

2020 Showcase—Providing Japan and the Rest of the World with State-of-the-art Technology for 2020

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Abstract

The international sporting events that will be held in Tokyo in the year 2020 will be seen as a great opportunity to showcase our new innovations to Japan and the rest of the world. The Feature Articles in this issue focus on the 2020 Showcase—a trial held by NTT Service Evolution Laboratories to introduce the new technologies we are developing in preparation for 2020 and to accelerate the introduction of these technologies into society. We will also introduce some of the business aspects of this initiative.

Keywords: 2020 Showcase, epoch-making service, social innovation

1. Introduction

The major sporting events to be held in Tokyo in 2020 are expected to provide a major boost to Japan's economic recovery. These events will give us a chance to showcase Japan's information and communication technology (ICT) to the rest of the world, and by enhancing our ICT services and infrastructure, we hope to impress visitors from around the world with our technological prowess. They will also create a diverse legacy including an improved social infrastructure and the creation of new business, which will continue to create new opportunities in the future. The Cabinet Office is also actively involved in preparations for the games and is undertaking various studies by creating a task force concerned with science and technology innovation [1].

At NTT's laboratories, we are researching and developing a wide range of technologies for 2020, including new information display technology based on innovative user interface and media technology, and stress-free mobility assistance technology based on the analysis of big data. In particular, at NTT Service Evolution Laboratories, we are conducting research and development (R&D) to promote themes such as shared excitement, optimal navigation, supported growth, and user-friendly service design with

the aim of providing visitors to Japan in 2020 with an unparalleled level of hospitality and service [2].

In addition to our R&D efforts, we are also working to verify the results of our R&D and promote the spread of this technology by collaborating with businesses in other fields to create and develop new value. The Feature Articles in this issue introduce the 2020 Showcase, an initiative aimed at holding public demonstrations where people can experience this new technology for themselves in venues such as airports, railway stations, stadiums, museums, art galleries, and exhibition halls. Some of the current business trends are also discussed.

2. 2020 Showcase

For the 2020 Showcase, we aim to hold practical field tests with potential business partners, and we also aim to construct case and role models. The fields in which we will conduct demonstration tests are being strategically chosen based on a consideration of the flow of tourists visiting Japan, their preferences/interests, and their consumption habits (**Fig. 1**). This article discusses the characteristics of each field and the technologies that will be needed for 2020 and introduces the work that we are doing to address these needs.

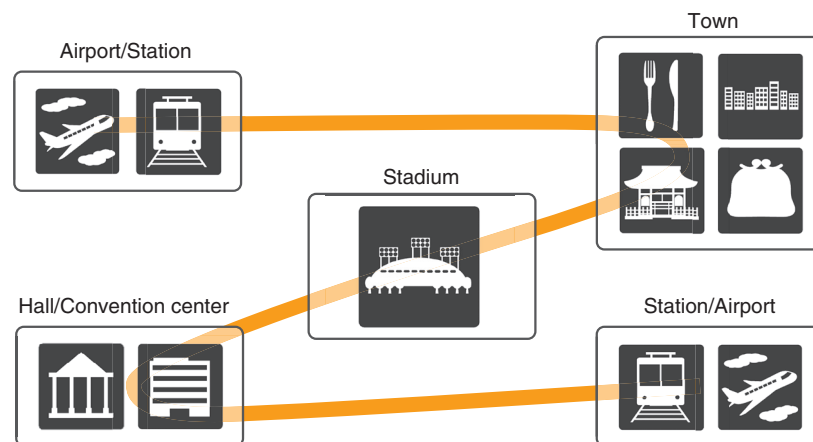


Fig. 1. 2020 Showcase demonstration test fields.

2.1 Airports and stations

The first place people see when visiting Japan is the airport. They may also frequent train stations during their travels. As gateways to Japan, airports and train stations require technology that makes it easy for foreigners to access information despite the language barrier and the cultural differences associated with activities in unfamiliar places such as traveling and eating out.

To address these issues, we are developing technology that can provide information via an augmented reality interface by using technology that can recognize images and other objects and technology that can present information such as maps and routes clearly and concisely, both indoors and outdoors, with clear voice guidance and signs to guide the flow of crowds. We are also conducting demonstration tests at key locations in Japan, including Haneda Airport and Tokyo Station. For further details, including details of a test we are conducting in collaboration with NTT DATA at Namba Station, see the article “2020 Airport/Station—Hospitality for Foreign Visitors at Airports and Train Stations” [3] in this issue.

2.2 Towns

Eating Japanese cuisine, sightseeing, and shopping are some of the top activities that foreign visitors want to experience in Japan. Food and drink outlets in urban areas need to be able to display information in a way that is accessible not only to a growing number of foreign tourists but also to Japanese people with particular needs such as the elderly. There is consequently a need for technology that can transform existing content into a representation that can be eas-

ily understood by customers, not only according to the aims of these services but also to the age and other personal attributes of their customers.

To address these issues, we are developing technology that automatically transforms the designs of existing web content according to the attributes of customers, and technology that automatically creates supplemental information. Further details can be found in the article “2020 Town—Web Design Converter for Providing Guidance Assistance to Individuals in Cities” [4].

To develop stronger customer interaction in tourist areas and local shopping malls, there is a need for technologies and systems that can stimulate communication and provide support for suitable guidance and customer actions after an ad hoc appraisal of the customer’s situation and requirements. To address these issues, we are developing technologies that facilitate collaboration via the cloud between various devices such as sensors and communication robots. We are also promoting demonstration tests in cities and other places where people gather in large numbers. Further details, including a discussion of the tests we are conducting jointly with NTT Communications and NTT EAST, can be found in the article “2020 Town—Developing MACHINAKA Service, a Device Integration Service that Utilizes Artificial Intelligence Technology” [5].

2.3 Stadiums

At international sporting events, large numbers of visitors including foreign visitors and first-time spectators make their way to a stadium. There is therefore a need for technology that can help people move

around efficiently and safely even at crowded, large-scale events. Also, for spectators in remote locations, it is important to convey the atmosphere inside the stadium and to bring a sense of excitement and unity to them that is similar to what the spectators at the stadium are experiencing. This calls for the development of ultra-realistic services that allow people in different locations to feel as if they were actually present in the stadium.

We have been developing techniques for predicting and guiding the flow of crowds of people, and immersive telepresence technology for the realization of real-time ultra-realistic broadcasting. We are also conducting experiments to demonstrate how the flow of crowds at event venues can be predicted and controlled [6] and immersive telepresence experiments that simulate live broadcasts. Details of our immersive telepresence technology can be found in the article “2020 Public Viewing—*Kirari!* Immersive Telepresence Technology” [7] in this issue.

2.4 Halls and convention centers

Since foreign visitors to Japan will want to make the most of their time in this country, it is assumed that they will also make their way to event halls and conference centers in order to participate in various cultural events and exhibitions. At the venues of events and exhibitions, there is a need for technologies and systems to support trouble-free viewings and visits, and technologies to enliven the events themselves with various types of stagecraft. There will also be a need for technologies and systems that support event operators such as displaying in real time the usage status of networks and applications.

With these issues in mind, we have worked at expanding the enjoyment of kabuki theater and providing completely new kinds of kabuki performances by fusing the latest ICT with traditional performing arts. We have also worked to enable people to experience the latest technology through official applications at NTT R&D Forum 2016 held in February 2016. Further details can be found in the article “2020 Entertainment—A New Form of Hospitality Achieved with Entertainment × ICT” [8], and “2020 MICE—New Hospitality through Exhibitions × ICT” [9].

3. Future development

A key point in promoting the 2020 Showcase has been collaborating with other businesses in different

fields. For more details, see the article “Promotion of Co-innovation through Collaboration with Different Business Sectors” [10].

To create epoch-making services to support the events of 2020, the NTT Group will continue with R&D in new collaborations with different industries, promote the incorporation of these services in society in general, and create a legacy that will continue into the future.

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