



Development of ITS technologies in Japan

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- 1. Introduction**
- 2. Development of Smartway**
- 3. FOT – Providing Information on Obstacles Ahead**
- 4. Summary**

1. Introduction

- Electronic Toll Collection System (ETC)

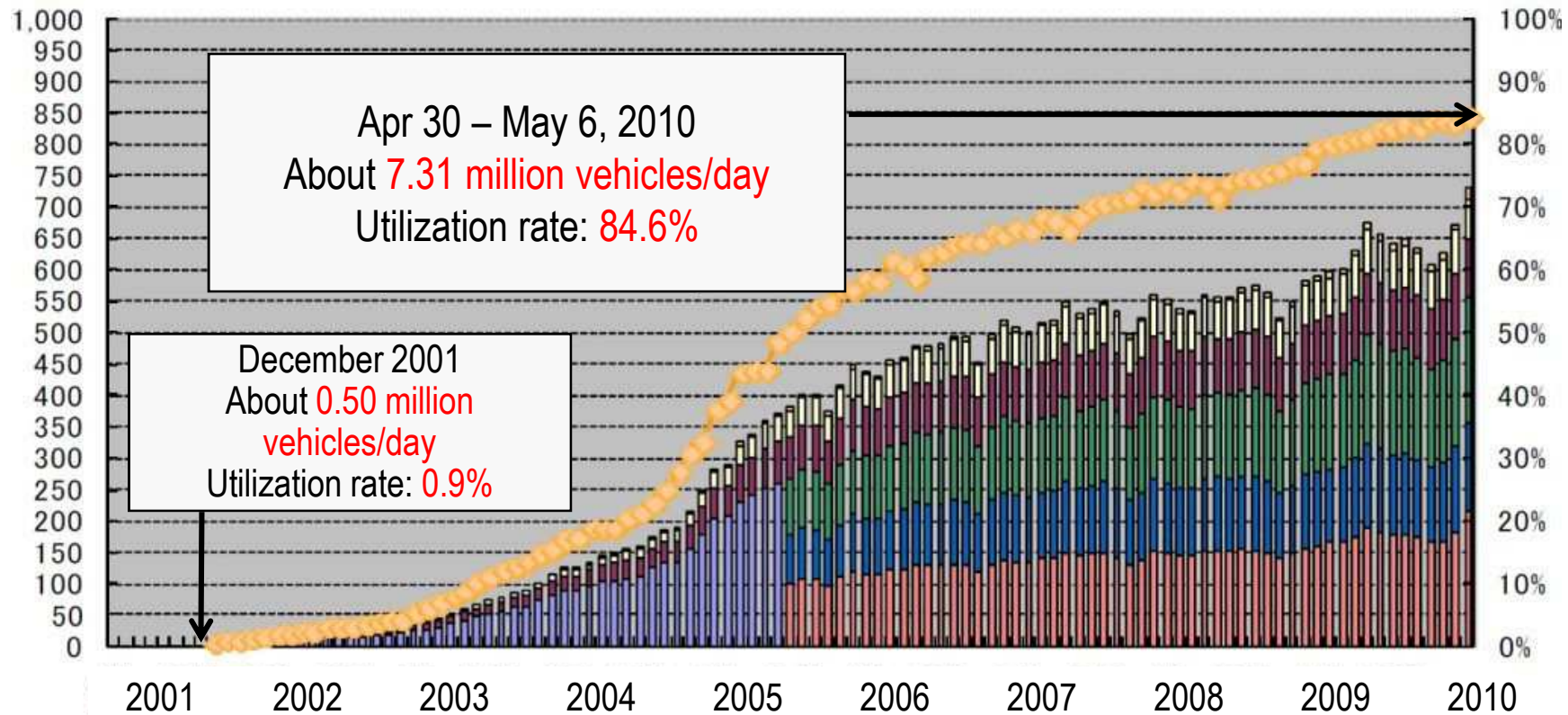


- Approx. 30 million ETC on-board units have been shipped (as of May 2010).
- The nationwide utilization rate: 84.6% (as of May 2010).

Trends in the use of ETC

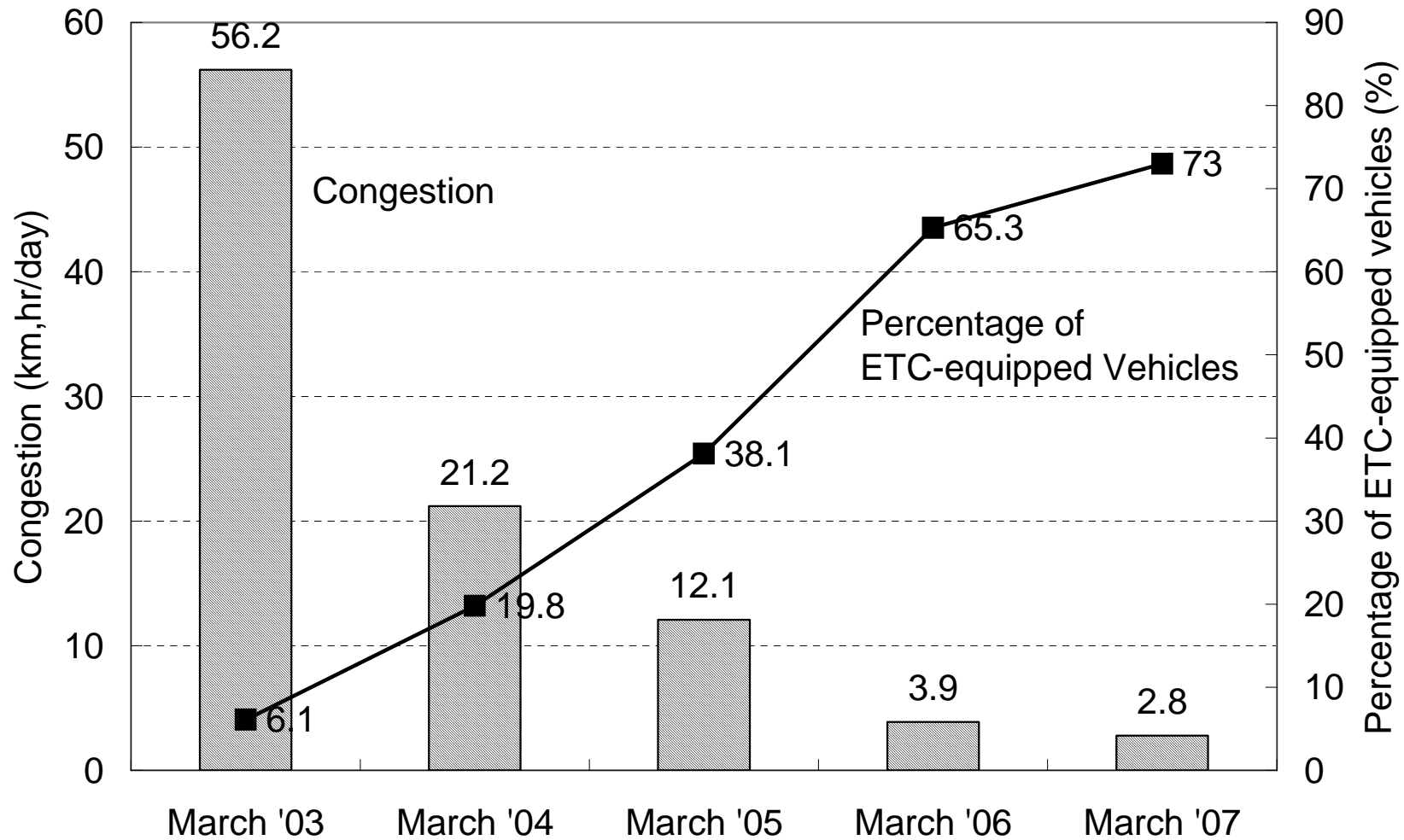
Number of vehicles using ETC (10,000 vehicles/day)

Utilization rate



1. Introduction

- Electronic Toll Collection System (ETC)



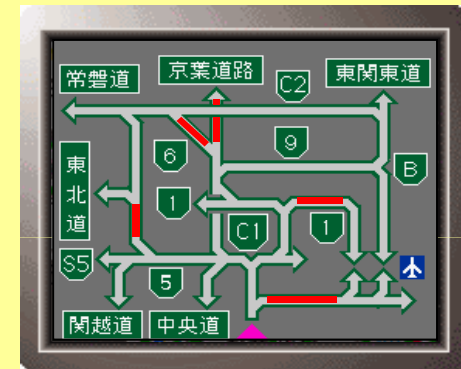
1. Introduction - Vehicle Information Communication System (VICS)



- Provide real-time road traffic congestion information on car navigation system which started in 1996



Example of Display



Simple diagrams

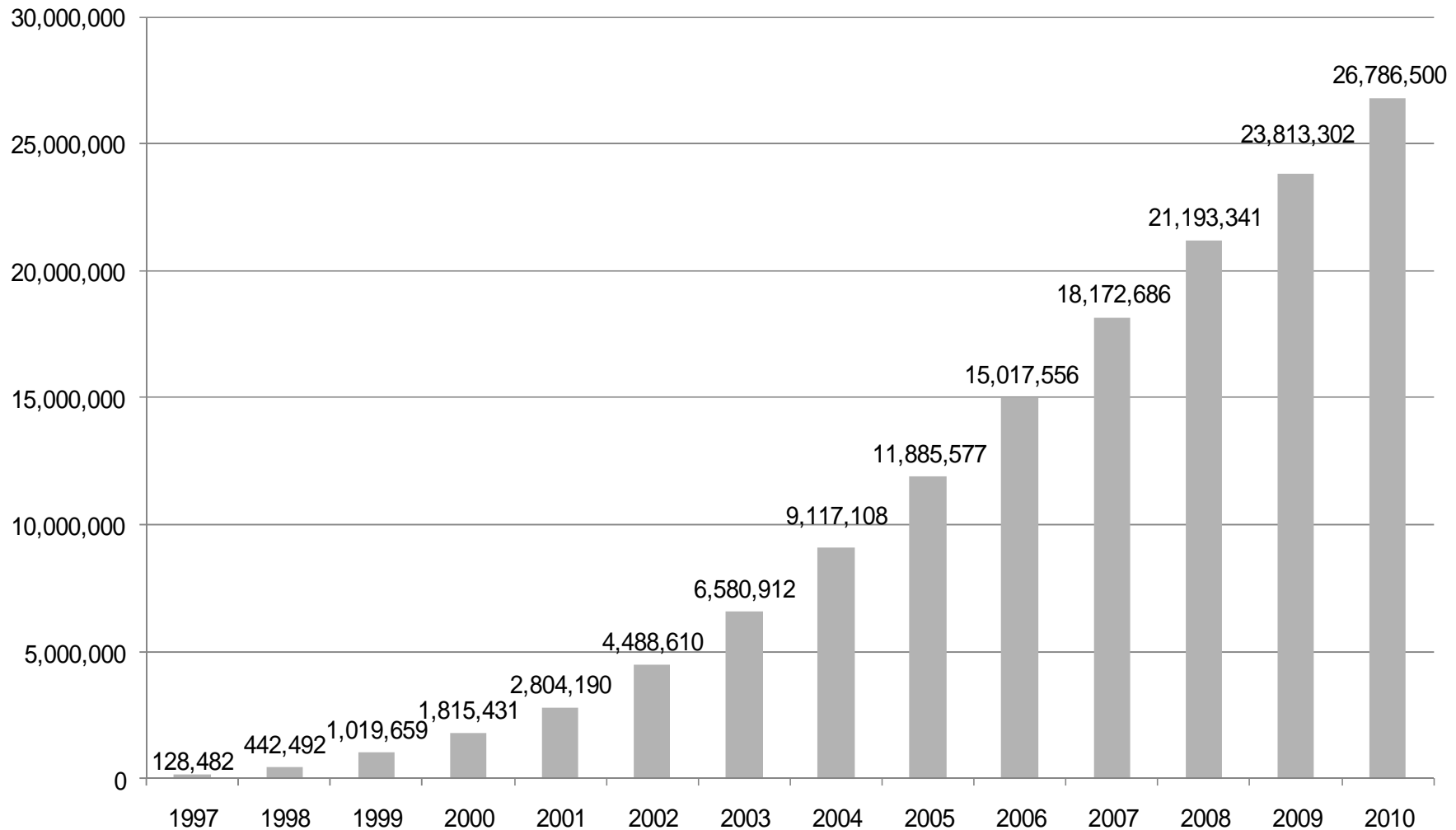


Map Display

1. Introduction - Vehicle Information Communication System (VICS)

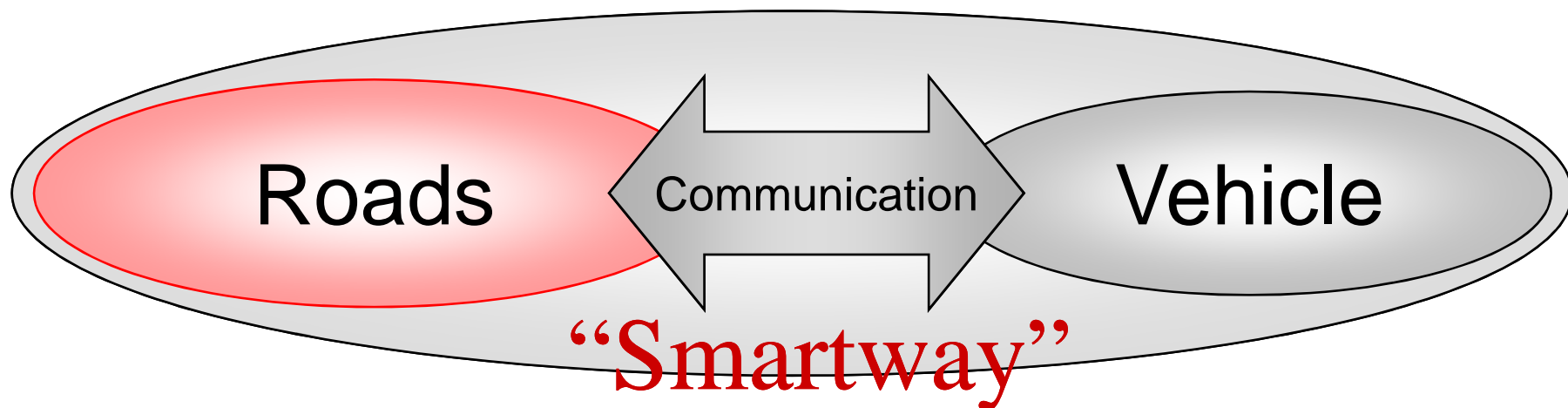


- Over 26 million VICS-OBUs have been shipped (as of 2010.3)



Definition of Smartway

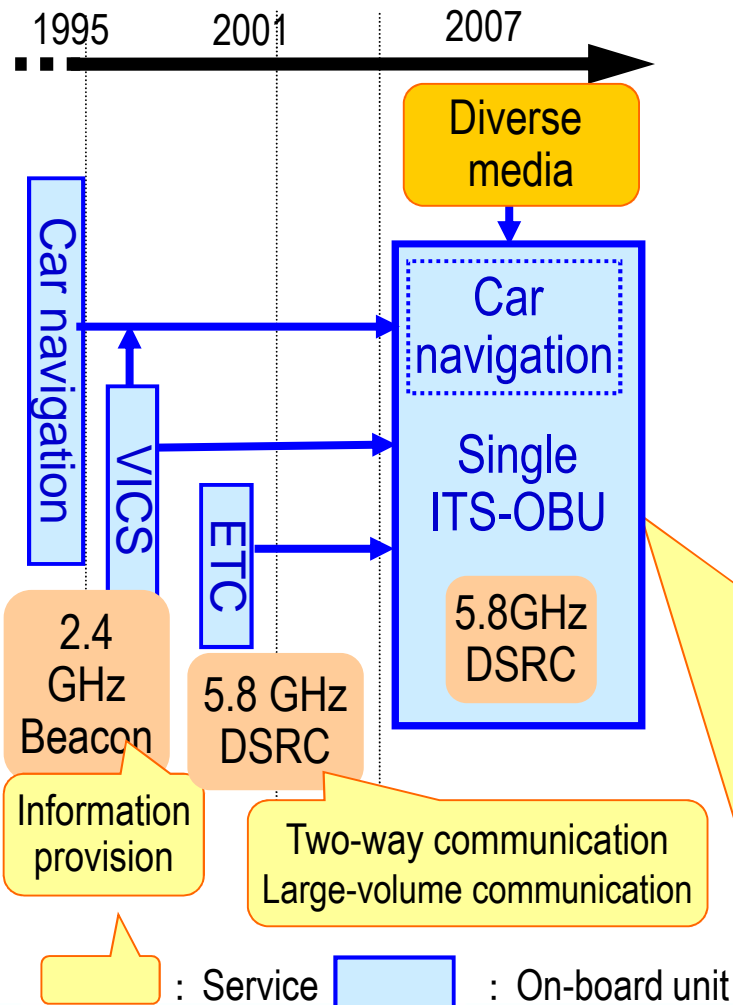
a road system which can exchange various types of information among cars, drivers, pedestrians, and other roadway users.



2. Development of Smartway –New platform



- A single ITS on-board unit (OBU) will provide various services according to establishment of common platform



Providing information on assisting safe driving



Wide range traffic congestion information



Providing information on conditions ahead



Parking lot payment



2. Development of Smartway –history



● 2005-2006

Public - Private Joint Research (NILIM, 23 companies)
→ Smartway Demo 2006, Standardization

● 2007

FOT, Smartway Demo 2007 (Metropolitan Expressway)

● 2008

FOT (in the three large metropolitan regions)

● 2009~

Practical service deployment

3. Field Operational Tests(FOT)

– Providing Information on Obstacles Ahead



- FOT were conducted at three major metropolitan regions and other regions in FY 2008.

[Osaka/Kyoto]

- Providing Information on Conditions Ahead (by audio)

[Osaka]

- Warning a driver against overshooting at sharp curve ahead
- Providing Information on Obstacles Ahead
- Merging Assistance

[Hiroshima]

- Warning a driver of excessive speed operations

[Nagoya]

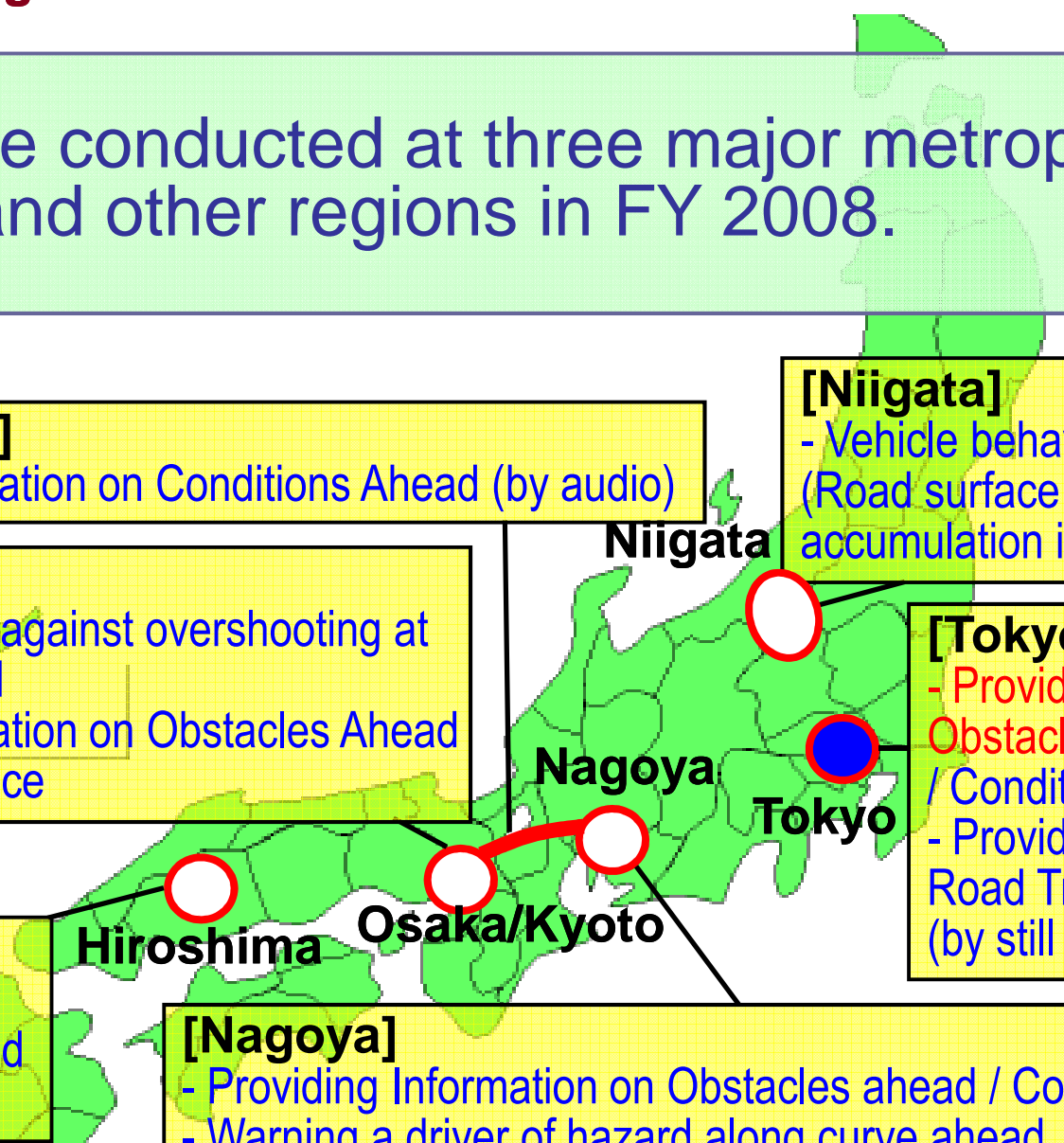
- Providing Information on Obstacles ahead / Conditions Ahead
- Warning a driver of hazard along curve ahead

[Niigata]

- Vehicle behavior data collection (Road surface snow accumulation information)

[Tokyo]

- Providing Information on Obstacles Ahead / Conditions Ahead
- Providing Information on Road Traffic Conditions (by still images)

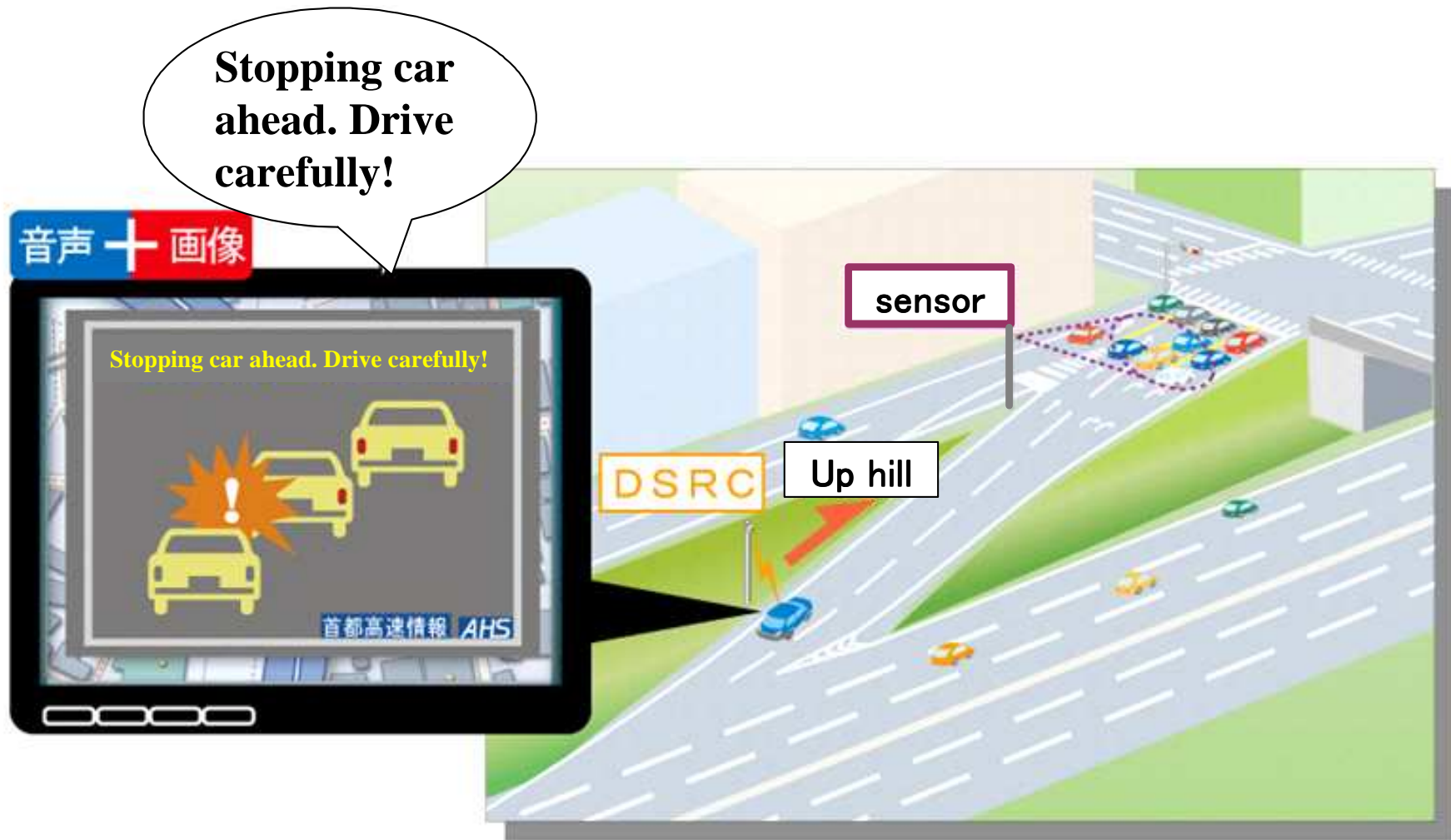


3. Field Operational Tests(FOT)

– Providing Information on Obstacles Ahead



Outline of FOT at Rinkai Fukutoshin Exit of MEX

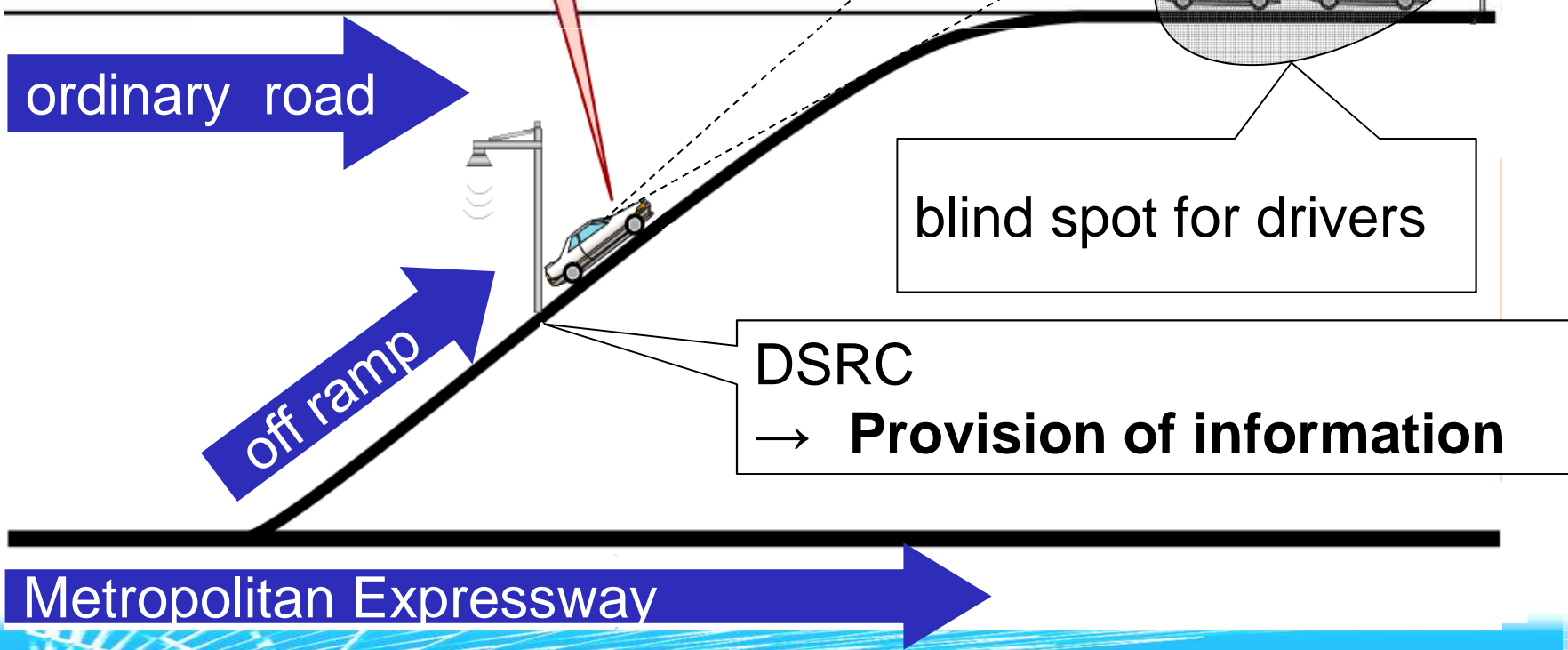


3. Field Operational Tests(FOT)

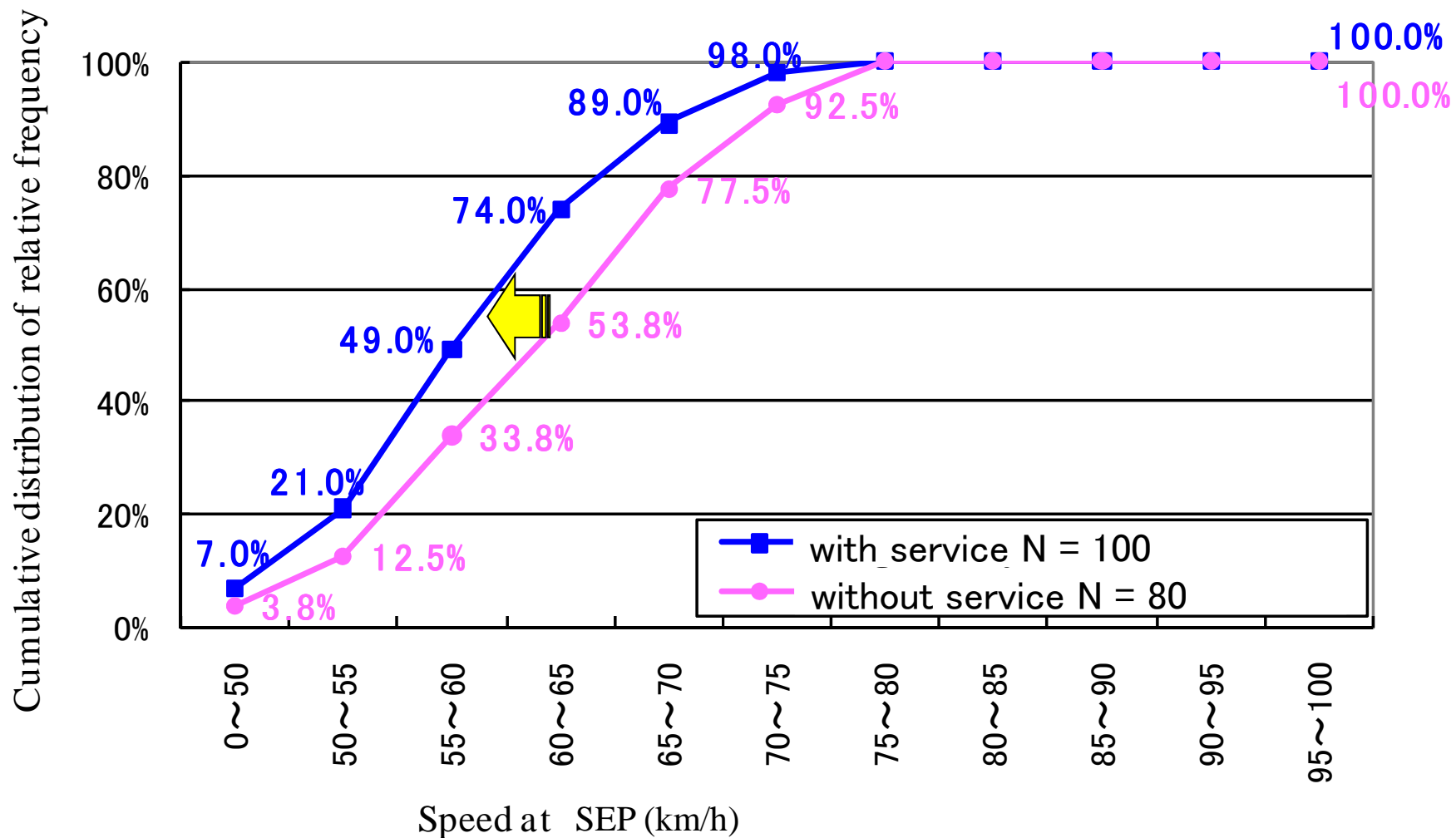
- Providing Information on Obstacles Ahead



<p>Stopping car ahead. Drive carefully!</p> <p>Stopping cars</p>	<p>Intersection ahead.</p> <p>No stopping cars</p>
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3. Field Operational Tests(FOT) - Providing Information on Obstacles Ahead



SEP: speed evaluation point : driver can see stopping vehicles ahead right before

3. Field Operational Tests(FOT)

– Providing Information on Obstacles Ahead



It is good because I knew in advance that a car was stopped or that there was an intersection and prepared mentally.

It is good because I had leeway to avoid a rear-end collision and emergency braking.

It is good because it has a good impact on more cars.

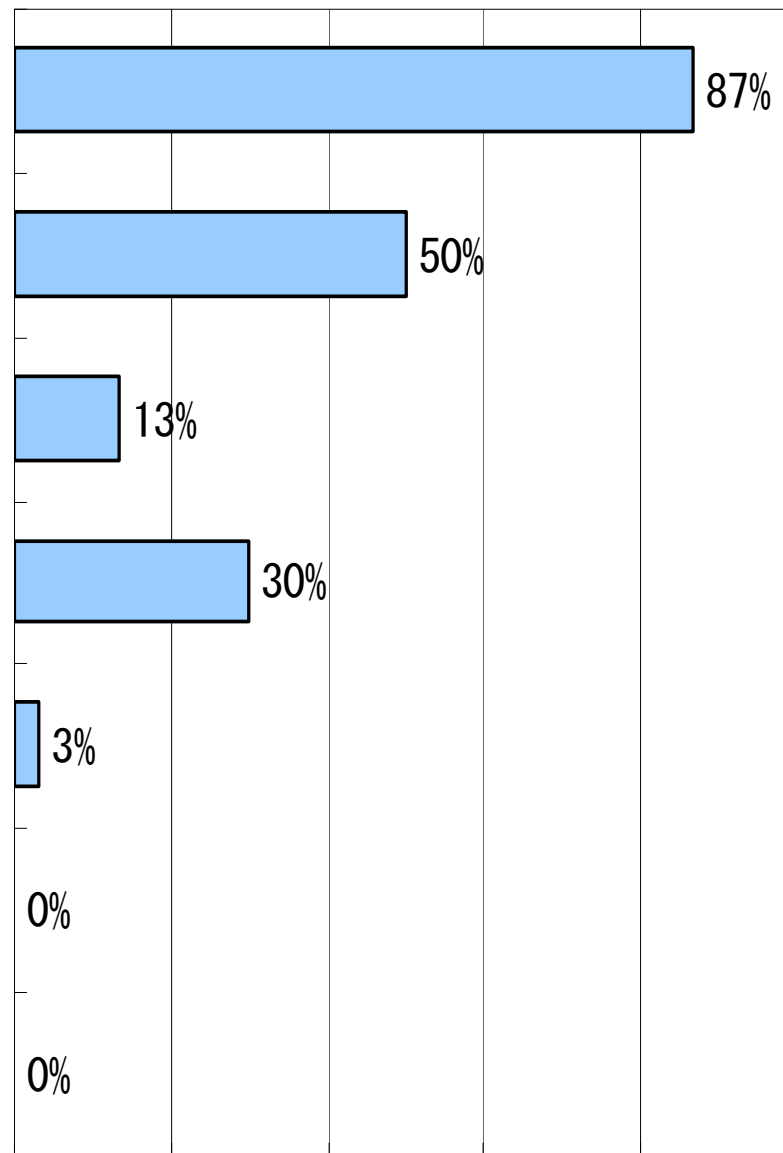
It is good if the service is provided during rainfall or at night.

It is unnecessary because drivers travel slowly on the rising grade.

It is unnecessary because I always drive carefully.

Others

N=30 (multiple answers permitted)



0% 20% 40% 60% 80% 100%

4. Summary



- ETC and VICS have been on operational stage and utilized nationwide.
- The second generation ITS service, Smartway, has been developed based on ETC and VICS technologies through a lot of FOTs.
- It has been confirmed through FOTs that Smartway works effectively and accurately.

Muito obrigado!
&
Thank you for your
attention.