Initiatives to revitalize regional economies by advancing "*OMOTENASHI*" – Hospitality offered to foreign visitors to Japan

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Abstract

Robust consumption by foreign visitors to Japan contributes to and is considered to be an essential input for the revitalization of our regional economies. In this paper we introduce several support solutions applied by NEC. These are 1) An advanced urban service system that aims to provide meticulous "*OMOTENASHI*" hospitality to each and every foreign visitor, and 2) A transportation and sightseeing services system for visitors that is provided via collaboration between local enterprises. We aim to contribute to the comprehensive development of cities by promoting cross-industry and community collaboration, and thereby increase the inflow of domestic and foreign tourists and enhance tourism consumption.

Keywords
foreign visitors to Japan, sightseeing, *omotenashi* hospitality, regional revitalization, personal data, local area visitor transport services

1. Introduction

More and more foreigners are visiting Japan for sightseeing and shopping. In January 2018, the Japan National Tourism Organization announced that the number of foreign visitors for 2017 had reached 28.69 million, which marked the highest number to date. The government set a target to attract 40 million foreign visitors in the year 2020 along with a tourism consumption target of JPY 8 trillion.

The Japan Tourism Agency has formulated the " Tourism Vision to Support the Future Japan" and has announced that Japan will promote tourism as one of the key industries. The agency has selected nature, culture, food and climate as the four markers upon which to promote tourism in Japan. It is also expected that these may contribute to the growth strategy for local economy revitalization.

One of the aspects of realizing this project is to improve soft infrastructure services and ICT usages. This paper introduces the challenges faced by municipalities that aim to provide high quality, advanced services by building an environment where foreign visitors can stay, shop, and enjoy other activities in comfort.

2. Demonstration Project under the "IoT *omotenashi* cloud service" Proposed by MIC

For a two year period from 2016 to 2017, the Ministry of Internal Affairs and Communications (MIC) has continued the demonstration experiment of "Internet of Things (IoT) *omotenashi* cloud service project", which is a part of "Advancement of ICT utilization for the whole society towards 2020 : Action Plan (Ver. 1)".

"IoT *omotenashi* cloud service project", the demonstration project by MIC, was implemented to realize society's so called "*omotenashi* environment" that enables foreign visitors to go about unaccompanied and to spend their time comfortably, in local areas. The key points for achieving this project are explained below.

- Implementation of cloud services that support social environments for foreign visitors in travel, sightseeing, shopping, etc.
- Implementation of advanced and flexible services under the cloud computing environment, including smartphone, prepaid transportation IC cards and

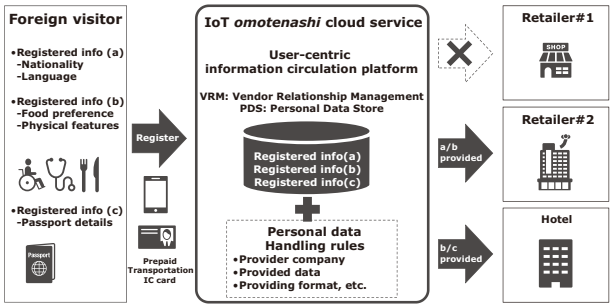

Fig. 1 Illustration of IoT *omotenashi* cloud service.

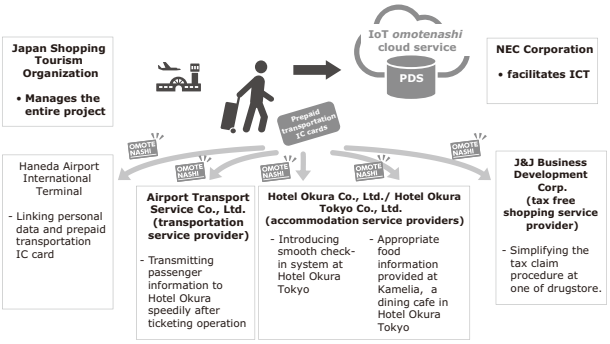

Fig. 2 Outline of the demonstration of a use case in the Roppongi / Toranomon area.

digital signage.

- Implementation of policies, the so called "personal data store (PDS)" and the "vendor relationship management (VRM)". PDS is a service that lets users store, manage and deploy their individual data, and VRM is a business activity that enables users to control their personal data usage and to intentionally select the service providers.

Foreign visitors register their own personal information data via an exclusive application installed on their smartphone. After registering his/her age, language, allergy history, passport details, etc. to the cloud service, they can select their desired services via the service list on their smartphone.

Companies that provide services such as transportation, hotels, restaurants, duty-free shops, etc. will use this user-approved, personal information data to improve the provided services. The tool to extract such personal information data is the prepaid transportation IC card that is linked to personal data (**Fig. 1**).

NEC has been actively participating in the demonstration experiment of the "IoT *omotenashi* cloud service project" for the two year period from 2016 and 2017.

We are a co-developer enterprise for the cloud service platform and we have employed NC7000-3A, which is compliant with the Open ID Connect standard. Various services that link to this cloud service platform have been studied.

3. Evaluation of the Cloud Service System

In order to implement the "IoT *omotenashi* cloud service project" in society, demonstrations of usage cases in five locations of three separate areas have been studied in 2016 and have revealed various issues. Various companies have collaborated in demonstrations as members of this project. NEC has joined the use case held in the Roppongi/Toranomon area, Minato-ku in Tokyo. In this area, five use cases were demonstrated, focusing on the flow of foreign visitors as they proceeded with their travels after passing through immigration, found accommodation, dined and shopped (**Fig. 2**).

Airport Transport Service Co., Ltd. was in charge of sending foreign visitors personal information data to hotels together with the bus arrival time information. The company extracted the foreign visitors' personal information data via the prepaid transportation IC card that they purchased before boarding buses. Hotel Okura Tokyo Co., Ltd. was in charge of providing the guidance for a smooth check-in and restaurant menu information that was finely tuned to individual hotel guests. J&J Business Development Corp. (presently J&J Tax Free Corp.) evaluated the system for enhancing the efficiency of tax free procedures when shopping. The Japan Shopping Tourism Organization was in charge of assembling foreign visitors who could attend these demonstrations and managed the results of the demonstration experiments. Subsequently, NEC facilitated the ICT and took charge of registering personal data and supporting the linkages between the various services and the "IoT *omotenashi* cloud service project". In 2017, Airport Transport Service Co., Ltd. proposed the slogan "Sightseeing without luggage" and implemented the demonstration project of a hand luggage delivering service for hotels by bus.

Issues extracted via these trials are explained below.

(1) Guarantees of the "IoT *omotenashi* cloud service project" platform for society

When acquiring personal information data for tax free procedures, etc. it is essential that such personal information data is guaranteed by official authentication. In order to provide some of the services, a rearrangement of legal systems is necessary.

In a survey carried out among foreign visitors, some responded, "I trust Japan so I have no problem providing my passport information". Only a few

responded as such, but they offer positive factors that could reduce anxiety in registering visitors' personal information. This seems to be pre-requisite for arranging systems and frameworks suitable for an information distribution society in which users can control their personal data usage and intentionally select service providers.

(2) Issues when utilizing personal information data for providing services

The "IoT *omotenashi* cloud service project" platform employs PDS and VRM concepts. In order to use personal information properly, it is necessary to build a system that is compliant with the Private Information Protection Law. Especially when third parties use the personal information of visitors, a new system arrangement is necessary. While considering various factors, such as acquiring the consent of information holders, terms of use, and other agreements between users and service providers, it is also necessary to consider trends in the personal information protection systems in Europe.

(3) Identifying and guaranteeing the prepaid transportation IC card user

When visitors received services in this demonstration experiment, a prepaid transportation IC card was used to access their personal information. This procedure may cause confusion of card information data, especially when groups of foreigners visit a restaurant.

Not only with services that require official authentication guarantees, but also the above cited situation could be a factor in degrading the quality of the service provided to individual foreigners. Services should be provided only to a card holder. Moreover, it is necessary to prepare a system by which those shop staff members who provide the services can identify the card holders easily. Employing a biometric authentication technique is one solution that does not give stress or discomfort to the service users.

4. Demonstration Experiment of "Local Area Visitor Transport Services" in 2017

Even in areas visited by many foreigners, poor transportation availability for the last mile to the destination may obstruct visitors from reaching it. This may result in foreign visitors only visiting the most famous sites of an area without venturing further to explore all corners of the area. Such circumstances may cause a financial imbalance for the area.

As a solution for this issue, a use case was implemented in 2017; transportation companies were linked together to provide services. The demonstration experiment of "local area visitor transport services" was conducted in Hiroshima prefecture in the west part of Japan, by applying the "IoT *omotenashi* cloud service project" (**Fig. 3**).

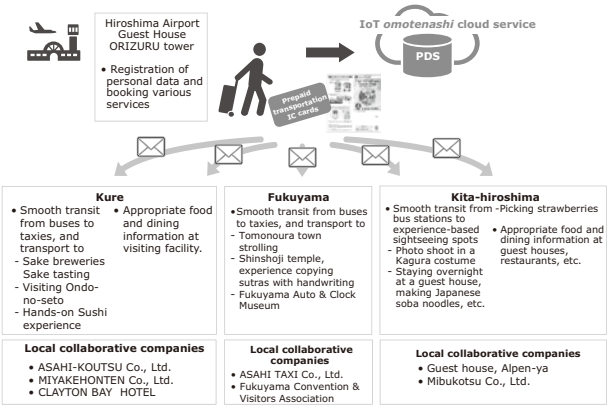

Fig. 3 Outline of the demonstration experiment in Hiroshima.

Linking bus and taxi services creates a transportation environment that facilitates trouble-free travel in local areas. Moreover, facilities offering hands-on activities and the local municipality collaborate with each other and provide events in which foreign visitors can enjoy attractive experiences. This is an attempt to promote sightseeing in wider areas.

Under the leadership of Japan Shopping Tourism Organization, Hiroshima Prefectural Bus Association, Hiroshima Electric Railway Co., Ltd., JTB Chugoku Shikoku Corporation (presently JTB Corp.) and NEC Corporation worked together to conduct the demonstration experiment.

The projected setting is rather simple.

Foreign visitors buy a "Visit Hiroshima Tourist Pass", a round tour transportation sightseeing pass for foreign visitors, and then register their personal information data in order to link the pass to the prepaid transportation IC card. They may then select one of the nine optional plans of the round tour of Hiroshima and surrounding areas. The pass is available at Hiroshima Airport, Orizuru Tower, and guest houses in Hiroshima. Foreign visitors make a reservation to visit a desired place and on the day they visit, they get on the bus with the prepaid transportation IC card. The visitor's reservation No. and personal information will then be shared among taxi companies and other facilities. An approximate arrival time can be assumed so that taxi arrangements and other facility preparations for visitors may be arranged.

Buses, taxies, package tours conduct their own appropriate service provision system by using foreign visitors personal information data acquired via "IoT *omotenashi*

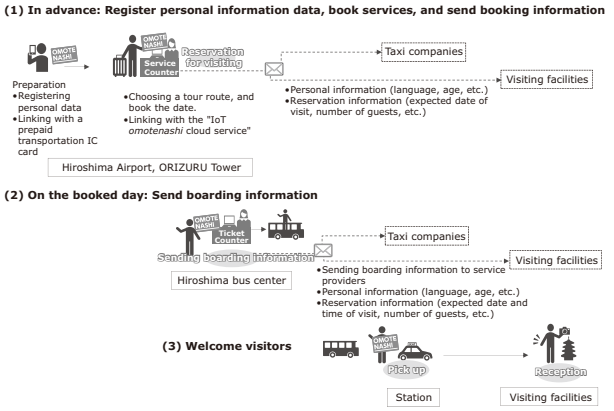

Fig. 4 Outline of the Hiroshima demonstration experiment service flow.

cloud service project" (**Fig. 4**).

The demonstration experiment was held over a month and about 50 foreign visitors participated. Some of the sightseeing spots have managed to acquire more foreign visitors than expected, and some visitors joined an overnight guest house trial tour. The demonstration showed that visitors will change their journey plan if they discover another attractive event. To provide such attractive events and acquire more visitors, collaborative work by various companies is essential, as well as work to promote the attractions of an area.

Even though many aspects of the IT infrastructure required improvement for making services more convenient to visitors, the project provided local business owners with a valuable demonstration on how visitors travel around an area. The demonstration experiment has provided us with a model that offers solutions for attracting visitors and increasing tourism consumption.

5. Blueprint for Developing Cities

Foreign visitors to different places in Japan are viewed as a way to deal with several social issues arising from local depopulation. Their presence may create more employment and help to maintain various service industries, etc.

Currently, various environmental options have already been prepared, such as Wi-Fi services run by local municipalities, multi-language services, establishing a Japanese version of DMO (Destination Management Organizations), and developing the sightseeing resources led by commercial enterprises.

At the same time, we have to take into account the fact that the tourism industry involves many different types of companies and institutions such as transportation, accommodations, retailers, facility operators, municipal offices, etc. In order to promote the tourism industry, collaborative linkages among such companies and governmental offices, etc. are essential. Foreign visitors' preferences change quickly. Understanding them via social media or behavioral histories will make it possible to develop effective promotions for different targets. Preparation of suitable environments including those for transportation and language services arranged to welcome foreign visitors will also be useful.

The demonstration experiment at Hiroshima in 2017 was held under the leadership of transportation companies that are contributing to local people's everyday transportation needs. We consider that this demonstration experiment will be a good example of a company collaboration service for those areas that will acquire more visitors. Tourism consumption will also increase in these areas by transporting more visitors to the attractive sightseeing sites of specific areas. At the same time, personal information data of individual foreign visitors may be used by companies to provide order-placed services for each visitor. Ultimately, the satisfaction level of foreign visitors will increase, which may result in a favorable circulation of returning guests.

This use case can be developed for not only buses and taxies but also for on-demand transportation systems, car sharing services and for linkages with primary transportation networks. Moreover, it can be employed for domestic tours by Japanese travelers, and to provide local soft infrastructure services to residents.

Information for the use cases includes transportation service schedules, delay information, and the schedules of various events hosted by the local municipalities, etc. By handling various kinds of local information, implementation of transportation services of many kinds will be possible.

Besides such advanced local transportation services, it is essential to implement "One to One" promotions that will dispatch attractive messages aimed at foreign visitors.

Travel methods are shifting more and more from package tours to independently arranged tours. In this regard, approaches that actively use social media via individual smartphones will be of key influence for "One to One" promotions.

6. Conclusion

By focusing on the behavior of foreign visitors, the present paper offers solutions to the various challenges that impede smooth human flow from outside an area and it thereby promotes consumer demand within an

area. The project proposes the local slogan "stay another night in the area" and "enjoy more shopping in the area".

Moreover, in preparing for the future information society that will be led by individuals, the "IoT *omotenashi* cloud service project" can offer innovative initiatives for storing and using personal information data.

As we look ahead to the encroaching information distribution era, we will continue to contribute to local revitalization schemes, while exploring the needs of the project stake holders involved in community and city development.

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