More and more visitors from abroad have been coming to Japan annually up to 2010 since the Visit Japan Campaign (VJC) kicked off in 2003, and it is hoped that these visitors will form a new segment of railway users. However, many visitors are saying that the Japanese railway system and the configurations of stations are complicated and confusing, which has highlighted the need to enhance guidance services for such customers. Taking this situation into account we have used this research to evaluate methods for appropriate guidance and information services to visitors from abroad traveling in Japan. First, we implemented a study on the information needs of visitors from abroad, focusing on line maps as they are particularly necessary to travelers. We examined the current problems and considered proposals for improvements. Then we studied the acceptability of revised (improved) line maps and put forward a proposal on the optimum guidance method.

**Keywords:** Visitors from abroad, Information service, Line map, Station numbering

### 1 Introduction

More and more visitors from abroad have been coming to Japan annually up to 2010 since the Visit Japan Campaign (VJC) kicked off in 2003, excluding 2009, when economic downturn was precipitated by the Lehman Brothers bankruptcy. A future increase in visitors from Asian countries, China in particular, is also predicted. We can therefore expect visitors from abroad to make up a new segment of railway users.

Various efforts are being made in guidance and information services for visitors from abroad when traveling by railway. Those include installation of guide signs in four languages (Japanese, English, Chinese [simplified] and Korean) and the introduction of station numbering (an alphabet initial of the station name combined with an identifying number) mainly on lines of private railways in the greater Tokyo area, and provision of onboard announcements in English. Nevertheless, many visitors from abroad are still saying that the Japanese railway system is incredibly complicated and confusing and that necessary information is not provided.

Consequently, this research was carried out to study the guidance needs of visitors from abroad when using railways in Japan and verify the optimum guidance methods.

### 2 Characteristics of Visitors from Abroad

According to a report by the Japan National Tourism Organization (JNTO), the number of visitors to Japan from abroad in 2010 was 8.61 million people. The percentage of those whose native language is English, Chinese (simplified or traditional Chinese) and Korean out visitors from the 15 countries covered by the VJC amounted to 90.8 percent, showing that they make up the majority of visitors from abroad (Fig. 1).

A breakdown by prefecture of travel destinations shows that Tokyo is the top destination with some 60 percent of visitors from abroad. When extrapolated out by city and tourist spot destinations, the figures further show that many of the top destinations are concentrated within the Yamanote Line, the Tokyo Metro and Toei Subway areas (Table 1).

Therefore, for this research, we narrowed down our target to visitors from abroad whose native language one of the aforementioned four languages, and we studied the needs of those visitors for guidance services when using railways in Japan.

### 3 Study on Needs of Visitors from Abroad

#### 3.1 Study Outline

The study covered adult (over 18 years old) visitors from overseas to Japan who use English, Chinese (simplified and traditional) or Korean as their native language (total sample of 574 respondents). Surveys were conducted onboard the Narita
Express and after debarking trains at JR Narita Airport Terminal Station, with respondents being asked about their usage and evaluation of guidance services when using railways during their stay in Japan. Respondents were also surveyed to ascertain their level of awareness about the initiatives being taken for visitors from abroad by JR East (Table 2).

### Table 2 Survey Outline

<table>
<thead>
<tr>
<th>Questionnaire survey</th>
<th>Inside JR Narita Airport Station</th>
<th>Onboard Narita Express</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey targets</td>
<td>497 Samples (Respondents)</td>
<td>77 Samples (Respondents)</td>
</tr>
<tr>
<td>(N=574)</td>
<td>Able to read or speak</td>
<td>Neither</td>
</tr>
<tr>
<td><strong>Japanese</strong></td>
<td>38.2</td>
<td>61.8</td>
</tr>
<tr>
<td><strong>English</strong></td>
<td>87.9</td>
<td>12.1</td>
</tr>
</tbody>
</table>

![Fig. 2 Sample Attributes](image)

The survey was used to inquire about the following:
1) Usage of guidance services when using railways
2) Difficulty in understanding information when using railways
3) Awareness about JR East’s services for visitors from abroad

### 3.2 Survey Results

#### 3.2.1 Usage of Guidance Services When Using Railways

When using railways, the top guidance services used by visitors from overseas were line maps, guidance signs when looking for entry/exit or changing trains, line colors on line maps, and LED departure information boards. Those were followed by onboard LCDs also being referred to. Notably, some type of line map was used by more than 90 percent of visitors from abroad in all languages during their stays in Japan. This confirms that line maps are an important source of information to visitors from overseas (Fig. 3).

![Fig. 3 Information Sources When Using Trains](image)

Regarding information on line maps that was used, visitors from abroad emphasized the importance of English or their native language being used for station names and the importance of train line colors. In the case of train line colors, the colors could be used intuitively to easily recognize and select a rail line to reach the desired destination regardless of native language, even if visitors’ native languages were shown. Moreover, even if the native language was not shown, the survey also revealed the tendency for those whose native language was Chinese (simplified and traditional) to use the Japanese kanji character notation because is are readily understandable. Korean visitors, many of whom understand English, made use of English notation. However, a breakdown of the visitors who used station numbering shows that only 28.1 percent of English users, 16.2 percent of simplified Chinese users, 13.1 percent of traditional Chinese users and 20.9 percent of Korean users used those, which is low in all cases and suggests that the need for station numbering is not very high (Fig. 4).

![Fig. 4 Information Referred to on Line Map](image)

### 3.2.2 Difficulty in Understanding Information When Using Railways

Survey inquiries about the difficulty in understanding information when using railways prompted many responses about the difficulty in understanding items such as number of transfers required to reach the destination, location of line and/or platform to be used, route to be taken from departure station to destination station, fare to destination and required travel time to destination. Notably, respondents in all languages brought up most the issue of number of transfers required to reach the destination (Fig. 5).

![Fig. 5 Items Difficult to Understand in Information When Using Trains](image)

Regarding difficulty in understanding information, dissatisfaction was evident in all attributes with regard to excessive listing of stations on line maps and fare charts (Fig. 6). These responses suggest the need for changes in the methods used to display information at stations in order for visitors from abroad to easily
find destination stations on line maps and fare charts.

While many English users noted the difficulty in understanding displays just in Japanese, others noted that they could get by even without their native language. Chinese users were able to understand Japanese (kanji) notation and Korean speakers able to understand English notation to some extent.

Regarding awareness of services (products) for visitors from overseas provided by JR East, English, simplified Chinese and Korean users were most aware of “Suica & N’EX” (package including Narita to Tokyo train ticket and rechargeable contactless smart card for other rail travel). Traditional Chinese users, on the other hand, were most aware of the JR East website (Fig. 7). Yet, apart from 53.8% of traditional Chinese users being aware of the JR East website and 61.4% of Korean users being aware of “Suica & N’EX”, all other JR East initiatives registered awareness levels below 50%, which means that our implemented initiatives have not sufficiently reached visitors from abroad.

Amidst this lack of awareness, the “Welcome to JR EAST” booklet we publish stands out as being hardly known, with only a 20.9% awareness rating. This suggests that the booklet (including a JR East line map) is not reaching visitors from abroad.

3.3 Issues in Current Situation and Needs of Visitors

Based on the results of the survey, we compiled the following list of guidance service issues and needs in relation to visitors to Japan.

(1) Guidance service issues

(a) Handling foreign languages
- Many people still say that there are not enough guidance signs.
- Displays written just in Japanese cannot be understood (especially by English users).

(b) Difficulty in understanding line maps
- Many people say that the number of transfers needed to reach a destination and required time are not clear.
- The transfer method is confusing (particularly in cases where different railway companies are involved).

(C) Low penetration rate of JR initiatives
- Many visitors do not know about discount services/tickets (JAPAN RAIL PASS) for visitors from overseas.
- Destination station and/or line cannot be found because of excessive data on maps.
- Font size is small and difficult to read.

(d) Points that confuse visitors about Japan’s railway system
- Many people still say that there are not enough guidance signs.
- The level of awareness is low for JR initiatives such as “Welcome to JR EAST” and other pamphlets and the Travel Service Center.

(2) Needs of visitors from abroad

- Visitors would like to have line maps in color.
- Visitors would like guidance in their native language and have native language and Japanese both displayed on line maps.
- Visitors would like to be able to easily find out how to purchase tickets and how much the fares are.
- Visitors would like to be able to get information from a website in advance.
- Visitors would like guidance in their native language and have native language and Japanese both displayed on line maps.
- Visitors would like to have line maps in color.
Taking into consideration the results of the survey, we formulated some tentative ideas that will hopefully be greeted as effective approaches to creating guidance methods. We then verified their appropriateness, introduction costs, etc. (Fig. 9).

1) Improvement of line maps (paper base)
⇒ A high proportion of visitors refer to paper line maps while in Japan.
Visitors have difficulty finding stations and lines on current line maps, so maps need to be improved.

2) Offering information via website
⇒ A high ratio of visitors gathers information via the Internet prior to coming to Japan.
We can implement various initiatives such as those to promote understanding of how to use the Japanese railway system and to promote the use of Suica. However, awareness of the JR East website is not very high.

3) Touch panel guidance terminals
⇒ We need to make it possible for visitors to search for routes without having to look for a destination station on a complicated line map. Also, fares need to be made readily obvious despite the confusing fare system (Fig. 10).

4) Guidebooks
⇒ Visitors refer to guidebooks before coming to Japan.

5) Promoting use of Suica and discount tickets for visitors from abroad
⇒ Using Suica and/or discount tickets would reduce the need to search for the destination on a line map, and it make train travel possible without the need to know fare system.

Regarding those five methods, we substantiated content raised as line map needs, and we decided to further study issues related to the acceptability of our tentative ideas for guidance methods for effective ways of getting information in 1), 2) and 5) as well as for the content that should be provided in 2), 3), 4) and 5).

Fig. 9 Guidance Methods for Visitors from Abroad (Draft)

Of those guidance methods, the following are five examples that we believe should be given top priority.

1) Improvement of line maps (paper base)
   ⇒ A high proportion of visitors refer to paper line maps while in Japan.
   Visitors have difficulty finding stations and lines on current line maps, so maps need to be improved.

2) Offering information via website
   ⇒ A high ratio of visitors gathers information via the Internet prior to coming to Japan.
   We can implement various initiatives such as those to promote understanding of how to use the Japanese railway system and to promote the use of Suica. However, awareness of the JR East website is not very high.

3) Touch panel guidance terminals
   ⇒ We need to make it possible for visitors to search for routes without having to look for a destination station on a complicated line map. Also, fares need to be made readily obvious despite the confusing fare system (Fig. 10).

4) Guidebooks
   ⇒ Visitors refer to guidebooks before coming to Japan.

5) Promoting use of Suica and discount tickets for visitors from abroad
   ⇒ Using Suica and/or discount tickets would reduce the need to search for the destination on a line map, and it make train travel possible without the need to know fare system.

5.1 Study Overview
Concerning the tentative ideas for guidance methods in this study, we conducted group interviews and Internet surveys to verify the acceptability of each of the guidance methods.

For the major verification items we studied in the following flow:
- Specific expressions (wording) to improve line maps
- Effective ways of bringing line maps, the website, Suica and discount tickets for visitors from abroad to the attention of visitors
- Content that should be offered via website, guidance terminals, and guidebooks

I. Group Interview
- Usage of public transport, evaluation of guidance services and points of dissatisfaction
- User-friendliness and improvement points of tentative guidance methods

II. Internet Survey
- Quantitative substantiation based on the results of the group interviews
5.2 Improvement of Line Map

In the survey, we created two proposals (P and Q) for line maps reflecting the results of the questionnaire, and then we asked for opinions about the acceptability of proposals P and Q.

The features of the two line map proposals are as follows.

(1) Proposal P (Fig. 11)

1) Mainly stations within Tokyo are shown.
2) Stations heavily used by visitors from abroad were given prominence by highlighting them in outline letters.
3) An index was provided on the right side of the map to show stations that visitors from abroad frequently use and transfer stations (for example, Shinjuku ⇒ B3).
4) Icons depicting landmarks were displayed on the line map (for example, Tokyo Tower).

(2) Proposal Q

In addition to the ideas used in proposal P, proposal Q limited station names on the map and in the index display to just transfer stations and stations frequently used by visitors from abroad.

5.3 Group Interview

5.3.1 Survey Overview

We conducted group interviews about the acceptability of the tentative ideas for guidance methods. The respondents were as follows (Table 3).

<table>
<thead>
<tr>
<th>Survey targets</th>
<th>Group interview survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey period</td>
<td>Nov.27, Dec.2, 2011</td>
</tr>
<tr>
<td>Survey targets</td>
<td>Newly arrived visitors from abroad: 12 samples (English: 3, Simplified Chinese: 3, Traditional Chinese: 3, Korean: 3) Implemented in four groups by native language</td>
</tr>
</tbody>
</table>

5.3.2 Survey Results

The following are typical opinions that we compiled from the interviews.

(1) Information gathering prior to visit to Japan

- Personal blogs were browsed for information on Japanese railways (Korea, China and Taiwan).
- Americans were not that interested in collecting information prior to traveling.
- The JR East website is assumed to be only in Japanese (Korea).
  ⇒ We need to notify visitors that the JR East website has pages in various languages so they will be properly aware of what information is available.

(2) Tickets for visitors from abroad and Suica

- Respondents would like to find out about the existence of and how to use Suica prior to their visit to Japan (all nationalities involved in interview).
- Respondents would like to see Suica being introduced in guidebooks printed in their country (Taiwan).
- Respondents would like to be able to purchase Suica in their countries in order to be able to use them as soon as they arrive in Japan (USA, Taiwan).
  ⇒ We need to promote awareness of Suica together with the JR East website and offer basic information related to Suica.

(3) Content and timing of information offered

- Respondents would like all information to be in video format (China).
- Respondents would like to see staff who can speak their native language to be available in stations (China, Taiwan).
  ⇒ Respondents were highly satisfied with the content and timing for tentative methods of offering information. The next issue is to consider how such measures can be implemented.

(4) Evaluation of new line map

- If traveling in Tokyo, the new line map has sufficient information and stations are easy to find because of the landmark icons.
- The index did not go over well (China, Korea, Taiwan).
- Nearly all opinions stated that information was too limited in Proposal Q.
- Other requests included highlighting transfer stations and notation in both English and Japanese.
  ⇒ Some respondents also wanted to see JR lines displayed with Tokyo Metro lines, but other opinions noted that such a combination should not be too complicated
  ⇒ Trial Line Map (Proposal P) was well accepted as being easy to understand and simple (icons also appreciated).

5.4 Internet Survey

5.4.1 Survey Overview

Based on the results of the group interviews, we conducted an Internet survey in order to provide some quantitative support to back up the interview results and in order to verify the evaluations of the new line map. The survey period and respondents are as follows (Table 4).
5.4.2 Survey Results

(1) Necessary information, appropriate information gathering medium, timing of gathering

As to the timing of gathering information related to travel by train, the major response was “before visiting Japan”. And, of the 19 questions asked, more than 30% of respondents in 12 of the categories stated that they gathered information prior to visiting Japan (Fig. 12). Those who gathered information upon arrival at a Japanese airport tended to want approximate information about how to actually use trains. For example, 32% wanted to know how to travel by train/change trains, 30% wanted to know how to purchase tickets, 30% wanted to know how to view guidance signs, and 32% wanted to know routes to destinations. As for gathering information at stations used as bases for activities and visits to places, results showed that respondents mainly wanted practical information about riding trains, such as the number of transfers required in a journey and the travel time.

Furthermore, in response to the question about what media is useful gathering useful for gathering required information, figures were high for sources such as guidebooks, tourist pamphlets, free newspapers, official websites of companies and the like, personal blogs, and airport/train station information centers. Respondents from non-English-speaking countries actively gathered information in advance; notably, Korean respondents showed the strongest tendency to do this. As sources for gathering information prior to visiting Japan, the main ones were personal blogs and guidebooks. Visitors from English-speaking countries tended to be less interested in gathering information, and their gathering media were spread across many sources. They also tended to show some interest in obtaining information from guidance terminals and guidance signs.

(2) Acceptability of new line map and requests regarding its improvement

As to ease of use of the new line map, 75% of respondents viewed it favorably, saying that it was easier to use than the current line map (Fig. 13).

Notably, among the responses, 88% of Koreans were very pleased with the new map.

The new map was highly rated for all five points implemented to improve the current line map, with more than 80% of respondents favorably viewing content such as the use of just stations in Tokyo and the highlighting of stations frequently used by visitors from abroad.

Many of the requests for improvements to this new line map included use of both English and Japanese, inclusion of lines (such as Tokyo Metro) other than JR, giving a sense of distances, and making lines for access to the airport easier to find. As for the use of native languages along with Japanese, nearly half of the respondents stated they would like that if possible. However, only 8% were of the opinion that it was absolutely necessary. And, in common with this sentiment, the majority of opinions showed positive feeling about the use of Japanese along with other languages.

Table 4  Internet Survey Outline

<table>
<thead>
<tr>
<th>Timing of information gathering</th>
<th>Media considered useful for gathering necessary information when using trains</th>
</tr>
</thead>
</table>
| Necessary before visiting Japan  | Timetables, Railway stations, centre guides, tourist pamphlets, personal blogs, site, |}

---

Fig. 12 Necessary Information, Appropriate Gathering Medium, Timing of Gathering
From the results obtained in this survey we have compiled the following about appropriate guidance methods and the future outlook in relation to visitors to Japan from abroad.

[Line map]
- Line maps are referred to very frequently during visits to Japan, suggesting that they are an effective form of communicating information.
- There is dissatisfaction about the difficulty in finding destination stations with the current line map because it is overcrowded with station names.
- Based on the problems found with the current line map, a new one was compiled, which was viewed highly by respondents. Therefore, it would be a good idea to proceed with a project to improve the line map based on the essential elements in the new line map.
- Improvement requests for the trial line map include display of Tokyo Metro lines also and display of native language alongside Japanese.

⇒ Although demand for addition of Tokyo Metro lines is strong, a new approach will be required, as the line map would become more complicated and harder to understand. Several variations of trial line maps should thus be produced, varying the layout of the Tokyo Metro lines and the languages used, with the maps then being actually evaluated by visitors before introduction.

[Effective ways of gaining information and the content that should be offered]
- There is a strong demand for information prior to visiting Japan.
  ⇒ Information must be provided not just via website but also in travel agency pamphlets. In particular, many respondents would like to see information about tickets for visitors from abroad included in pamphlets.
- With regard to websites, there is strong demand for gaining information from personal blogs in addition to official websites (especially Koreans).
  ⇒ Consideration needs to be given to initiatives for making use of personal blogs.
- The JR East line map needs to be included in guidebooks in addition to the website.
  ⇒ Consideration needs to be given to providing information to guidebooks published in all the relevant countries.
- Greater effort should be made to highlight the appeal of Suica in that using it removes worries about searching for fares and changing trains so as to spur further sales of the product.
- Other initiatives highly demanded were making a pocket-size version of line map easily available, providing instructions on how to use ticket vending machines, and giving guidance for visitors on moving around inside stations, so we need to deal with those.
- The content that should be provided and optimum timing for making such content available are compiled in Fig. 14.
We need to be able to provide at appropriate timing the information desired by visitors from abroad, and information requirements differ depending on the nationality of the visitor. We therefore plan to continue our study on how to provide optimum guidance methods based on the knowledge gained from this survey.

Figure 14: Content and Timing of Information Offered

<table>
<thead>
<tr>
<th>Prior to visit</th>
<th>At airport</th>
<th>At station</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Strong need for official site to introduce various railway networks and blogs to talk about how to use trains</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Koreans on the whole are strongly inclined to use personal blogs. This inclination is relatively strong in China too.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guidebook</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Summary of Japan railway use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- How to travel by train (how to transfer, etc.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Providing information on tools to help travel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Availability of Suica</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- How to use/buy Suica cards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Line map (strongest inclination is for map in guidebook)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Information on discount tickets for visitors (strong inclination for information in guidebook and travel agency pamphlets)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Checking route intend to use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Route/number of transfers/travel time from departure to destination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- How to use ticket vending machines</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- How to view (decipher) guidance signs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pamphlet/newspaper</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Summary of Japan railway use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- There are different types of trains</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- How to use ticket vending machines</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information desk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Summary of Japan railway use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- How to view (decipher) guidance signs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guidance terminal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Providing tools to help travel</td>
<td></td>
<td></td>
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<tr>
<td>- Availability of Suica</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- How to use/buy Suica cards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Line map</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Information on discount tickets for visitors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guidance signs inside stations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Summary of Japan railway use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- How to use ticket vending machines</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Providing tools to help travel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--Line map</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Guidance on counters selling tickets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Fare guidance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Guidance inside destination station</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 14 Content and Timing of Information Offered

Reference:
1) Kokusai Betsu/Mokuseki Betsu Homon Gaikyaku Su [in Japanese] (Japan National Tourism Organization)
2) Honichi Gaikyaku Homonchi Chosa 2010 [in Japanese] (Japan National Tourism Organization)