

Supporting Logistics through Public-private Sector Collaboration Using ETC 2.0 Platform

MAKINO Hiroshi, Head

SHIKATANI Yukio, Guest Research Engineer,

MATSUDA Naoko, Senior Researcher,

TANAKA Yoshihiro Researcher

Intelligent Transport Systems Division, Road Traffic Department

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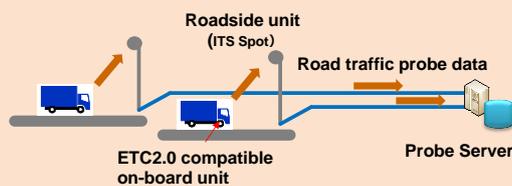
1. Introduction

Truck transport in Japan is the linchpin of the economy, handling about 90% of all cargo in terms of weight. But, the need to support logistics is increasing in response to problems related to safety management and a shortage of drivers. The Intelligent Transport Systems Division is conducting R&D on a logistic support system using road probe data collected by ITS Spots. And since September 2012, we have been conducting Joint Research on industry-academia-government collaboration service development using the "ITS spot common ground" (below, "public-private joint research"). This report introduces a public-private sector linked logistics support system based on ETC2.0 platform built through the public-private joint research.

2. ETC 2.0 Platform

ETC2.0 platform is an infrastructure system that records road traffic probe data such as travel history is recorded on ETC2.0 compatible on-board units and is collected on probe server, when vehicles pass by a roadside unit.

Figure 1 ETC 2.0 Platform



3. Private-Public Linked Logistics Support System

The purpose of the public-private joint research is to promote the development and introduction of working logistics support services using road traffic probe data (specific probe data¹⁾) that specifies individual vehicles, and to increase the efficiency and level of road management as road administration.

Figure 2 shows logistics support system based on public-private sector collaboration using ETC2.0 platform. The publicly collected specific probe data from ITS Spots installed at about 1,600 locations on nationwide expressways is collected on probe data

sharing systems. Specific probe data for the distribution bases and areas around the delivery destinations of logistics companies are collected in logistics company servers from simple type roadside unit the private sector has installed at its distribution bases. The public-private joint research specifies public-private sector communication interface specifications and shares the specific probe data for parts where the public and private sectors cannot collect data online.

This enables the public and private sectors to clarify the movement of logistics vehicles over a broader range. And logistics company operators are counting on controlling vehicle operation, improving distribution efficiency, supporting safe operation, and supporting eco-driving (Table 1).

Figure 2 Private-Public Linked Logistics Support System

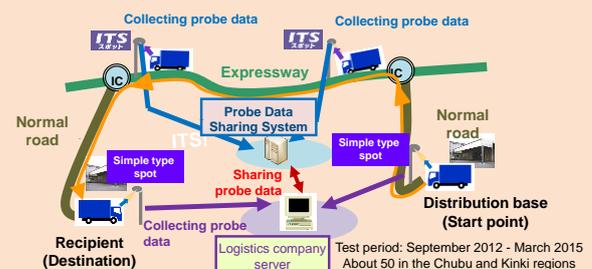


Table 1 Logistics Efficiency Support Services

Example service	Outline
1 Vehicle Operation control and operation planning	Setting appropriate delivery routes by clarifying the course and required time between logistics bases
2 More efficient receiving and transshipping	Knowing present location of vehicles and predicting arrival time to shorten time waiting for reception of shipments
3 Supporting safe driving	Analyzing vehicle behavior to prepare maps indicating points where many near-misses occur.
4 Supporting eco-driving	Analyzing driving behavior to compute fuel consumption and provide driving advice to drivers (clarifying accelerations).

4. Conclusion

National scale social experiments in logistics support are scheduled to start in 2015. In the future, we will

study rule-making not only in technology areas, but in the system and operation areas.

[Sources]

1) N. Matsuda, Y. Tanaka, H. Makino: Study of actual operation of public-private linked logistics services using specified probe information, 12th ITS Symposium, 2014.