ITS Policy in Japan and Smartway

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ITS Policy and Program Office, Road Bureau,
Ministry of Land, Infrastructure and Transport,
Government of Japan
1. National policy of ITS
   • Steadily promoting ITS as national policy and building public-private partnerships

2. ITS, the second stage - Smartway
   • Promoting the widespread adoption of VICS, ETC, etc. and building a platform for road-vehicle cooperation

3. Deployment of safety driving support system.
   • Deployment of safety driving support system using the platform
1. Smartway as national policy

1) Overall image of ITS

- Adoption of a Comprehensive plan for ITS in July 1996
- Research, development, and practical implementation in nine development areas

1. Advances in navigation systems
2. Electronic toll Collection systems
3. Assistance for safe driving
4. Optimization of traffic management
5. Increasing efficiency in road management
6. Support for public transport
7. Increasing efficiency in commercial vehicle operations
8. Support for pedestrians
9. Support for emergency vehicle operations
# 1. Smartway as national policy

## 2) Strong promotion of ITS as national policy

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>Comprehensive plan for ITS</td>
</tr>
<tr>
<td>1996</td>
<td>VICS begun</td>
</tr>
<tr>
<td>2001</td>
<td>ETC begun</td>
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<tr>
<td>2004</td>
<td>Smartway proposal “ITS, Second Stage”</td>
</tr>
<tr>
<td>2005</td>
<td>IT policy package</td>
</tr>
<tr>
<td>2006</td>
<td>New IT Reform Strategy</td>
</tr>
<tr>
<td>2007</td>
<td>Smartway 2007</td>
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<tr>
<td>2008</td>
<td>Trials of safety driving support systems throughout Japan</td>
</tr>
<tr>
<td>2010</td>
<td>Nationwide deployment</td>
</tr>
</tbody>
</table>
1. Smartway as national policy

3) Promotion of ITS by industry, academia, and government

- The four ITS-related ministries and agencies are cooperatively promoting ITS, based on the IT Strategic Headquarters.
- ITS Japan and the ITS Standardization Committee are also cooperating in the promotion of ITS.

**IT Strategic Headquarters**

- Founded in January 2001
- Chairman: Prime Minister of Japan

**ITS Standardization Committee**

- Promoting the development of international standards
- ISO: International Organization for Standardization

**ITS related ministries and an agency.**

- MLIT
- NPA
- MIC
- METI

**ITS Japan**

- Promotion of ITS by industry and academia
- Holding the ITS World Congress, etc.

MLIT: Ministry of Land, Infrastructure and Transport
NPA: National Police Agency
MIC: Ministry of Internal Affairs and Communications
METI: Ministry of Economy, Trade and Industry
1. Smartway as national policy

4) Spread of VICS

- Started in April 1996
- Provide real-time road traffic information on car-navigation system
- A cumulative total of over 18 million VICS units have been shipped

**Trend in the cumulative totals of VICS units shipped**

<table>
<thead>
<tr>
<th>Year</th>
<th>FM VICS</th>
<th>3-media VICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>'00.3</td>
<td>181</td>
<td>15</td>
</tr>
<tr>
<td>'01.3</td>
<td>280</td>
<td>41</td>
</tr>
<tr>
<td>'02.3</td>
<td>448</td>
<td>73</td>
</tr>
<tr>
<td>'03.3</td>
<td>658</td>
<td>106</td>
</tr>
<tr>
<td>'04.3</td>
<td>911</td>
<td>137</td>
</tr>
<tr>
<td>'05.3</td>
<td>1,188</td>
<td>171</td>
</tr>
<tr>
<td>'06.3</td>
<td>1,502</td>
<td>204</td>
</tr>
<tr>
<td>'07.3</td>
<td>1,817</td>
<td>239</td>
</tr>
</tbody>
</table>

Example of Display

Level 2: Simple diagrams

Level 3: Map Display
5) Effects of the spread of VICS

- VICS has reduced carbon dioxide emissions by 2.4 million tons.
- This contributes to attainment of the Kyoto Protocol targets.

![Diagram showing carbon dioxide emissions of the transport sector and CO2 emissions vs. Driving speed.

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

Fig. Reduction in carbon dioxide emissions under road policy.
1. Smartway as national policy

6) Spread of ETC

- As of August 30 2007, about 19 million ETC on-board units have been marked in.
- The nationwide utilization rate is 68%. ETC has been used to make highway toll payments totaling 15 billion US dollars.
- The target utilization rate is 80% by next spring.

![Source: Mitsubishi Electric](image.png)
1. Smartway as national policy

7) Effects of the spread of ETC

- The economic effects are estimated to be annual savings of about 2.7 billion US dollars when the utilization rate reached 50%.
- ETC has had an effect in reducing the environmental burden.

Fig. Status of traffic congestion

- Fig. Causes of congestion on expressways

- 31% of congestion is due to inadequate capacity at tollgates.
1. Smartway as national policy

8) Payment of public parking fees and private sector services

- Fee payment services in a variety business situations.
2. ITS in the second stage

1) Definition of Smartway

<table>
<thead>
<tr>
<th>Definition of Smartway</th>
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</thead>
<tbody>
<tr>
<td>• Smartway refers to a road system that allows the exchange of various types of information among cars, drivers, pedestrians, and other users.</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Foundation for the deployment of various ITS services</th>
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<tbody>
<tr>
<td>• Integrated realization of ITS to provide safe, smooth road transportation and a positive environment.</td>
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</table>

<table>
<thead>
<tr>
<th>Foundation for affluence and comfort in life and society</th>
</tr>
</thead>
<tbody>
<tr>
<td>• More efficient movement of people, goods, and information</td>
</tr>
<tr>
<td>• Realization of comfortable living spaces</td>
</tr>
<tr>
<td>• Building a national infrastructure that provides safety and peace of mind</td>
</tr>
</tbody>
</table>

- ITS
  - Roads “Smartway”
  - Vehicle “Smartcars”
  - Communication
2. ITS in the second stage

2) Concept of the platform

- A common platform is needed in order to realize various services.

![Diagram showing ITS in the second stage concepts](image)
2. ITS in the second stage

3) Smartway Project Advisory Committee

• In August 2004, the Smartway Project Advisory Committee issued a proposal entitled “The Second Stage of ITS” regarding the development of Smartway.
• To promote more rapid development of a variety of services, a common platform is established for ITS services.
2. ITS in the second stage
4) Directions for Smartway policy

- **Advancement of car navigation system**
  - Support for autonomic mobility
  - Advanced traffic info provision
  - Various info provision

- **Advancement of car navigation map assistance**
  - Push-based info delivery
  - On-demand info provision
  - Road Map for Comfortable Driving
  - App of CAD data for road construction

- **ETC**
  - Parking lot management
  - Parking lot payment
  - Smart interchange
  - Electric toll collection system

- **Promotion of safe driving assistance**
  - Refueling service
  - Prevention of crossing collisions/Prevention of right turn collisions
  - Support for merging
  - Support for public transportation
  - Bus location system
  - Detection of icy road, snow forecast, rock fall detection
  - Support for public demand bus
  - Info provision on traffic regulation

- **Support for safe driving**
  - Prevention of Collisions with Obstacles
  - Management of HAZMAT
  - Support for demand bus
  - Info provision on demand bus

- **Support for road users**
  - Support for autonomic mobility
  - Advanced traffic info provision

- **Support for pedestrians**
  - Various info provision

- **Promotion of road management efficiency**
  - Support for public transportation
  - Commercial vehicle operation
  - Promotion of road management efficiency with probe data

- **IT for vehicles and mobiles**
  - OBU/Mobile

- **Infrastructure**
  - Cellular-Phone, W-LAN, Digital television
2. ITS in the second stage

5) Public-private cooperation for platform development

- Public recruiting for joint studies.
- 23 companies are participating, and a cooperative research office has been established.
- A report on joint research for platform development was issued in March 2006.

<table>
<thead>
<tr>
<th>DEC. 2004 - Jan. 2005</th>
<th>Public recruiting for joint research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb. 2005</td>
<td>Starting joint research program</td>
</tr>
<tr>
<td>July 2005</td>
<td>Interim report</td>
</tr>
<tr>
<td>Feb. 2006</td>
<td>SMARTWAY DEMO2006</td>
</tr>
<tr>
<td>Mar. 2006</td>
<td>Final report</td>
</tr>
<tr>
<td>Mar. 2007</td>
<td>Development of standards and specifications</td>
</tr>
<tr>
<td>Oct. 2007</td>
<td>Smartway 2007</td>
</tr>
</tbody>
</table>

Companies participating in government-private joint research
3. Nationwide deployment of support for safe driving

1) Vehicle safety system enters the field operation phase

- Each service will be deployed after test confirming the public acceptance and effects.
- Safety information is also provided by audio data for the vehicle without car navigation system.

**Services to be deployed**

Providing information on obstacles ahead

- Congestion ahead. Drive carefully.

Merging assistance

- Roads merging ahead! Drive carefully.

Providing information on conditions ahead

- Smooth traffic ahead!

**ITS on-board units**

A vehicle on-board device without car navigation system

- Pi! Congestion ahead. Drive carefully.

A vehicle on-board device with car navigation system

- Pi! Congestion ahead. Drive carefully.
3. Nationwide deployment of support for safe driving

1) Vehicle safety system enters the field operation phase

- Field test started on 14 May 2007 at Tokyo Metropolitan Expressway.
- 29 companies cooperate.
3. Nationwide deployment of support for safe driving

2) Smartway 2007

- This technical tour will be held in Japan from October 15 to 17, 2007.
Thank you