



Japan's Approach for Road Safety - Open platform for Cooperative Vehicle safety -

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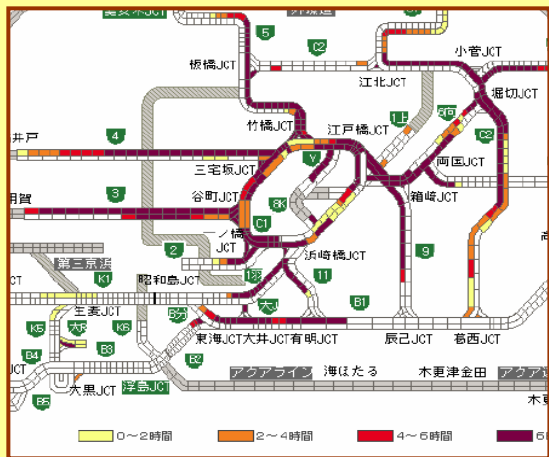
- 1. ITS Policy Measures in Japan**
- 2. Evolution of ITS**
- 3. Vehicle safety system enters the field operation phase**

1. ITS Policy Measures in Japan

1) Current situation of traffic problems

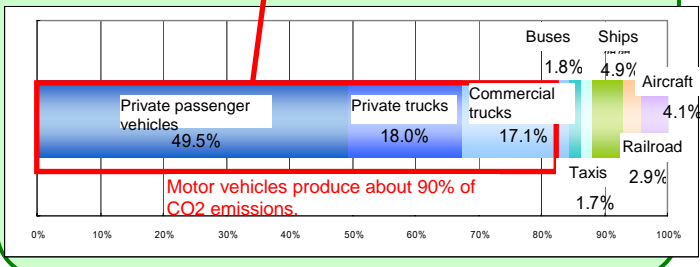
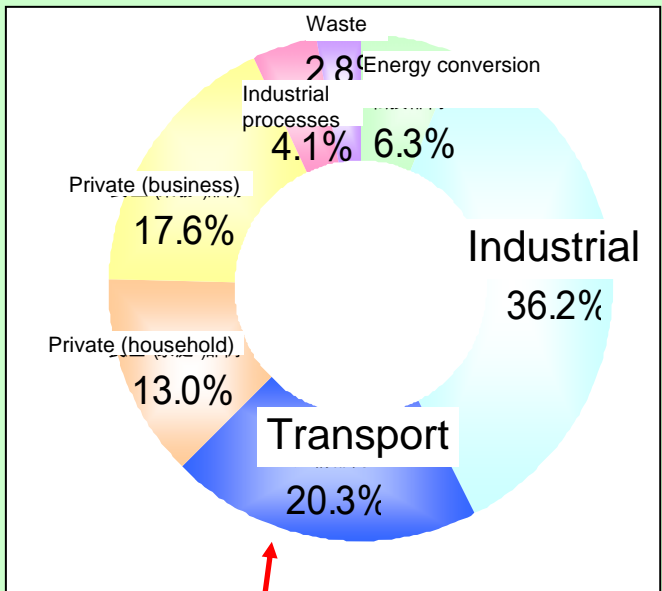
- ITS will use IT to resolve problems that could not be fully corrected by conventional policy measures.

Traffic congestion



Environmental burden

Carbon dioxide emissions of the transport sector



Traffic accidents



2) Overall framework for ITS

- An overall framework for ITS was developed in 1996.
- A variety of services became available during the next ten years, bringing ITS into the second stage.

1996 Comprehensive Plan for ITS

1. Navigation
2. ETC
3. Driving safety
4. Traffic management
5. Road management
6. Public transport
7. Commercial vehicles
8. Pedestrians
9. Emergency vehicle operation

2006 Second Stage

- Popularization of vehicle navigation systems and VICS
- Popularization of ETC
- AHS R & D
- Commercialization of ASV

ITS has begun to resolve problems of society through the deployment of services.

3) Spread of car navigation systems, VICS, and ETC

- A cumulative total of 26M car navigation systems, 18M VICS units, and 17M ETC units have been shipped. (Total vehicle ownership is 79 M.)

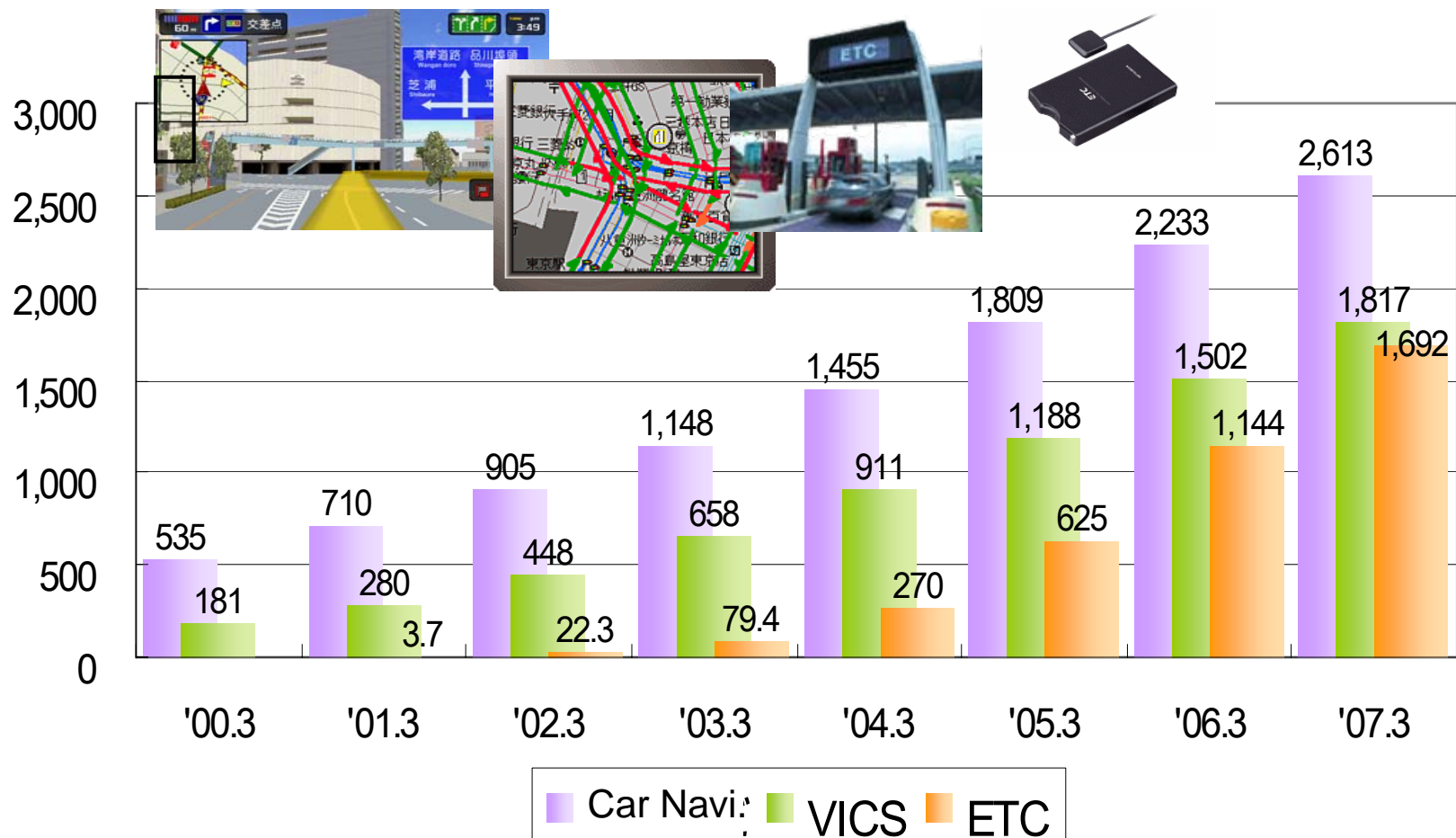


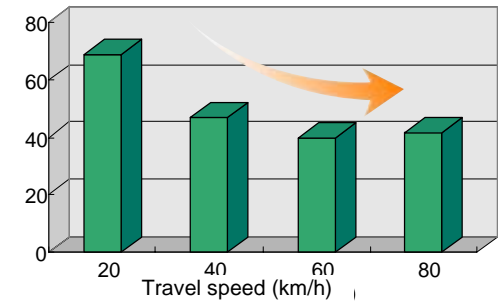
Fig. Cumulative total numbers of car navigation systems, VICS, and ETC units shipped

4) Emerging benefits: VICs

- Appropriate route guidance ensures smoother traffic flow in a limited road network.



CO2 emissions – Travel speed



VICS will produce a reduction of 2.4M tons in CO2 emissions by 2010

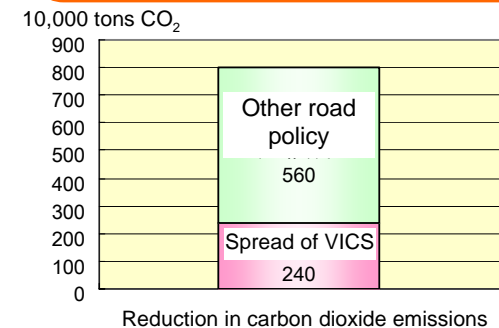


Fig. Reduction in carbon dioxide emissions under road policy

5) Emerging benefits: ETC

- 30% of congestion on expressways occurs at tollgates.
- Congestion at tollgates on the Tokyo Metropolitan Expressway has been eliminated through an increased rate of ETC utilization.

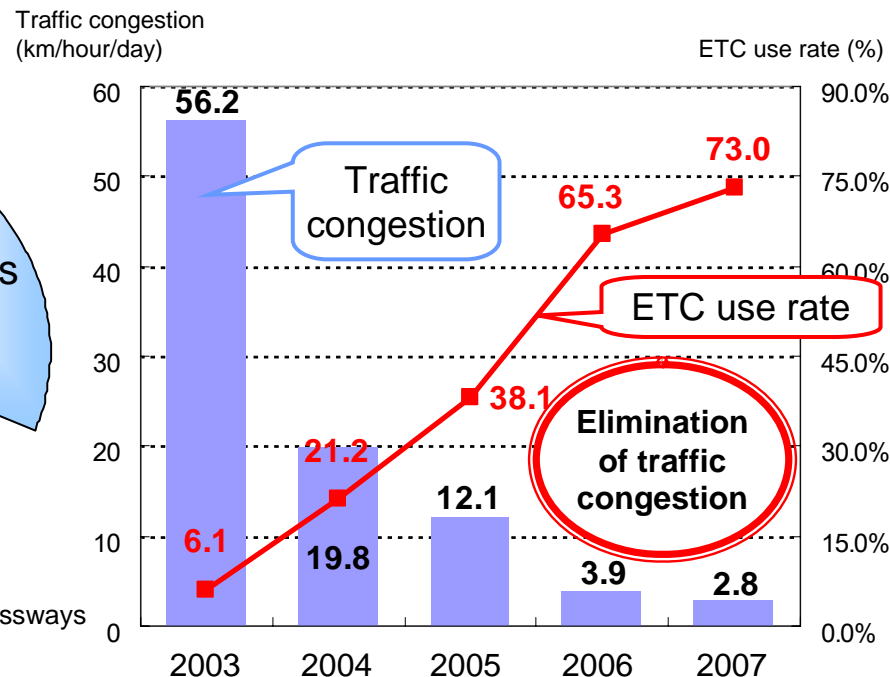
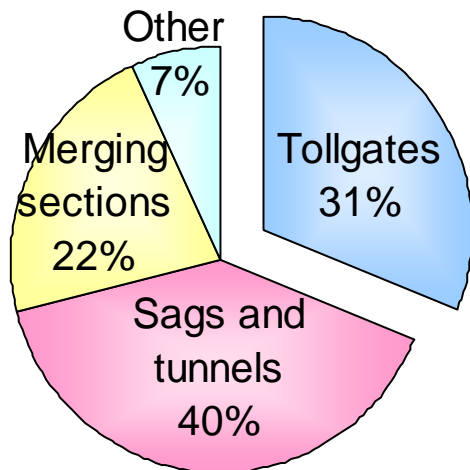


Fig. Status of traffic congestion

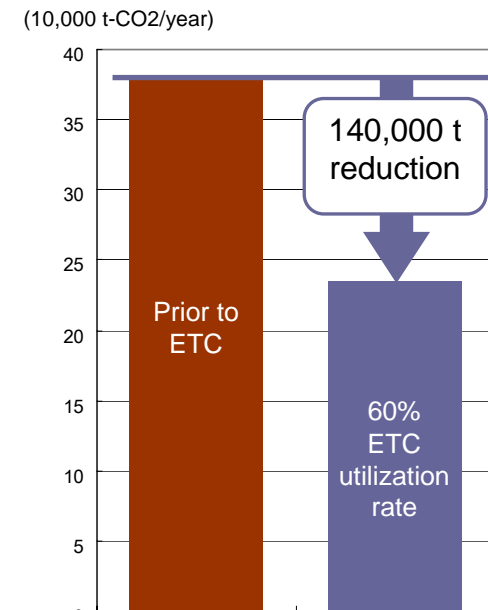
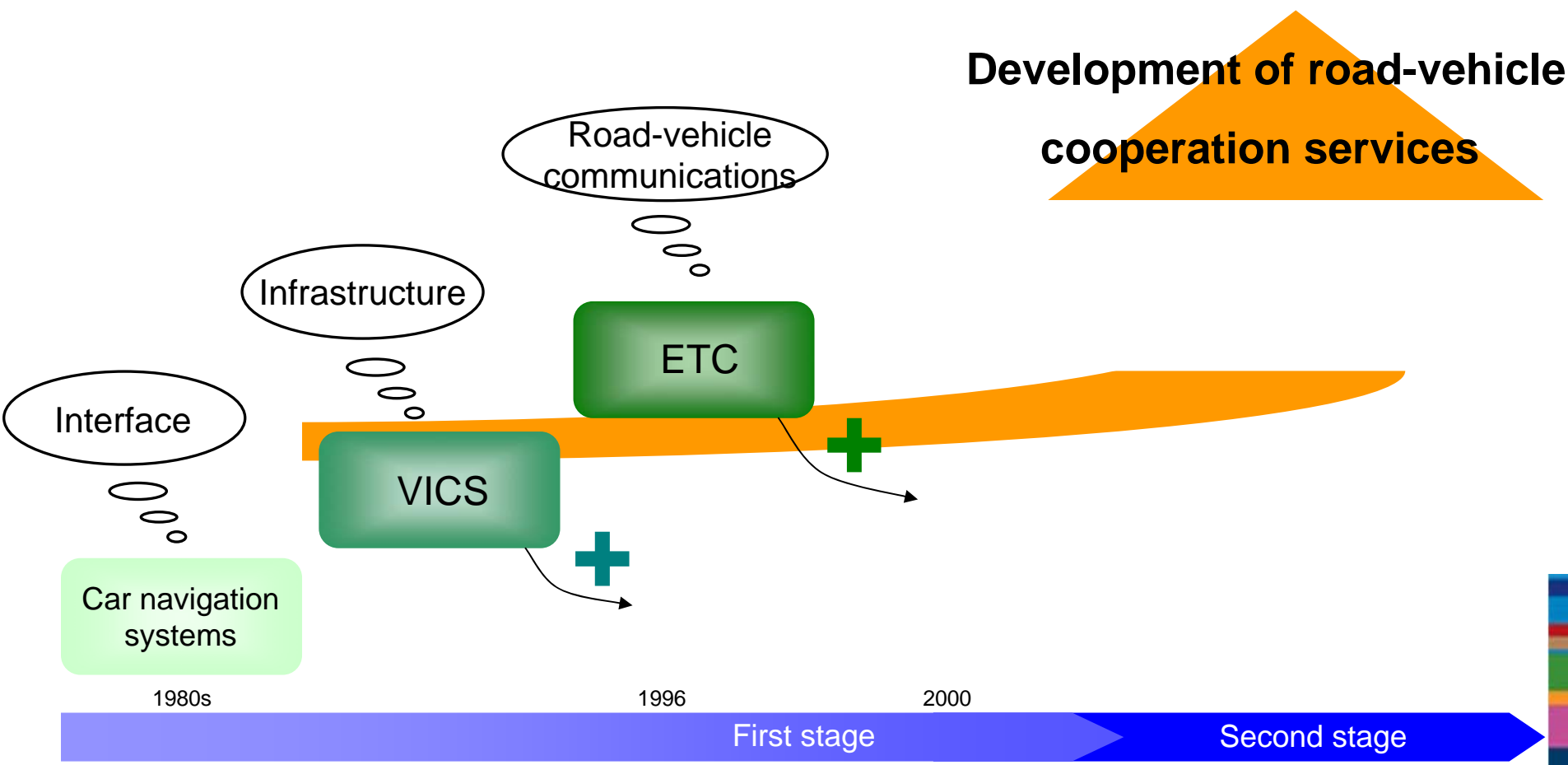


Fig. ETC utilization rates and reduction in carbon dioxide emissions

2. Evolution of ITS

1) Stepwise development

- We are building a platform for the realization of road-vehicle cooperation services through stepwise development.



2) ITS on-board units

- A variety of applications can be provided using a single OBU.
- These OBU use a communications format which has been popularized through ETC, and a HMI that has been popularized through car navigation systems.



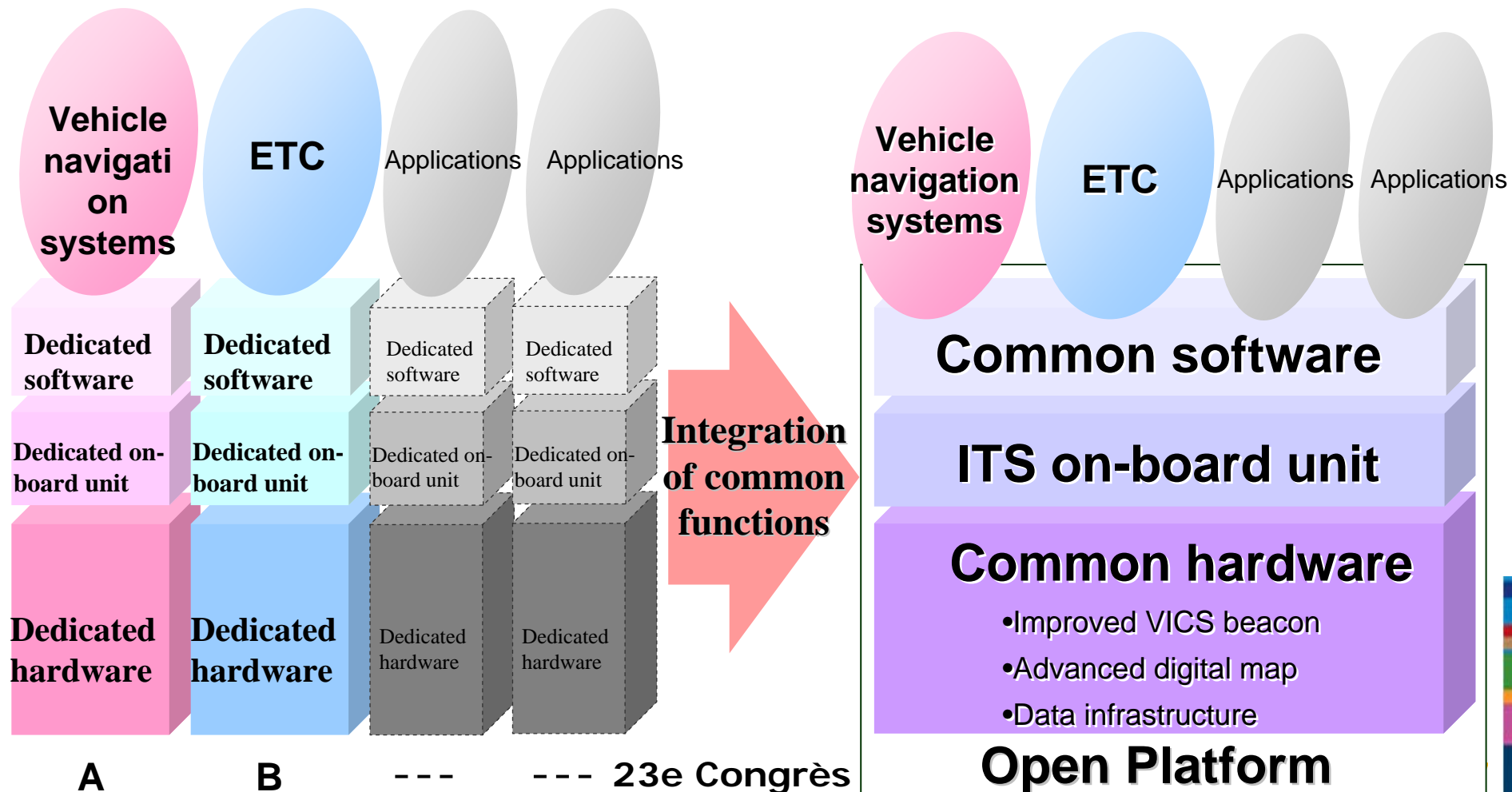
Interior of vehicle equipped with various on-board units



Less cluttered interior
(in the case of a vehicle equipped with a single ITS on-board unit)

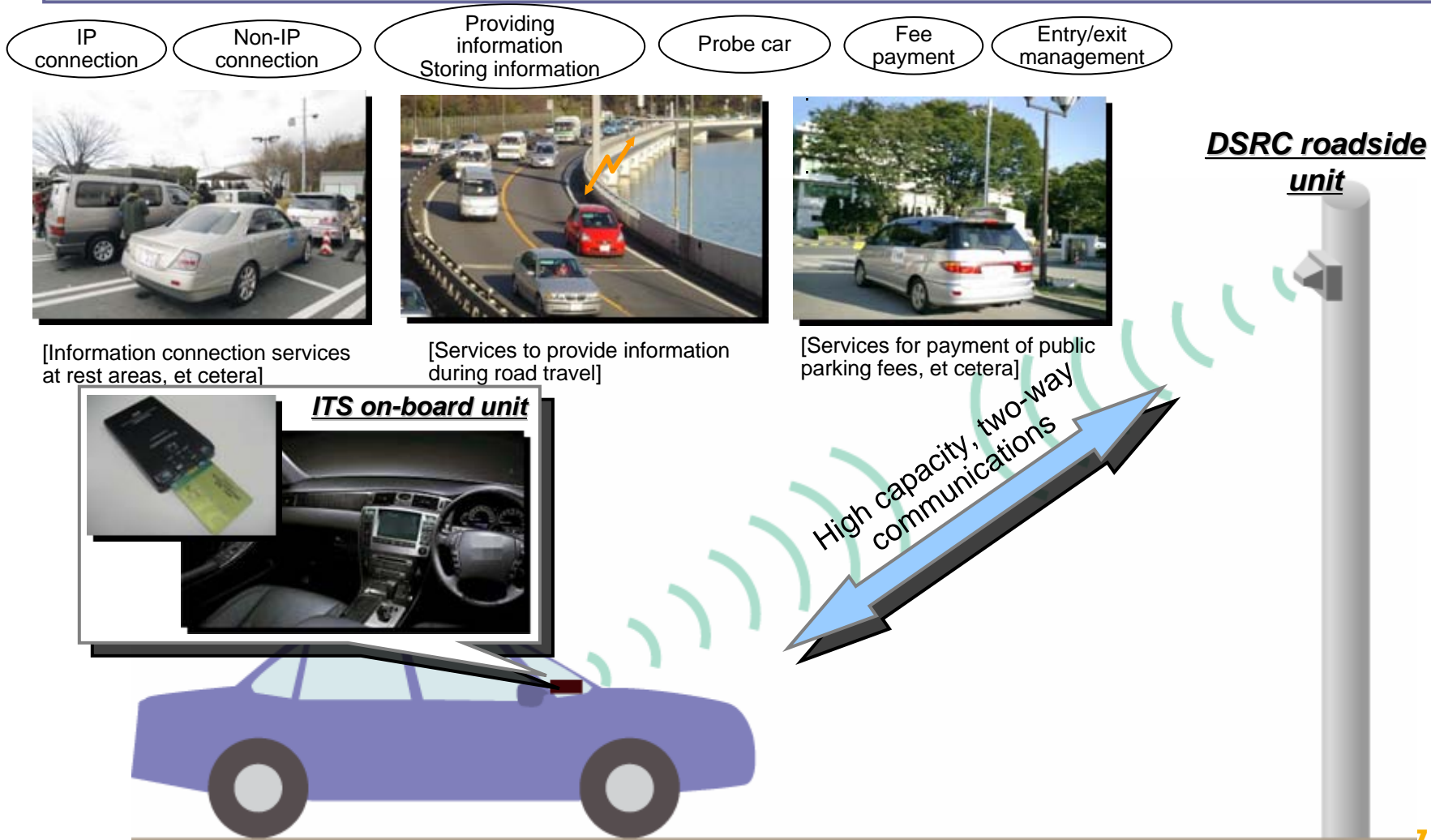
3) Open platform

- We are promoting an open platform to integrate the common functions needed to support a variety of applications.



4) Road-Vehicle communications

- Next-generation road services are provided using a single OBU (ITS OBU).



[Information connection services at rest areas, et cetera]

[Services to provide information during road travel]

[Services for payment of public parking fees, et cetera]

ITS on-board unit

DSRC roadside unit

High capacity, two-way communications

5) Examples of various services to be developed

- Fee payment services in a variety of situations.



Parking fee payment



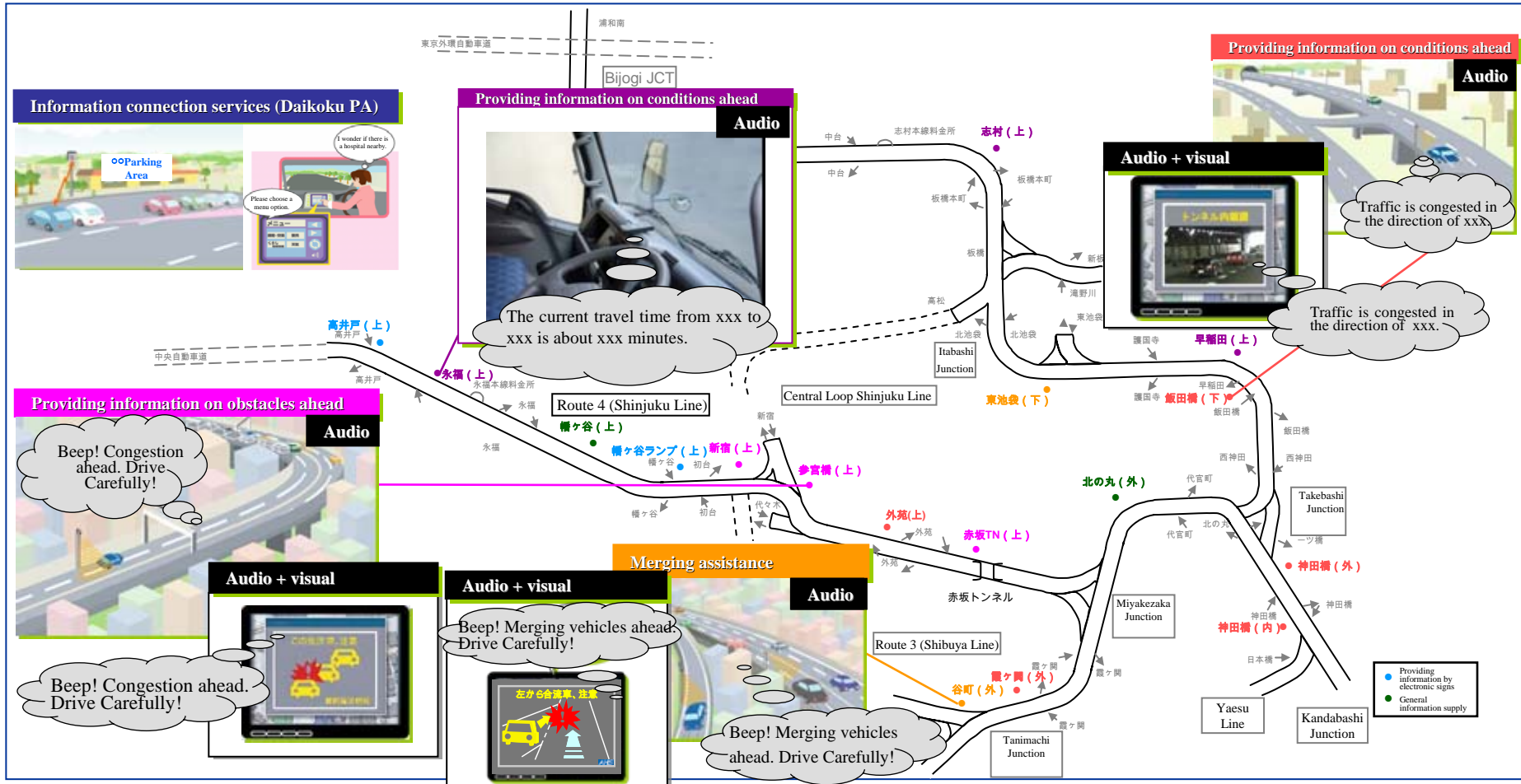
Gas station fee payment



Ferry boarding procedures

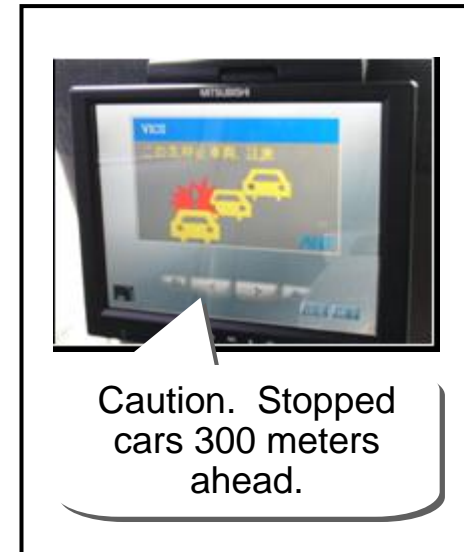
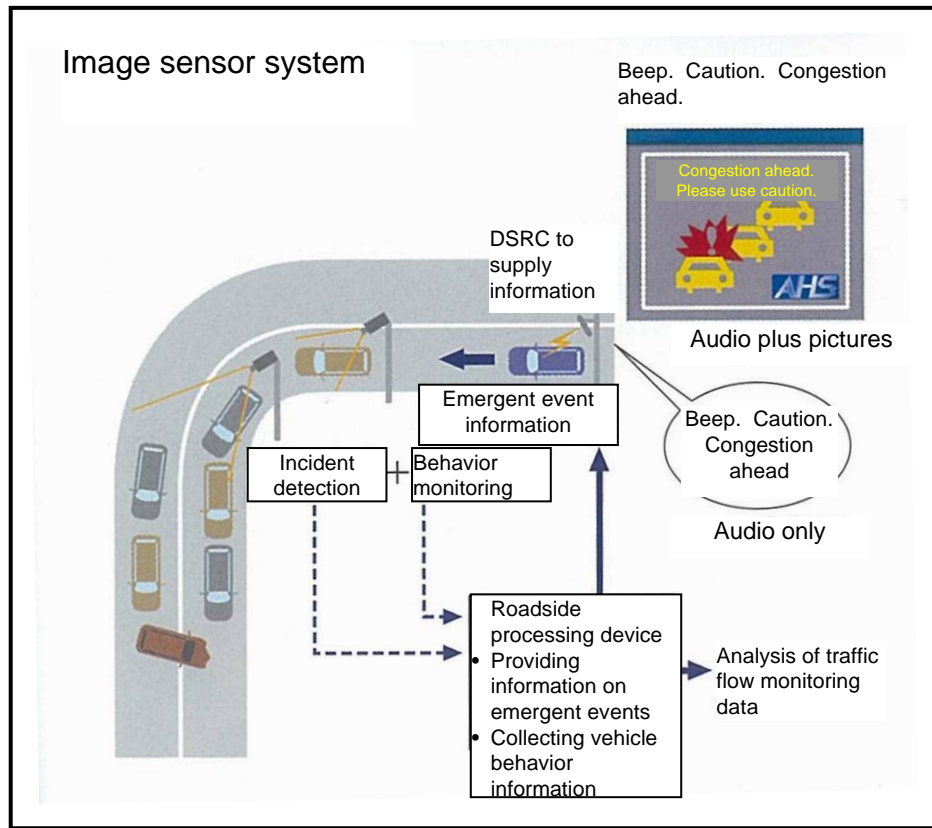
3. Vehicle safety system enters the field operation phase

1) Field test began in May 2007



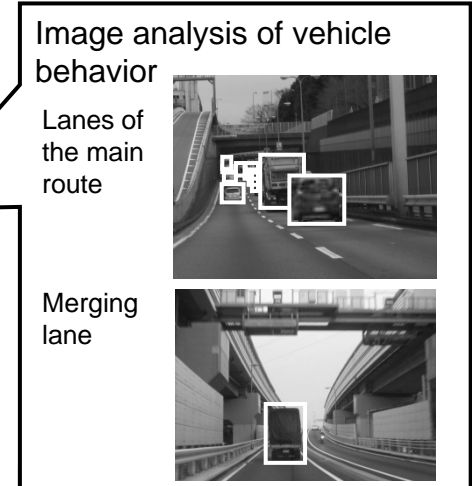
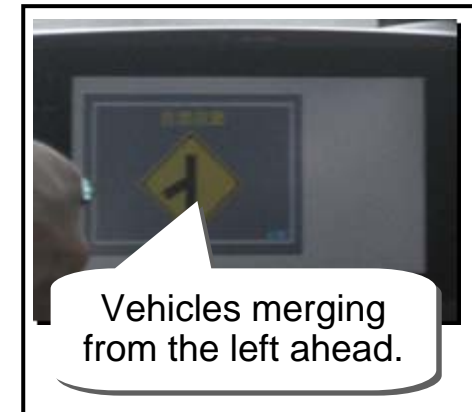
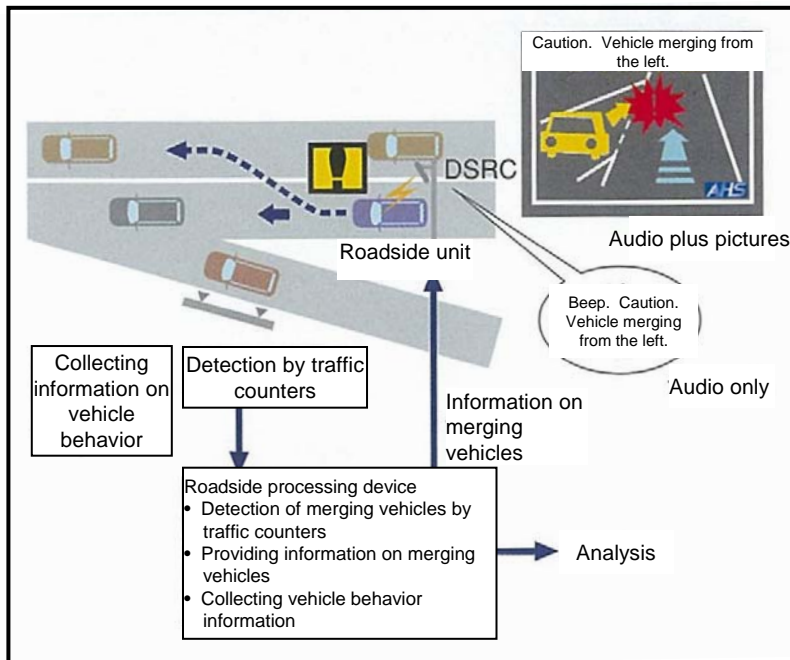
2) Providing information on obstacles ahead

- Roadside sensors detect stopped vehicles beyond a curve.
- Drivers are alerted using pictures and voice announcements.



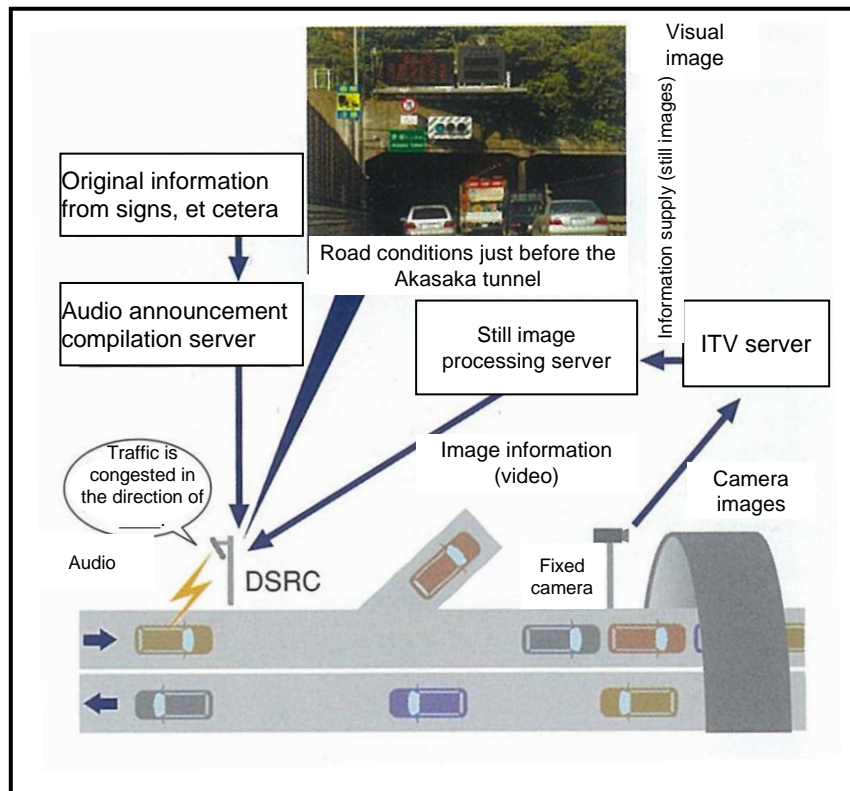
3) Support for merging

- The presence of vehicles approaching the merge point is detected from the roadside



4) Providing information on conditions ahead

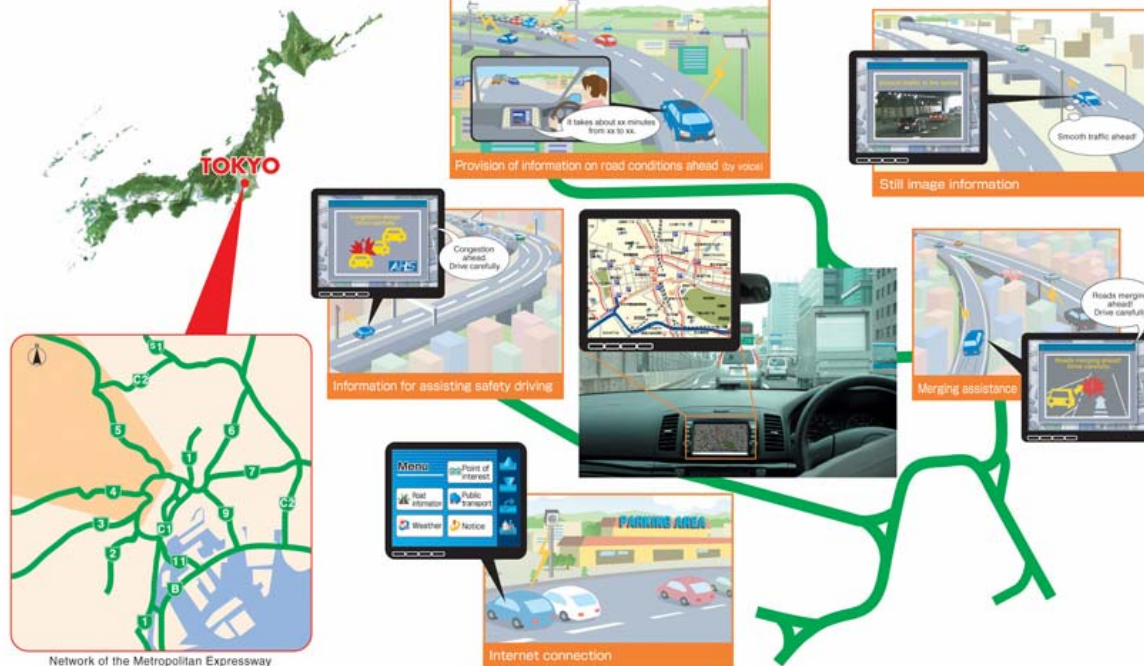
- Camera images of tunnels and locations of frequent congestion are provided as still images



SMARTWAY 2007

Technical Tour in Tokyo

Oct. 15-17, 2007



Summary

- 1. Traffic accidents are a problem common to every country in the world. Japanese experience and technical expertise can help to reduce traffic accidents worldwide.**
- 2. Integration through open platforms will bring about widespread use of the system and lower costs.**
- 3. Public-private sector cooperation is indispensable for deploying a safe system that integrates various road/vehicle systems.**



Thank you