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ITS Initiatives for CRM in Urban Transport

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Introduction

Good afternoon. My name is Katsuhiro Yamaguchi. I am the director for policy research at the Policy Research Institute of the Ministry of Land, Infrastructure and Transport, Japan.

Before beginning today's presentation, I would like to express my deepest condolence for those who have suffered as a result of the recent terrorist attacks. My heart aches all the more since I was once a citizen of the USA when I was a child and then spent some years there when I attended graduate school. I sincerely hope that peace will be restored as soon as possible.

Today, I would like to discuss ITS Initiatives for CRM (customer relationship management) in Urban Transport. Specifically, I would like to address how to increase customer satisfaction in the field of urban transportation by utilizing ITS technology. Furthermore, based on accumulated customer data, I would like for us to explore ways to develop customer relationship management strategies to strengthen the ties between customers and providers of transportation, and thus better promote a sustainable way of urban living.

1. Major Function of IT in Transportation

- **Securing safe and smooth transportation**

First, I would like to review how information technology (IT) is being utilized in the field of transportation from two aspects.

As the first requirement, the transport sector "has to provide safe and smooth transportation." From the passenger's perspective, "reliable transportation" is needed. This is a fundamental aspect of transportation and in this regard IT has been introduced to a considerable extent.

With regard to aviation and maritime transportation, where there are no physical guide-ways such as railways or roads, IT has been utilized in four aspects; CNS&O, i.e., Communications, Navigation, Surveillance and Operation. In air transportation, a next-generation aviation safety system that utilizes satellites is now being developed worldwide. In maritime transportation, comprehensive efforts are now being made to promote "maritime ITS."

Railroad transportation operates on tracks, therefore, it does not require navigation technology. However, operation control is extremely important to avoid collisions. Future highway control systems may be similar to the control system for high-speed railroads. Advanced automobiles that can identify distance between it and other cars or between the automobile and the road curb would be utilizing the collision-avoiding system similar to that used in aviation or maritime transportation.

The utilization of IT to promote safe, smooth and reliable transportation is both necessary and interesting to consider. Today, however, I would like to focus my discussion on the IT that would lead to a dramatic improvement in the interaction between passengers and transportation providers.

2. IT that Improves Interaction Between Passengers and Providers of Transportation

● Interactive Technology in General

Personal computers, cellular phones and smart cards that are networked by various means of communication including the Internet, demonstrate their effectiveness when they meet the second requirement concerning transportation. That is to say, IT can link passengers' requirements to move as fast, cheaply and comfortably as possible, and transportation provider's missions to acquire as many passengers as possible. A revolutionary change is now under way in this field.

Now, let us examine how the latest IT is being utilized to improve interaction between passengers and providers of transportation. I may deviate somewhat from the narrow sense of the word, ITS, but I would like to call your attention to the Internet. The advantage of the Internet is that it "allows easy and low-cost retrieval and comparison of information." In the past, the exchange of information was imperfect in the market economy, and corporations competed under such conditions. However, the spread of the Internet has made it possible for people to access to all kinds of information and data concerning supply-demand situations of goods and services. As a result, the demand side has gained relative advantage to the supply side.

What is more convenient is that it has become possible to do business transactions by using this network. It is no longer necessary for consumers to go to a shopping center or a department store to order merchandise. They can now do that with only one click of their keyboard. It is extremely efficient. Such means of transaction is now starting to be utilized in the booking and ticketing of transportation services.

What is more important is that the Internet makes it possible for merchandisers and service providers to introduce strategic marketing. They can target the needs of a particular segment of customers by using transaction information obtained through the Internet, or in extreme cases, to produce and deliver goods and services on demand, instead of just selling predetermined, fixed sets of goods and services. It makes it possible for merchandisers and service providers to respond to customers' needs promptly and without waste. It is for this reason that the concept of CRM has rapidly begun to draw attention as a realistic marketing method as Internet becomes commonly used.

When we say "IT revolution," we mean such power of the information networks. And when we say "revolution," we usually think of the Industrial Revolution. This is because revolution brings an immeasurable change to "the way people live." The Industrial Revolution replaced manpower and horsepower with machinery. The latest "IT revolution" has replaced machinery, or "manufacturers," with "hands." Hands that touch the keyboard of a PC, click the mouse, or manipulate the cellular phone. It means a shift from the supply side to the demand side, and from an industry-based society to a knowledge-based society. The challenge is to apply this idea in the area of urban transport, and bring about a revolution for a more sustainable urban life.

- **Interactive Technology in Transportation**

The theme of my discussion today is how to utilize the power of IT for CRM in urban transportation. So, let us take a detailed look at how IT can improve interaction between passengers and providers of transportation.

First of all, in the past, we looked up a timetable or visited a travel agent for inquiries and booking at the planning stage or at the transaction stage of any journey. But now, we can retrieve the necessary information instantly from the Internet, compare different options and choose the best one.

In the United States, the Internet is widely utilized in major transportation areas, such as aviation. In Japan, a group of the three major airlines opened a common web site for domestic air tickets this July. It has also become possible to book a ticket for the Tokaido Shinkansen Line (The Bullet Train) over the Internet from this September. The reservation can be made through the mobile Internet, such as through *i-mode* cellular phones by NTT DoCoMo, and or other mobile Internet telephone services, as well as through PC Internet.

I have heard that some U.S. Internet-based tour agents are increasing their customers by offering refunds on airfares in accordance with the extent of the flight delays. Also, Internet-based travel agents that undertake all the preparations for business trips within corporations are growing in the USA. I think this kind of business would develop in Japan as well, but moreover, the ideas inherent in these systems could be deployed in the urban transport area.

Then, at the stage of movement, which is basically related to urban transport, it is possible for one to obtain real-time transportation information for scheduling using PCs or cellular phones connected to the Internet. For instance, as I will explain in detail, you could find the best route, together with the expected travel time and fare when the urban transportation network is complex, as well as to be informed of any chance irregularities or delays for example that may occur on public transportation. Moreover, by using a smart card, one can ride trains and buses without going through the bother of consulting the fare table and buying a ticket at the terminal. The advantage of the smart card, of course, is not limited to this, as I will discuss in more detail later.

This screen here shows a demonstration of the integrated transport information system implemented in Sapporo last year. The real-time information on the operation of buses was also provided through mobile Internet such as *i-mode*. A similar system is now in operation in Kyoto.

In Japan, a web site called "*Eki-tan*" (abbreviation of "*Ekimae Tanken Club*," meaning "Station-area Expedition Club") provides information on train timetables and fares for 100 yen (about 80 ¢) per month. If you input, for example, the station of origin, the destination, time of departure or arrival and whether or not you will use an express train, the web site instantly provides several choices of transportation means. This system is very useful in large cities, such as Tokyo, where the transportation network is complex and several routes to the same destination are available. I regularly use this system on my *i-mode* mobile phone. Another web site suitable for long-haul travel planning called *"Eki-suparto"* (connotation of "Eki," which is "Station" and "Expert" combined), can be accessed not only by PC Internet, but as by *"L-mode,"* fixed telephone Internet introduced by NTT East and West this June.

3. CRM for Urban Transport

- **The concept of CRM**

Smart cards make it possible to pass through ticket gates without purchasing a ticket at the station, so it helps to facilitate smooth traffic. Not only that, their use will also open the window of opportunity to introduce CRM in urban transportation, by utilizing an accumulation of user information and setting fares more flexibly.

CRM is sort of a "wave" now in current corporate strategy. It was originally aimed to gain advantage over rival companies by strategically utilizing customer data for effective marketing. CRM is an approach to segment customers and target a marketing mix appropriate for each segment. Customer information obtained through the accumulation of smart cards is a "Treasure Island."

A combination of various controllable means for achieving a marketing goal is called a "marketing mix." The four "Ps" – Product, Price, Place (i.e., distribution) and Promotion – are the key elements of modern marketing. CRM is aimed to establish a good long-term relationship with customers by employing an optimal marketing mix. In particular, it is important to strengthen the bondage with customers by creating a special relationship with them. This could be achieved by establishing a friendly and intimate relationship with the customers, providing money-saving incentives, serving as a "portal" company that deals with various service concerning transportation-related services, and establishing an environment-friendly brand image, and thereby attracting customers to use public transportation means.

- **Smart card for CRM in urban transport**

The smart cards currently in use are cards with prepaid values on an IC chip. By using smart cards, however, a postpaid system that settles the account monthly becomes available for payment of bus and subway fares. It will be possible to set fares according to the frequency and time of use or introduce an economy fare package for weekends. Congestion in busses, subways and railways in rush hours is still severe in Tokyo. Additional supply of services, however, is too costly. We need to disperse demand by introducing more adequate incentives.

At present, about 45% of the people in major Japanese cities use commuter passes. The price of a pass is not necessarily set in accordance with transportation needs. It is set by validation period of one, three or six months (the longer the validation period, the greater the discount rate) and one can use the pass as many times as one wants for any purpose. Not many people use their commuter pass on weekends. Under the current fare system, there is no incentive to use a commuter pass for a person going out for recreation with his/her family members on weekends. If by using the smart card system, the cost of using busses and subways is discounted for a family of four, for example, it would provide an incentive to lead prompt people to use public transportation with less environmental loads on weekends.

The incentive is not limited to economic benefits either. For instance, the "*Green-Mileage System*," under which mileage is given in accordance with the frequency of the use of public transportation, could be an interesting idea. Accumulated mileage could be programmed to be donated to environmental organizations or could be tied up with the Time Dollars program, a

tax-exempt kind of money that empowers people to convert their personal time into purchasing power by helping others and by rebuilding families, neighborhoods and communities. Another idea is to utilize the data as a reference of the level of environmental awareness in our daily life. An analogy of the environmental accounting system applied to corporations or certification similar to the ISO-14000 series could be applied to urban life by using the *Green-Mileage System*.

In Japan, smart cards are used in the Electronic Toll Collection System (ETC) for tolled highways, and there is a plan to set up ETC systems on ordinary roads in order to utilize smart cards in toll charges in urban areas. If the smart cards now used in the ETC are merged with smart cards for busses and subways, and become all-purpose transport smart cards, people's lifestyles could be indexed more comprehensively on the basis of centralized information.

The final stage of the ITS initiatives for CRM in urban transport is to merge the smart card function with cellular phones. The third generation cellular phone introduced this October by NTT DoCoMo, and planned by other carriers in Japan, has the technical capability of managing both payment of transportation fares and telecommunication.

A number of field test projects are now being planned by the Policy Research Institute to test the above concepts next year.

4. Information Platform for Multimodal Transport

- **Multimodal approach**

I would like to round up my discussion today by proposing the "Information Platform for Multimodal Transportation," a key infrastructure to introduce CRM in urban transportation.

The environment surrounding public transportation, the change in demand caused by the aging population and decreasing birthrate, and users' demand for better services —are all making things difficult to solve. There are also problems common to all people – problems of traffic congestion as well as traffic accidents and environmental issues. Against these backgrounds, we intend to promote the use of public transportation facilities that give due consideration to the aging society, environment and safety in order to make the flow of people more efficient and sophisticated. To that end, it is necessary to establish networks of transportation facilities and information concerning transportation. The "Information Platform for Multimodal Transport" holds the key to such efforts.

- **Advanced Transport Forum**

The Policy Research Institute, has set up a forum named the "*Advanced Transport Forum*" composed of members from Japanese universities, central & local government authorities, transport companies, information & communication firms, etc. The major objective of the Forum is to exchange views on strategies and propose initiatives for field test projects that would promote the development of the "Information Platform for Multimodal Transport." The Forum had its first meeting on September 28th and some of the ideas I have discussed today were first brought up in the Forum.

By the way, on January 14th 2002, the "*Advanced Transport Forum International"*, an international session of this Forum will be held in Tokyo. We have invited Mr. Edward L.

Thomas, Associate Administrator for Research Demonstration and Innovation, Federal Transit Authority, Department of Transportation to make a presentation and to participate in the discussion. This Forum will be held on the occasion of the Ministerial Conference on Transport and Environment, scheduled for January 15th and 16th at the same convention hall in Tokyo. The Advanced Transport Forum International is open to the public, so please take note if you have plans to be in Tokyo at that time.

- **Cooperation across the Pacific**

We intend to compile and provide the information necessary for the process of human movement from door to door, i.e., information necessary for activities before a journey is begun, while the journey is in progress and at the destination, through smart cards, personal computers and cellular phones. Transportation providers, for their part, can respond to requests from users by putting various systems on one platform. They should exchange various kinds of information from their standpoints and help establish a comprehensive system in order to bring about the vitality of various transportation facilities.

At present, the Japanese government is promoting the "*e-Japan Project,*" a plan to turn Japan into the leading forerunner in the field of IT by 2006. As part of the project, we intend to promote CRM in the field of urban transport by undergoing various field test projects to promote the development of a platform for multimodal transport. In concluding my presentation, I would like to ask for the cooperation of ITS specialists in the United States in achieving our common goal of establishing a sustainable urban transportation system across the Pacific.

Thank you very much.