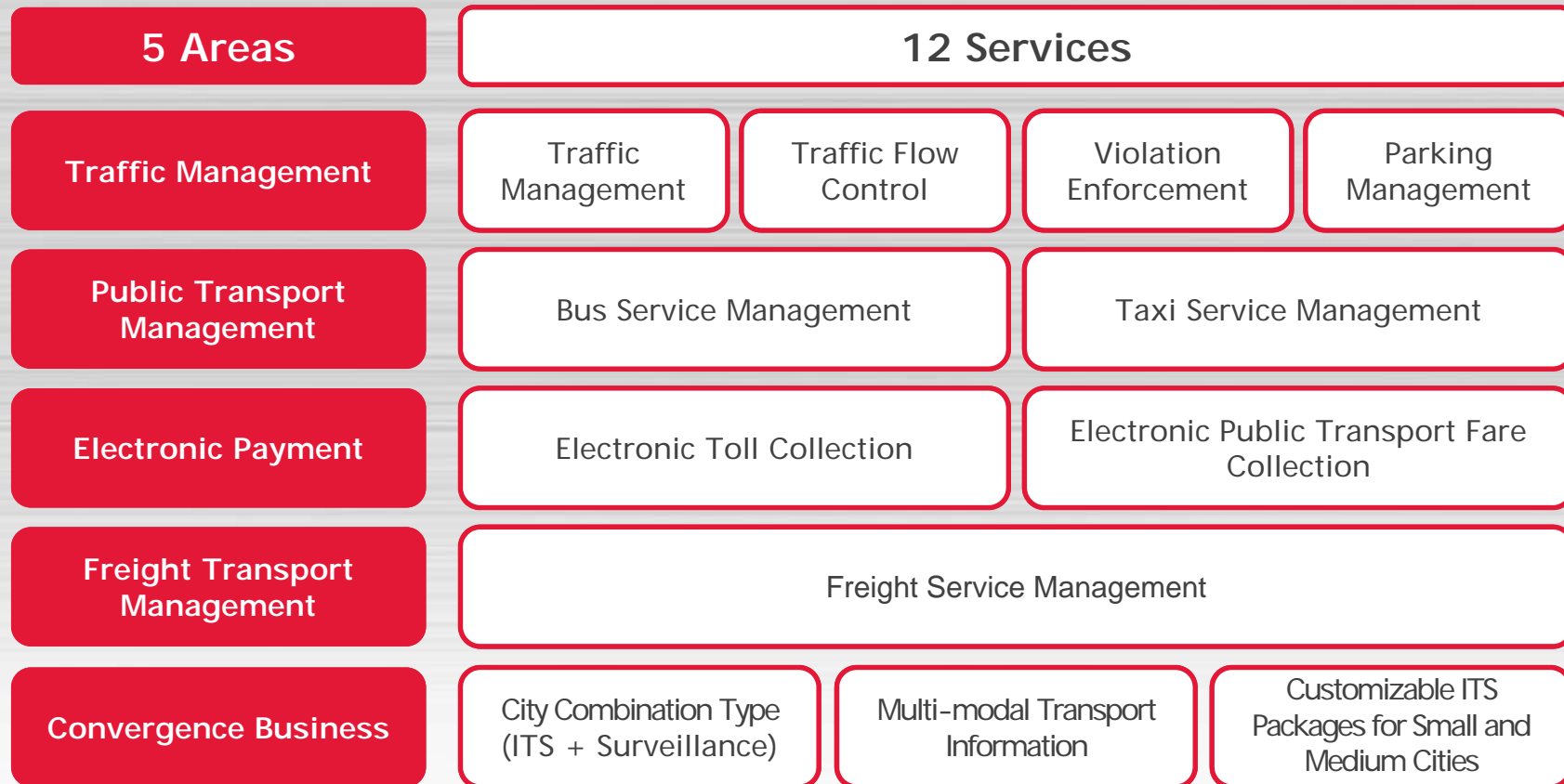
2. Multi-modal Transport Information



3. Customizable ITS packages for Small and medium cities

4 SK C&C ITS Service areas _ Service Components

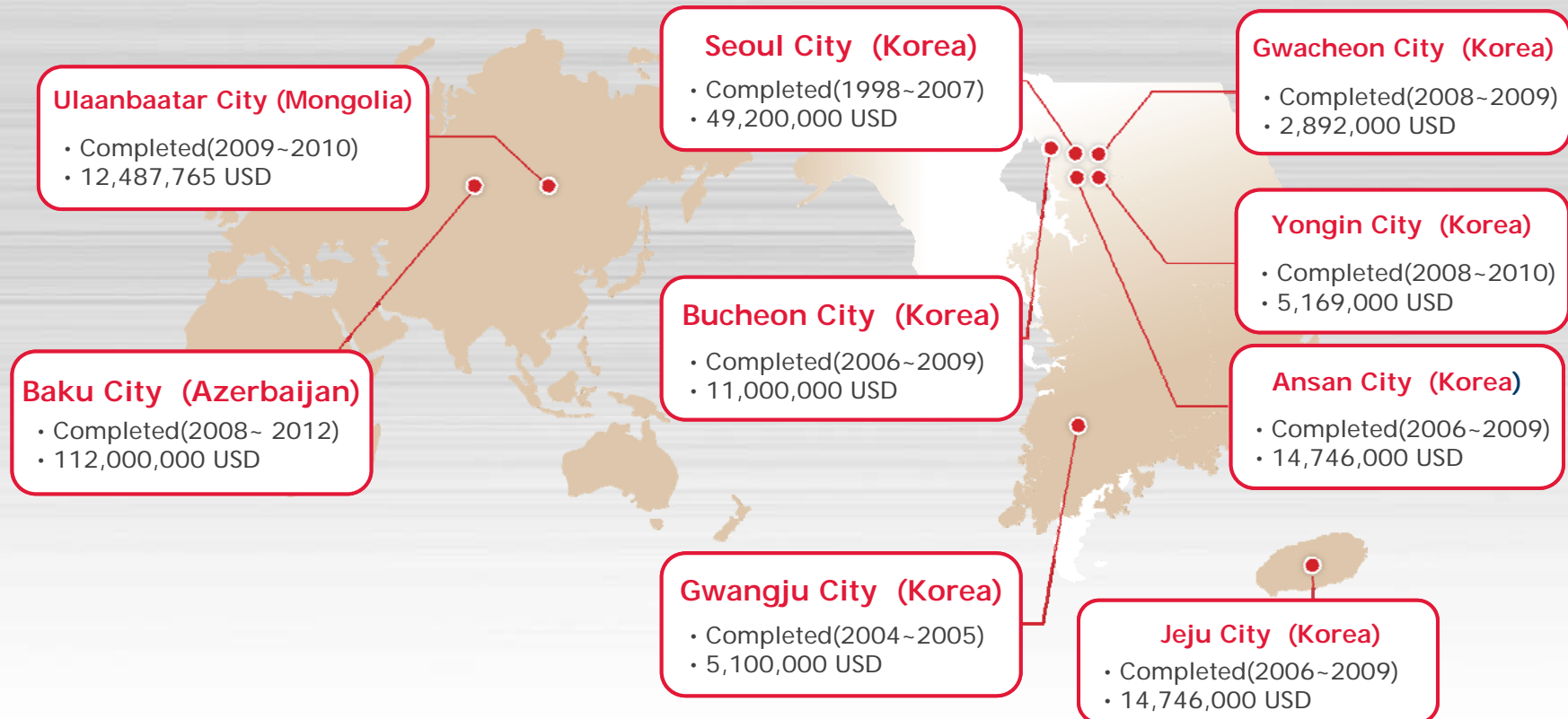
SK C&C ITS Service Components



5 SK C&C References

SK C&C is the first in ITS implementation in Korea as well as the first Korean company to implement ITS projects overseas

Major ITS References



6 Case Study _ Baku City(Azerbaijan)

A large-scaled public finance project that enhanced the overall traffic flow of the city such as increase in average travel speed by 21km/h

Baku City Government ITS Project

Before

- Congestion and traffic accidents due to inadequate traffic signal control
- Limitations of manned violation enforcement
- Severe illegal parking problem



Traffic Management

Traffic Signal Control

Bus Service Management

After

- Raised travel speed by up to 21km/h and by 15km/h on average
- Enhanced obeying traffic law and regulations by around-the-clock unmanned traffic violation enforcement system
- Reduced rate of traffic accidents



6 Case Study _ Ulaanbaatar city(Mongolia)

A small-scale project using EDCF that has reduced the average travel time by 15% and significantly lowered the rate of traffic accidents

Mongolia Ulaanbaatar City Government ITS Project

Before

- Traffic congestion and accidents due to lack of order on roads
- Limitations of manned violation enforcement
- High rate of traffic accidents due to jaywalking



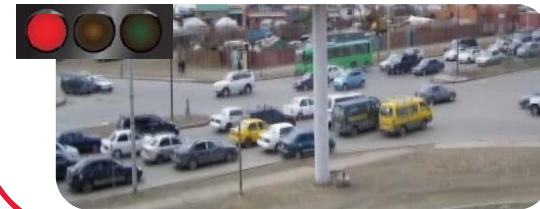
Traffic Management

Traffic Signal Control

Violation Enforcement

After

- Reduced average travel time by 15% with improved traffic flow
- Enhanced obeying traffic law and regulations by around-the-clock unmanned traffic violation enforcement system
- Reduced rate of traffic accidents



6 Case Study _ Naebu Expressway(Korea)

The first Korean ITS, Naebu Expressway ITS in Seoul, achieved traffic speed increase, traffic accident decrease and real-time traffic information service on urban arterial road

Naebu Expressway ITS In Seoul

Before

- Poor follow-up on traffic incidents
- Intensified main road congestion by the incoming traffic from the ramp
- Decreased road use satisfaction due to lack of provided information



Traffic Management

Traffic Signal Control

Violation Enforcement

After

- Smoothly travel speed maintenance through traffic flow management
- Decrease traffic accident through unexpected event management
- Establish pleasant transportation environment through providing traffic information



6 Case Study _ Jeju Island(Korea)

Jeju Island ITS has reduced travel time by 20% and enhanced traffic safety, securing a high level of satisfaction with traffic/transport services befitting Korea's leading tourist destination

Before

Jeju Island



- 600,000 residents
- Korea's top island destination that attracts 10 million visitors

Characteristics of Jeju Island

- Access into the island limited for road vehicles
- Severe congestion in and around the airport and major tourist destinations during peak season
- Traffic congestion and incidents due to tourists who are unfamiliar with the geography
- Inconvenient public transportation system

Traffic Management

Violation Enforcement

Traffic Signal Control

Bus Service Management

Telematics

After

ITS Impact

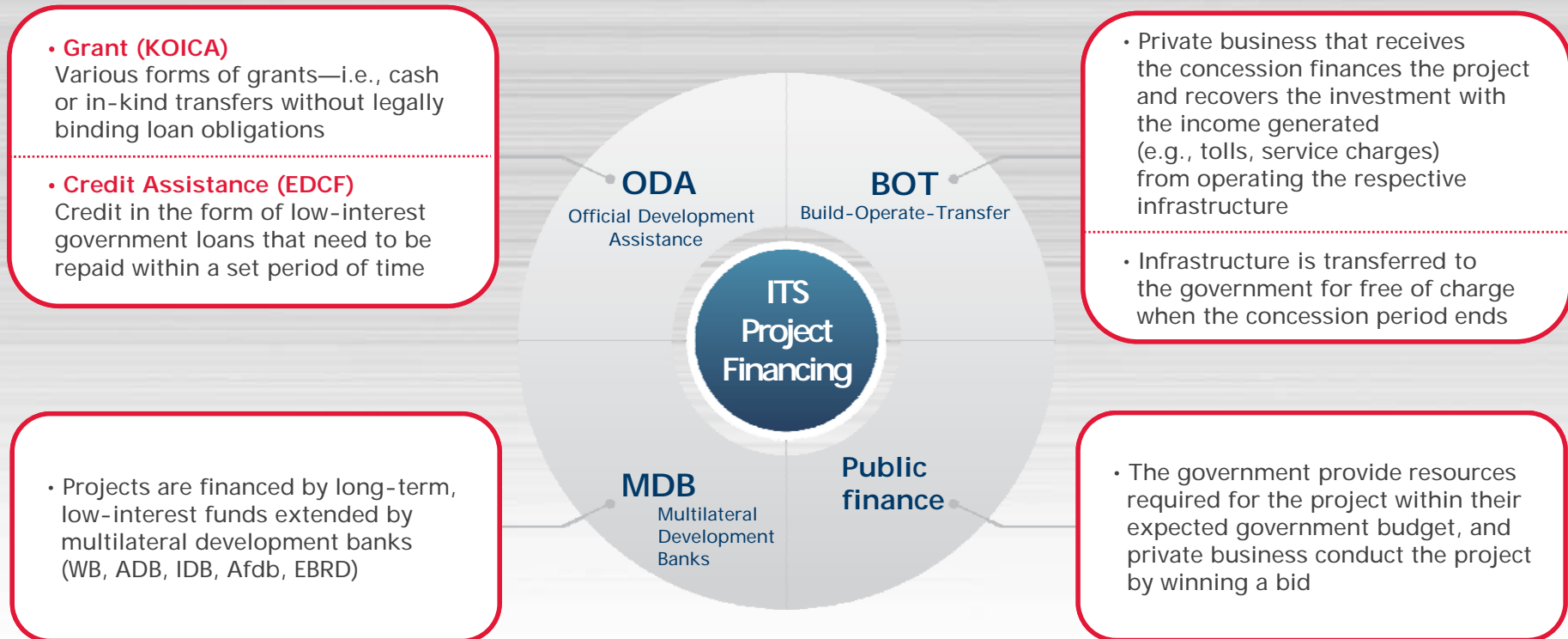
- Reduced travel time by 20%
- Decreased traffic accidents by 40%
- Cut fuel consumption by 10%
- Curbed response time to traffic incidents by 30%
- Increased bus users by 7.6%
- Enhanced user convenience with public buses by 20%



7 Project Financing Options

There are four possible ITS project financing options: official development assistance (ODA), multilateral development banks (MDB), build-operate-transfer (BOT) financing, and government contracts

Project Financing Options



8 C-ITS of Korea _ Cooperative ITS (C-ITS)

For safety, mobility and sustainability (environment-friendly, efficiency), C-ITS, which exchange and share the traffic information through two-way communication such as Vehicle-to-Vehicle and Vehicle-to-Infrastructure by providing service in an open platform.

Key words

Safety

V2X Service

Information exchange

Open platform

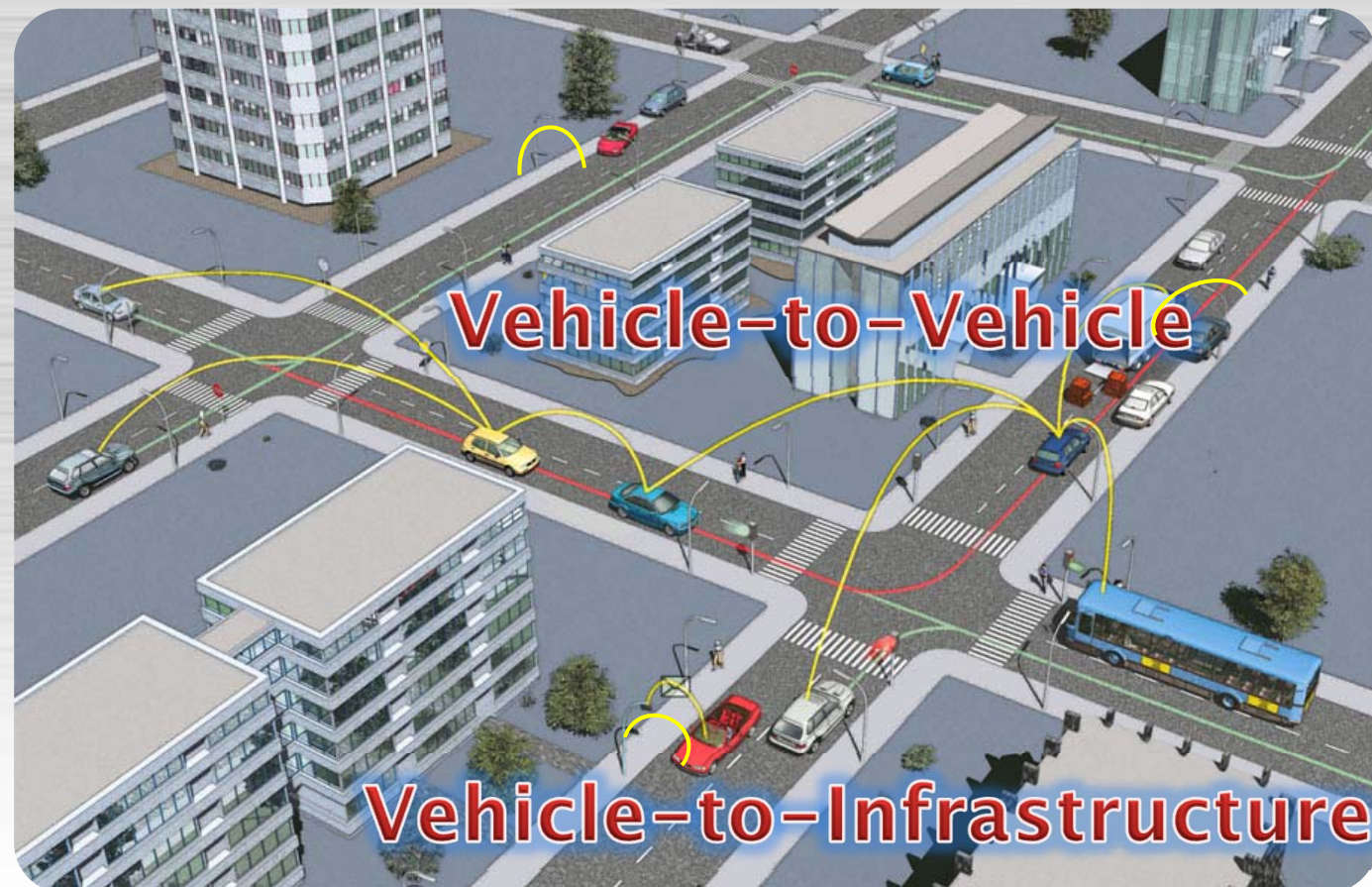
Cooperative ITS

Connected Vehicle

ITS Spot

Talking Car

Car talk System



8 C-ITS of Korea _ Pilot project by Korea MOLIT

- ❖ **Traffic accident reduction, Introduction of next-generation ITS(C-ITS)**
➔ **National issue of the current government**
 - USA : Confirmed the vehicle safety rating of C-ITS terminal ('14.Feb)
 - Japan : Started the basic service such as safe driving support in jointing section and toll collection('11)
 - Europe : ready for commercialization since 2015
- ❖ **Building C-ITS infrastructure for 30 years of zero traffic fatalities**
 - Established "Next-generation ITS Master plan" spread terminal devices(13.Dec)
- ❖ **Laws and services, and technical validation for the introduction of C-ITS**
institutional maintenance, standardization and certification criteria provided such pilot projects (2017)



- Implemented 15 key features
- Service implementation for road environment

- Transportation Safety Effectiveness
- Economic Validation

8 C-ITS of Korea _ Project mgt. agencies designated

KEC



Project management of C-ITS

- ❖ Development of C-ITS service(15ea) for accident prevention
- ❖ Development and dissemination of communications infrastructure and vehicle terminal for the verification and implementation of the road environment

KOTI



Service Optimization and benefit analysis, the legal system maintenance

- ❖ Sensitivity analysis based on operator response and expressed information,
- ❖ Analysis of Traffic Safety and pilot project effectiveness for the next generation of ITS core features and full service according to the road conditions and traffic conditions
- ❖ Improvement of legal system vehicle information collection and using vehicle location information

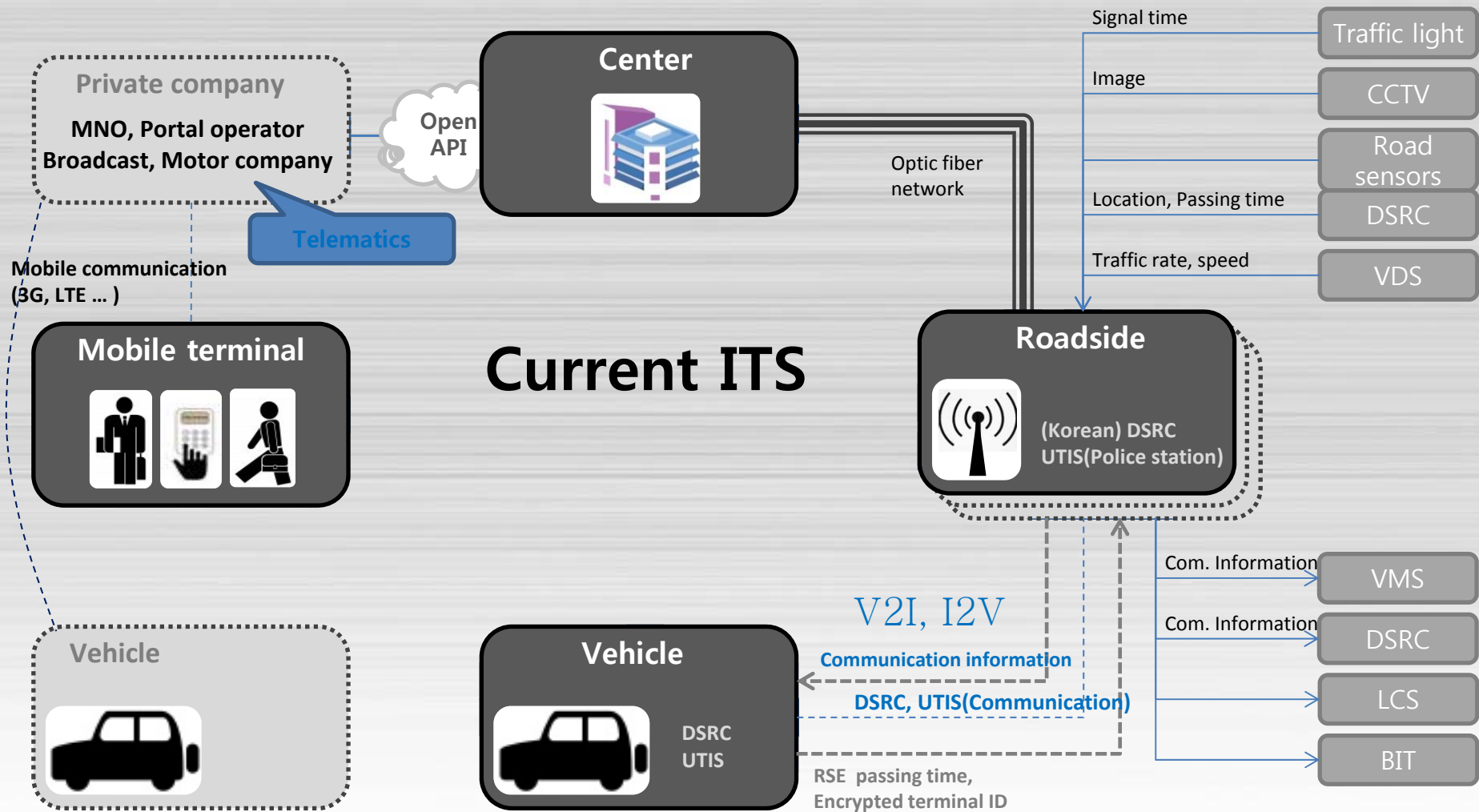
ITS Korea



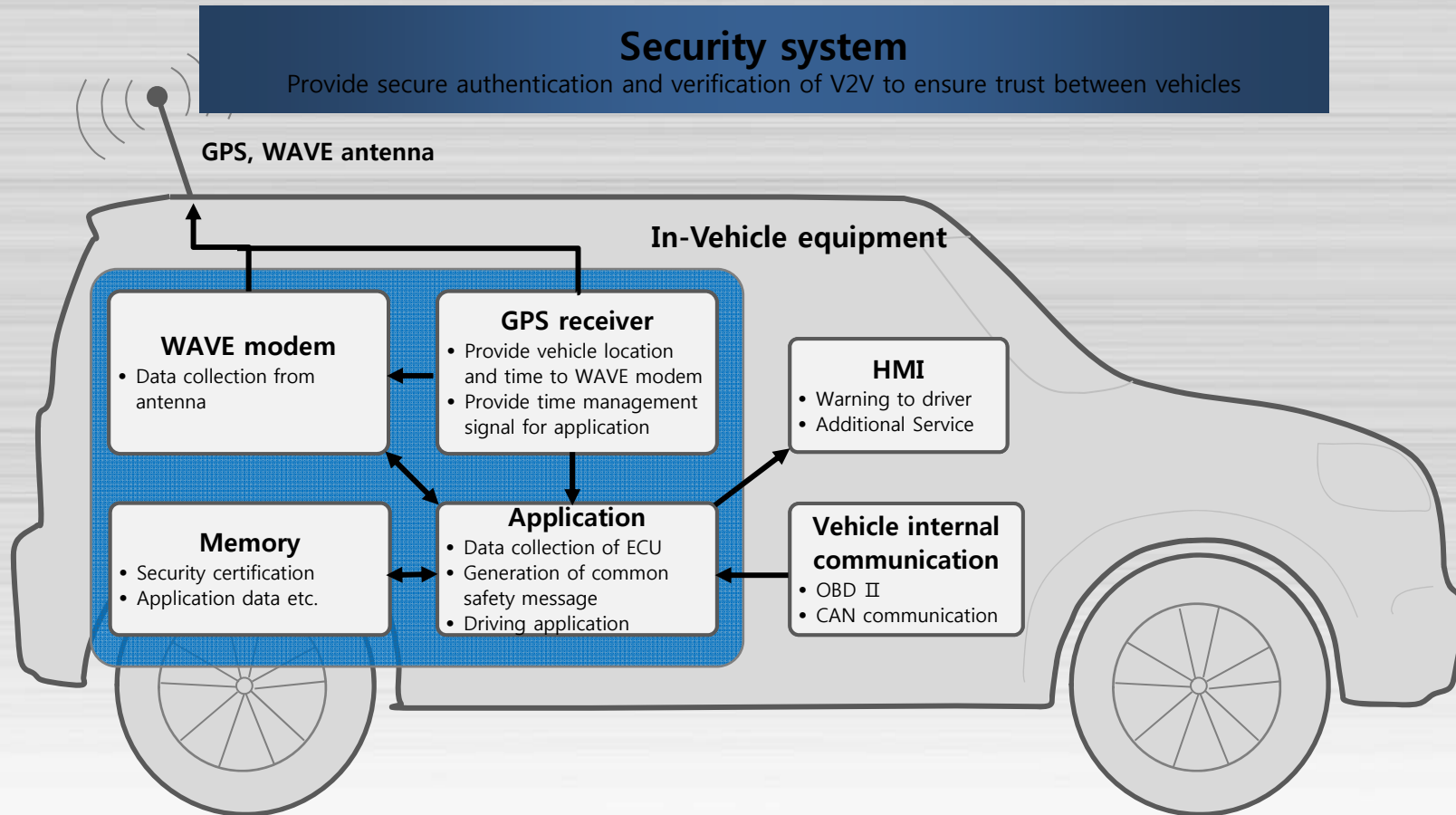
Standardization and standard certification

- ❖ International standardization promotion of domestic development standards through the cooperation with International Standardization Organization(ISO), USA and EU
- ❖ Certification standards for the C-ITS and system development

8 C-ITS of Korea _ Configuration of C-ITS (Current ITS)



8 C-ITS of Korea _ Vehicle device (OBE)



Ref. : Crash Avoidance Metrics Partnership and GAO

8 C-ITS of Korea _ Pilot project service (application)

Improved information collection

- Collecting Probe Vehicle Data(PVD)
- Providing Traffic Information

Smart tolling

- Smart Tolling
(using WAVE communication)

Safe driving support

- Hazardous Location Notification
- Road obstacle warning
- Roadwork warning

Intersection safety

- Red Light Violation Warning(RLW)
- Right Turn Assistance(RTA)

Public transportation safety

- Bus Information and management

Safety for children and pedestrians

- School zone warning
- Yellow bus notification
- Pedestrian collision warning

V2V prevention of accidents

- Forward Collision Warning(FCW)
- Emergency Vehicle Warning
- Emergency Situation Notification



Dziękuję za uwagę!

Thanks for the attention!