

‘JR East App’ for Smartphones

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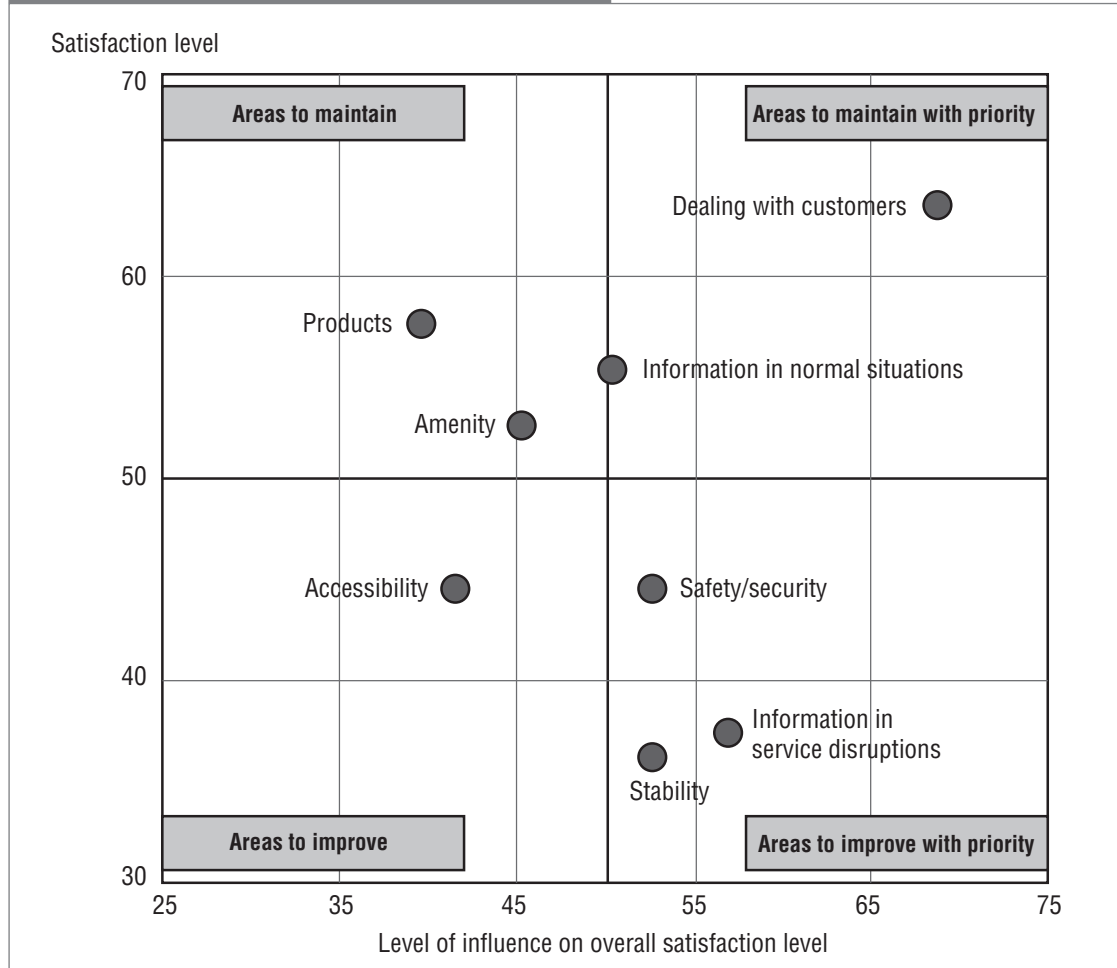
Introduction

The JR East Group Management Vision V (Five)—Ever Onward established in 2012 has Eternal Mission and Pursuing Unlimited Potential as its important keystones, and sets down three basic courses of action under each keystone. One course of action is service quality reforms where we aim to be ‘No. 1 in customer satisfaction in the railway industry’. This article introduces the JR East App, a specific effort in service quality reforms released in March 2014.

Background to Providing Better Information

JR East has been surveying customer satisfaction since FY1997 to identify trends in how customers see the company overall. Surveys are broken down into eight types—safety/security, provision of information in normal situations, provision of information in service disruptions, stability, amenity, accessibility, dealing with customers, and products—where more than 100 items are evaluated on a five-level scale. Figure 1 summarizes the results of the FY2013 survey results.

Figure 1 Customer Satisfaction Level Survey Results



We can see that while the overall level of satisfaction for JR East is high for provision of information, satisfaction is not sufficient in terms of provision of information in service disruptions, making this a theme for urgent efforts. So far, JR East has provided operational information, etc., through means such as websites, train station displays designed to provide information in times of service disruptions, and on-board displays, but those deliver uniform information to all passengers in the same way. In other words, the needs of individual passengers were difficult to meet. The Consequently, the JR East app released in March 2014 was developed provide information according to the location and needs of individual passengers.

Features of JR East App

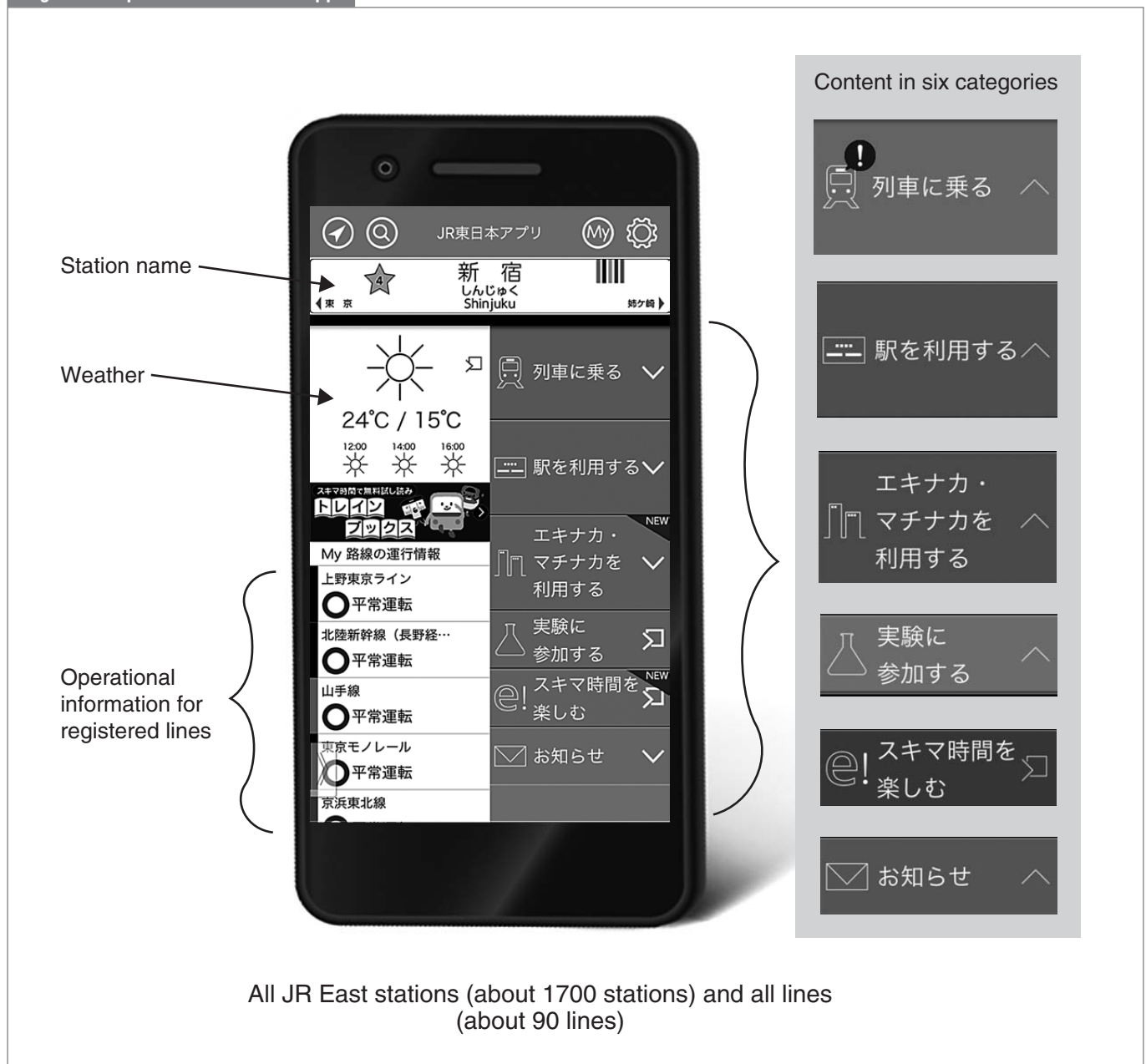
The goal of the JR East app is to give timely support using smartphones to provide information passengers need when using JR East. To meet this goal, a mechanism to display the necessary information on the app's top screen (Fig. 2) was created to allow quick access to individualized information.

Providing information according to location

The top screen concentrates information on a specific station. For example, if Tokyo Station is on the top screen, information on Tokyo Station is provided.

By using GPS-based location information from the

Figure 2 Top Screen of JR East App



smartphone, information on the JR East station closest to the user's location can be displayed on the top screen.

Easy access to information on often-used lines

Users can register up to 10 preferred lines so information on these lines, such as delays and cancellations, can be seen at a glance on the top screen.

Content names with usage in mind

In providing content, each content grouping must be arranged on the top screen in an easy-to-understand and well-balanced manner. The purpose of the app is to support use of JR East stations and trains with convenience and comfort from origin to destination. For this reason, phrases

such as 'ride train' and 'use station' are used based on passengers actual behaviour so as to provide images of when to view what information.

Content Overview

This section outlines the key content provided by the app.

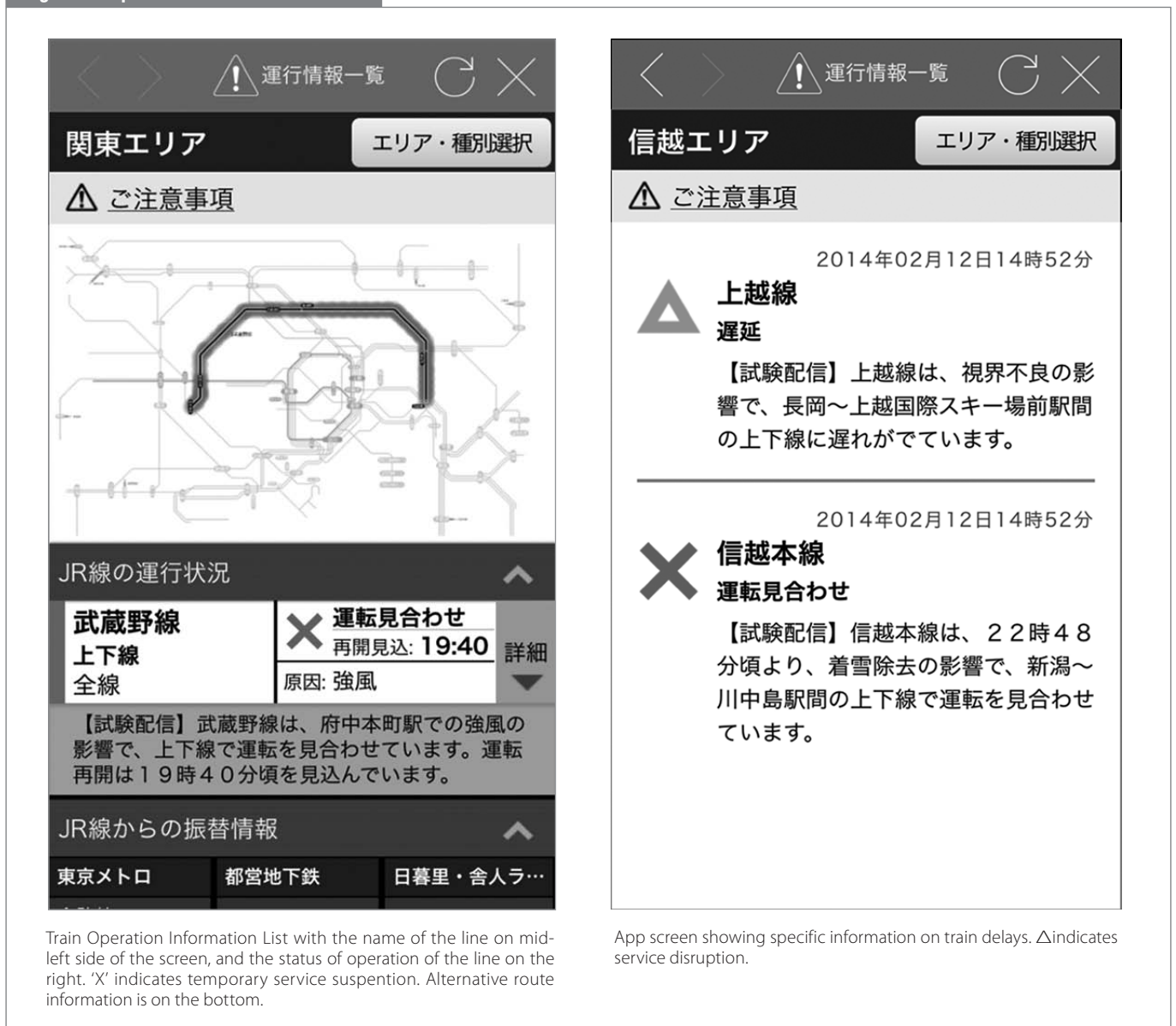
Railway-related Content

Ride Train

Operational Information List

This displays operational information for lines in the JR East area (broken down into Greater Tokyo, Tohoku, and

Figure 3 Operational Information List



Train Operation Information List with the name of the line on mid-left side of the screen, and the status of operation of the line on the right. 'X' indicates temporary service suspension. Alternative route information is on the bottom.

App screen showing specific information on train delays. Δ indicates service disruption.

Shin'etsu areas as well as shinkansen and conventional limited express lines) (Fig. 3). Information like that on train station displays at ticket gates of major stations in Greater Tokyo, can also be viewed on smartphones. These displays are designed to provide operational and alternative transport information on a route map at service disruptions so passengers can view operational information when they need it. For example, passengers can check for delays and other problems on lines they commute on before leaving home, allowing them to decide whether to go to the station or use a different means of transport.

The app has a function for zooming in and out of route maps and detailed operational information for registered lines can be set to be displayed from the start (as shown in

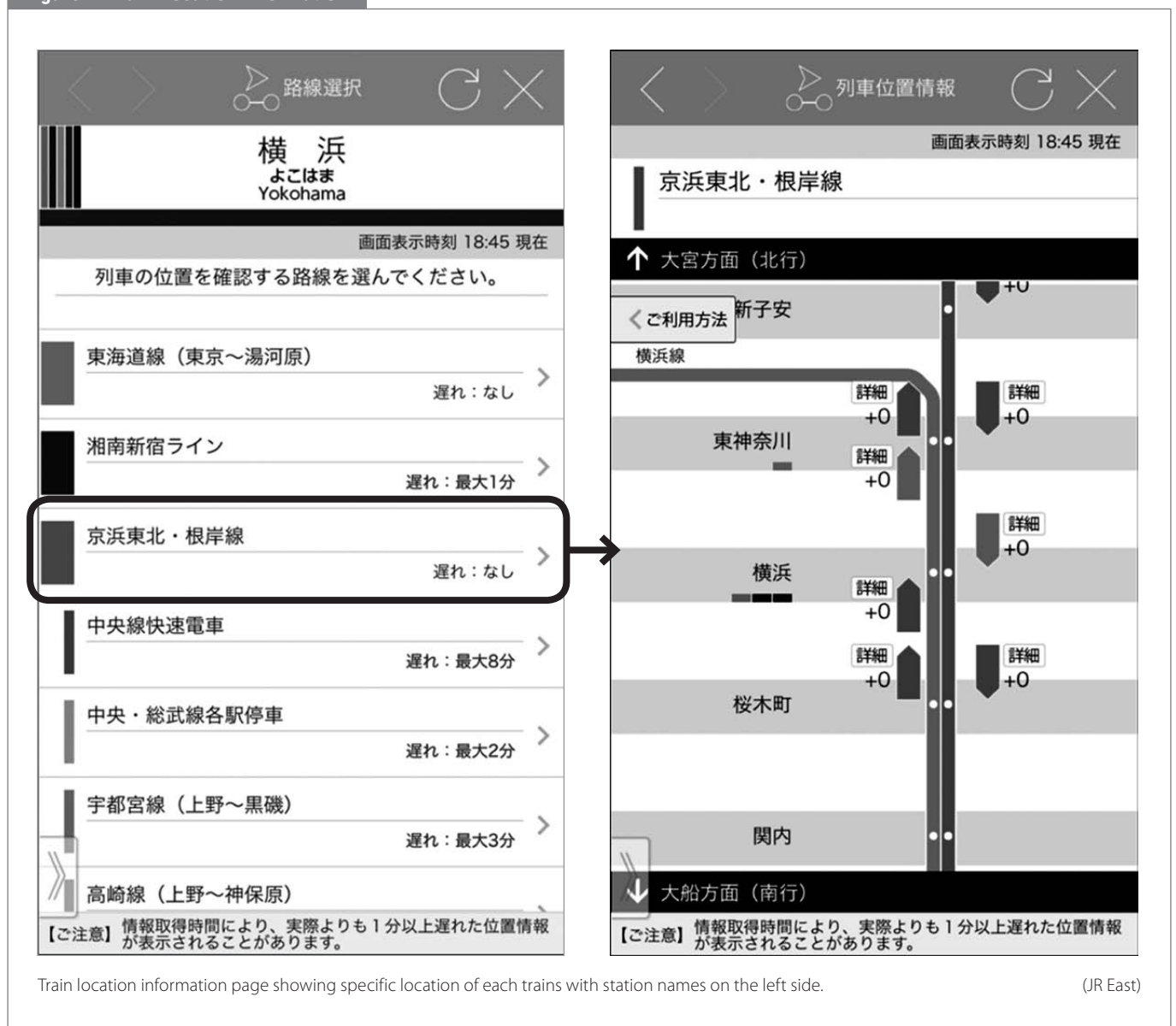
the example for the Musashino Line in Fig. 3), demonstrating the attention to user friendliness.

Train Location Information

Sections where individual trains are running and delays can be shown on a list for lines where information is provided (Fig. 4) As of October 2015, information is being provided for 11 lines in Greater Tokyo. Data from JR East's Autonomous Decentralized Transport Operation (ATOS) system is used when providing that information.

In this way, passengers can see, for example, where the next train is currently located when train delays occur. As a result, they can decide whether to keep waiting for the next train or use a different means of transport.

Figure 4 Train Location Information



Train location information page showing specific location of each trains with station names on the left side.

(JR East)

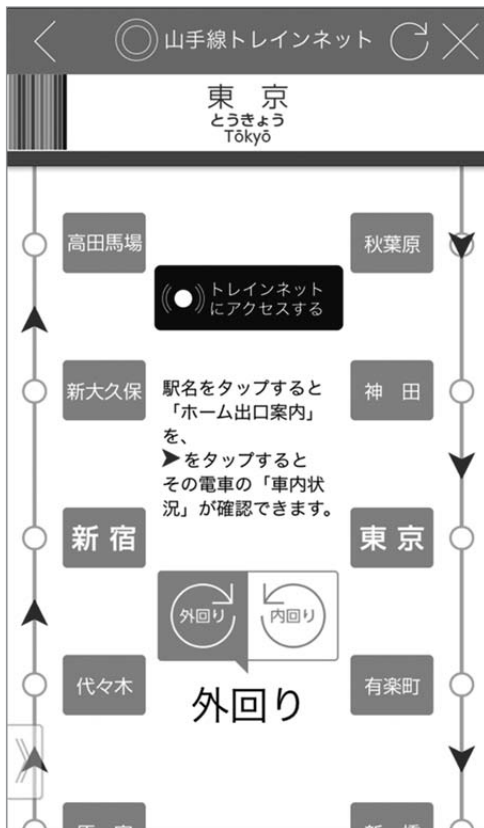
Figure 5 Yamanote Line Train Net



Train Net screen showing the next station on top with a list of stations on bottom with estimated time of arrivals and icons for station maps, etc. (JR East)



Screen showing congestion rate and temperature off each cars. (JR East)



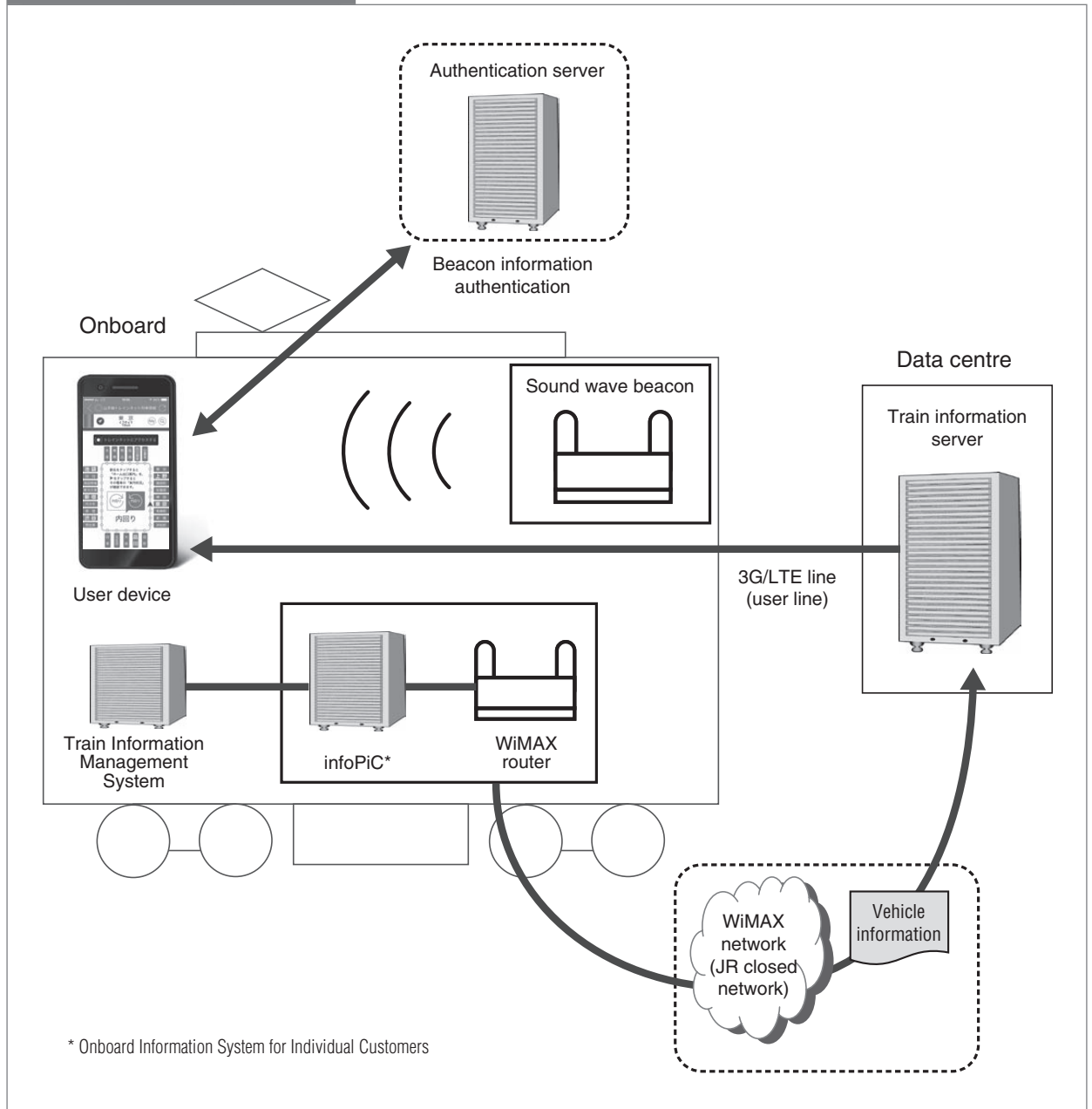
The app was also built so the station on the top screen is displayed automatically at the centre of the screen for the line being used. For example, Fig. 4 shows Yokohama Station at the centre of the screen when viewing train location information from the screen for Yokohama Station.

Future plans call for the function to also be deployed to other lines where operation is controlled by ATOS. Also, a similar service called 'Doko Tore' is being deployed for regional lines, and this service can also be used via the JR East App.

Yamanote Line Train Net

The Yamanote Line carries the most passengers of any of JR East line, and proving tests for the 'Yamanote Line Train Net' function for providing real-time information on-board were conducted twice previously. The function was added to the JR East App in light of favourable opinions

Figure 6 Yamanote Line Train Net



expressed in the tests. The function allows for passengers to view information on train stops (transfer lines, platform guidance maps, station maps) according to the on-train location of the passenger (car number) and section the train is in. Passengers can also see where on the Yamanote Line the train they are in (running train) is located as well as congestion level and temperature of individual cars (Fig. 5).

To provide the Yamanote Line Train Net service, devices emitting special sound waves (beacons) are installed in individual Yamanote Line carriages. When a passenger's smartphone microphone detects the sound emitted by

a beacon, information on the train (section travelling on, temperature, congestion level, etc.) is delivered for the specific train and carriage (Fig. 6).

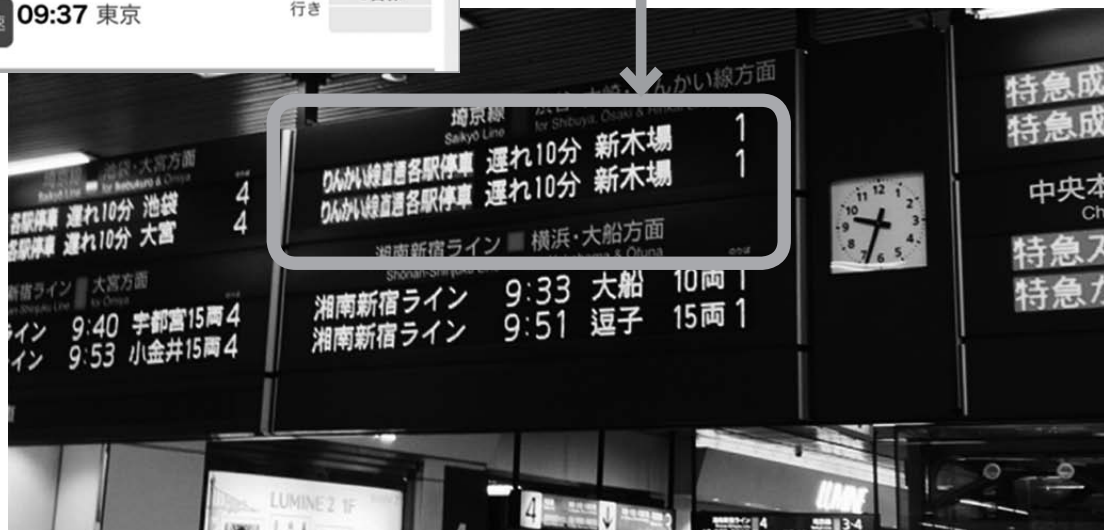
The Yamanote Line congestion level and carriage temperature can be viewed even from outside trains, so passengers can choose the train and carriage to ride.

Moreover, the Platform Guidance Map shows the position where individual cars stop on the platform each station to allow passengers to see at a glance where platform stairs and escalators are located and which stairway is closer to the ticket gate or more convenient for transfers.

Figure 7 Real-time Departure Guidance



Real-time train departure guidance showing same information (9:22 and 9:28 Saikyō Line trains bound for Shinkiba delayed for 10 min.) on smartphone app and station signage.



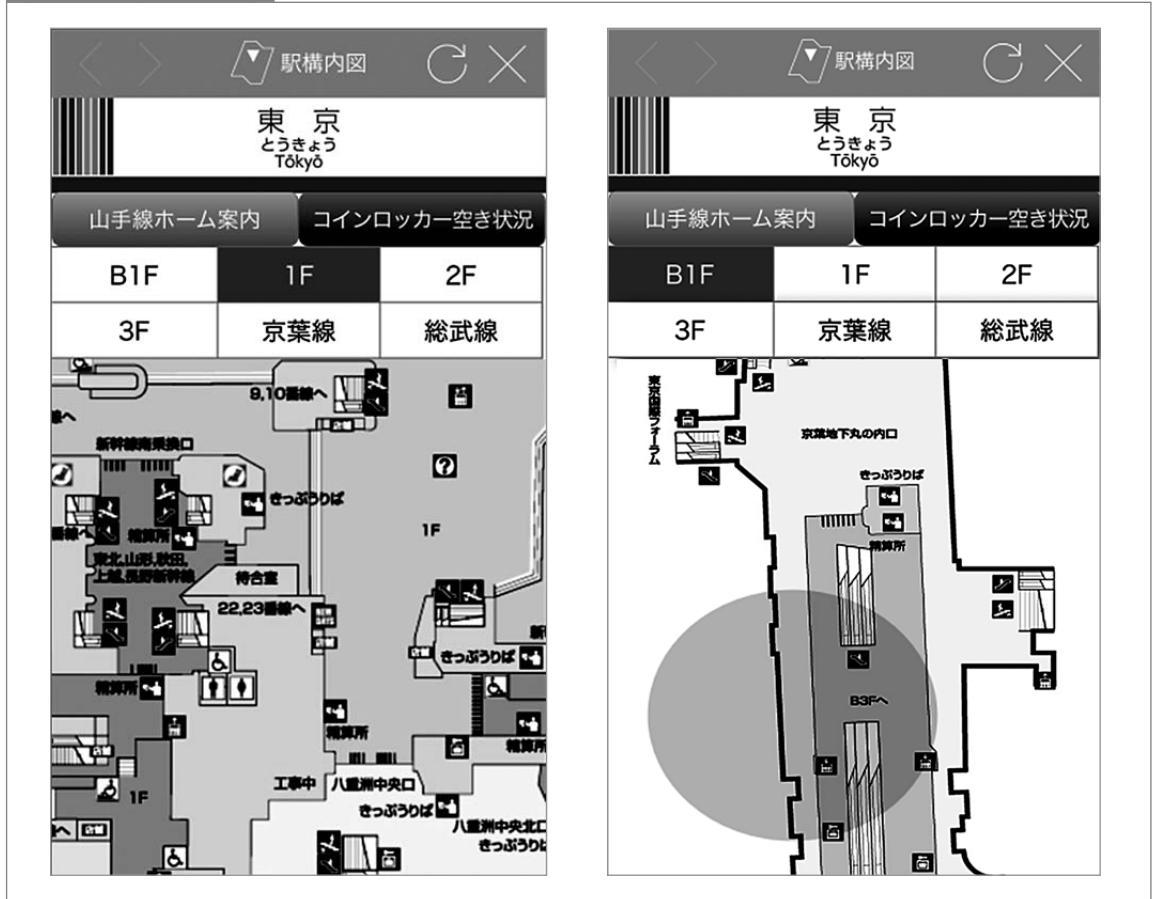
Real-time Departure Guidance

The Real-time Departure Guidance shows information such as destination, type of train, departure time, and track number displayed on station train information boards (Fig. 7). This is available for Tokyo, Shinagawa, Shinjuku and Ueno stations. It uses data from ATOS system to provide detailed information in real time, such as the length of delays. Thanks to this function, passengers can see the train departure time on their smartphones without going to

the concourse or ticket gate. As a result, they can spend time where they want in the station until just before their train departs, making more effective use of time.

The displayed information is updated automatically preventing old information being displayed. It is worth mentioning that the Narita Express airport line is handled specially; information is displayed a single line due to the strong need to check departure times and delays in real time for making connections to flights.

Figure 8 Station Map



Use Station

Station Map

This allows users to see the locations of platforms, stairs, escalators, elevators, and ticket counters at all JR East stations. While limited to Tokyo Station, users can also view shop information for the in-station commercial spaces from the station map (Fig. 8, left). Users of Android devices are able to see their current location in Tokyo Station based on location information from WiFi access points in the station. This enables them to navigate the station without getting lost. (Fig. 8, right).

Station Facility Guidance

The Station Facility Guidance shows information about Green Car and shinkansen ticket counters, View Plaza travel centres, and reserved-seat ticket vending machines. Users can also check whether or not there are elevators, escalators, coin-operated lockers, and the like at the station. This is available for all JR East stations (Fig. 9).

Coin-operated Locker Status

Coin-operated lockers using Suica IC cards have been introduced in recent years. Locker availability and location

Figure 9 Station Facility Guidance



Figure 10 Coin-operated Locker Status



Figure 11 In-station Commercial Space Information



can now be found from the app for Tokyo, Shinagawa, Shinjuku, and Ikebukuro stations at October 2015 (Fig. 10).

Marketing and Entertainment Content

Commercial spaces inside and outside stations

This function shows shop and facility information such as that for JR East in-station commercial spaces, commercial facilities attached to stations, hotels, and more. Coupons for use at convenience stores and station car rental are also available (Fig. 11).

Enjoy Open Time

Passengers' movement is restricted while riding trains, so content has been created to make that 'open time' more enjoyable. It is also provided to motivate passengers to use the JR East App every day. Specific content being provided at October 2015 includes 'Train Books' where users can try out e-books and the 'Toresugo' sugoroku game that uses location information.

Other Content

Participate in Experiments

This feature was implemented to provide customers with experimental information services developed by JR East for smartphones. Since the app's launch, it has offered functions developed by JR East's Frontier Service Development Laboratory, such as showing detailed line occupation status based on ATOS information and in-station navigation for Tokyo Station using Bluetooth beacons. This feature will be used as a venue for further innovation within JR East.

Notices

Notices from the App function displays information to users as needed on topics such as how to use the app and update information in areas such as 'How to Check Operational Information'. A mechanism has been put in place to gather opinions from email, Twitter and the like and usage status from the app's access log. These data will be used to update the app to improve its convenience and the level of service.

Conclusion

This article has introduced the JR East App as an effort in 'service quality reforms'. At October 2015, it has been downloaded more than 1.4 million times. In FY2014, the app won a Good Design Award, Sakata Memorial Award from the Japan Railway Engineer's Association, and Award of Excellence in the Prize for Technology from the Congress of Japan Railway Cybernetics. It has also been covered

by a broad range of media in areas such as technology, web design, digital marketing, and advertising. The value provided by the app has been acclaimed both inside and outside the railway industry.

We are continuing to enhance the app with new functions providing information from other transport operators as well as from JR East. ■



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