

# Business Conditions

## Changes in Business Conditions

Expected changes in business conditions include further decrease in and aging of the population over the medium-to-long term, concentration of the population in cities, technological innovation, and expansion of the overseas railway market.

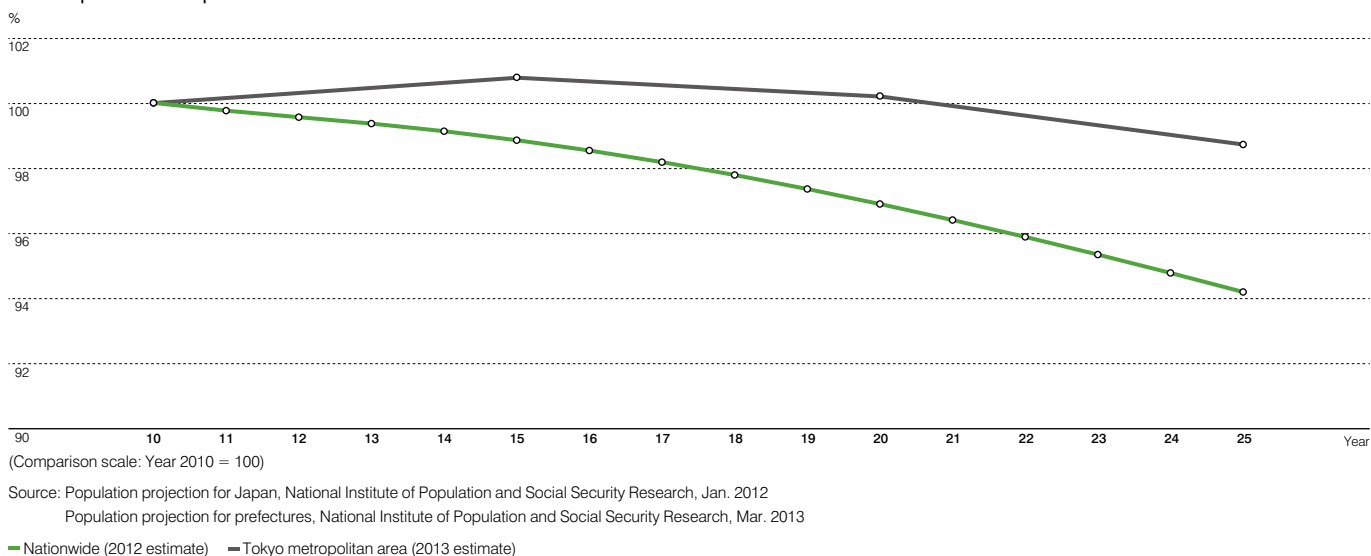
### Risk

#### Decrease in and Aging of Japan's Population as Birth Rates Decline

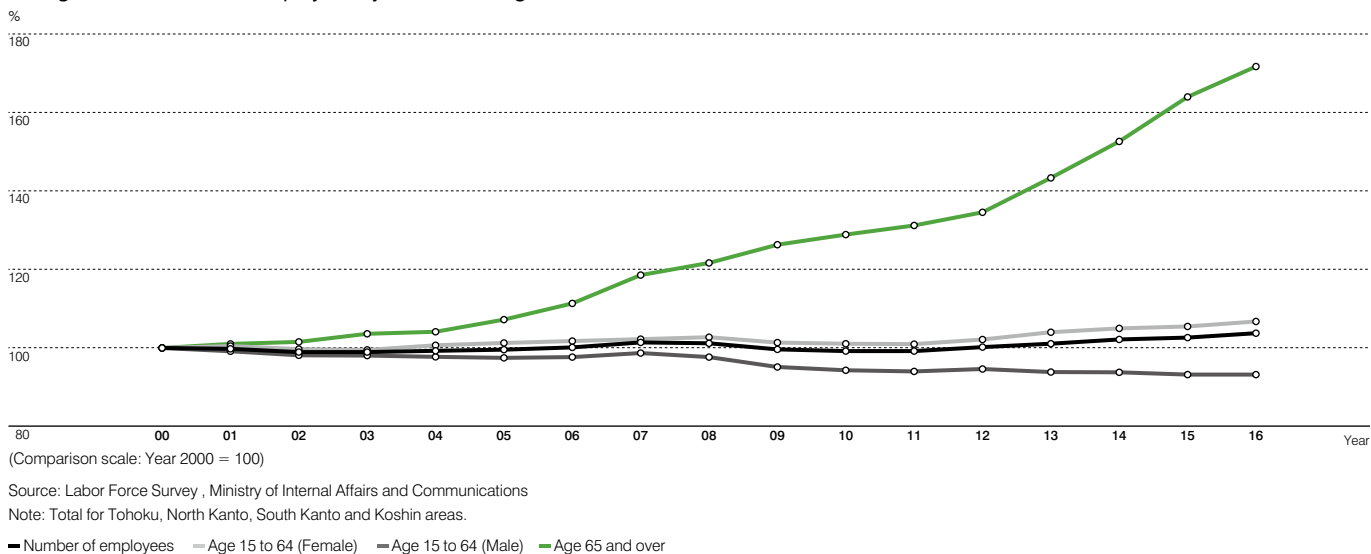
Japan's population is likely to decrease further and become more concentrated in cities. Also, eastern Japan's productive population has begun trending downward. By 2020, the elderly are projected to account for 30% of the region's population. These trends will significantly affect the JR East Group's business management.

Although population decline is unavoidable, JR East aims to heighten the convenience of railways, which will grow passenger traffic by increasing the number of trips per person and by encouraging the selection of railways over other modes of transportation. Moreover, heightening the convenience of railways will enhance the value of and maintain population levels in JR East's line-side areas. (Related information ► Page 46, Transportation)

Total Population of Japan



Changes in the Number of Employees by Gender and Age



## Opportunities

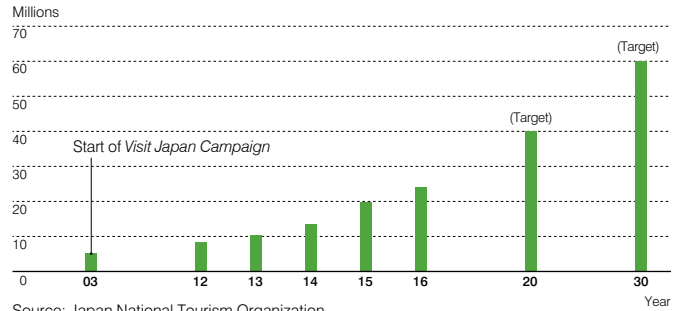
### Increase in Tourists Visiting Japan

While Japan's population is decreasing, the number of visitors to Japan is trending upward. In fiscal 2017, visitors to Japan increased 16% year on year, to 24.8 million, according to the Japan National Tourism Organization. Also, targets for visitors to Japan of 40 million in 2020 and 60 million in 2030 have been set by the Council for Development of a Tourism Vision to Support the Future of Japan.

JR East is stepping up efforts to cater to visitors to Japan so that they can use the railway network with confidence and in comfort.

(Related information ▶▶ Page 30, Special Feature; ▶▶ Page 37, Service Quality Reforms; ▶▶ Page 48, Transportation)

### Visitors to Japan

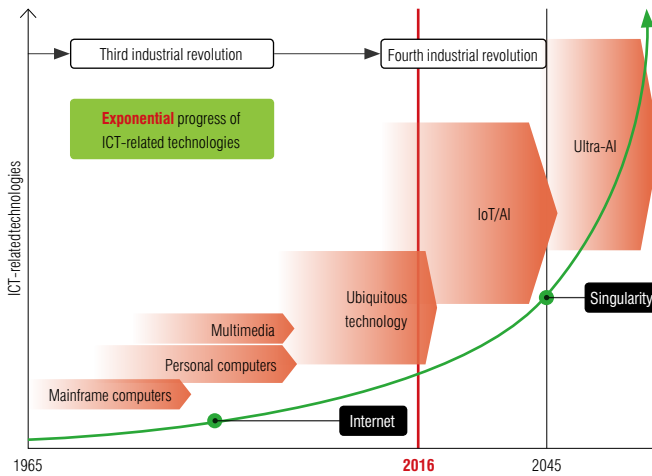


### Technological Innovation

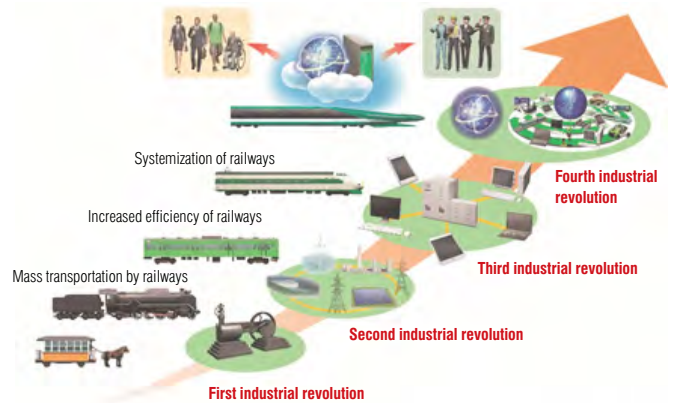
As we enter an era of full-fledged population decline, society is on the brink of a “fourth industrial revolution” as a result of conspicuous advances in such fields as the Internet of Things (IoT), big data, and artificial intelligence (AI) in a wide array of industries, including service industries and manufacturing.

(Related information ▶▶ Page 42, Technological Innovation)

### Advances in IoT and AI



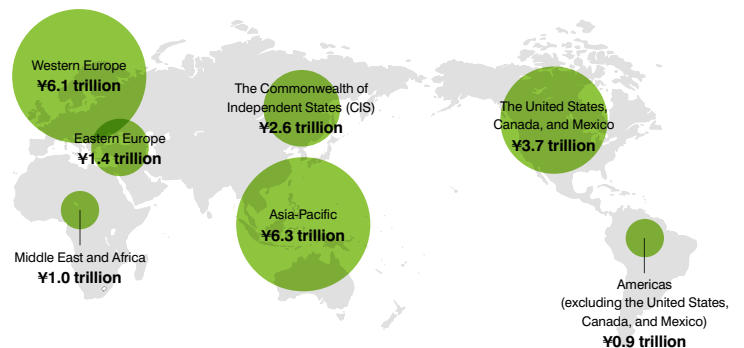
### Coming of the Fourth Industrial Revolution



### Expansion of the Overseas Railway Market

The overseas railway market is expected to see average annual growth of 2.5% and account for revenues of ¥22 trillion by 2020. Breaking down projected revenues, high-speed railways are expected to account for ¥1.6 trillion and urban railways and other railways for ¥20.4 trillion.

(Related information ▶▶ Page 43, Tackling New Businesses Areas; ▶▶ Page 48, Transportation)



Source: UNIFE Worldwide Rail Market Study

## Our Calling

# Thriving with Communities, Growing Globally

## Eternal Mission

Through the experience of the Great East Japan Earthquake, gained a real sense of our ties to local communities and the expectations of society

### Pursuing “extreme safety levels”

Building a railway capable of withstanding natural disasters

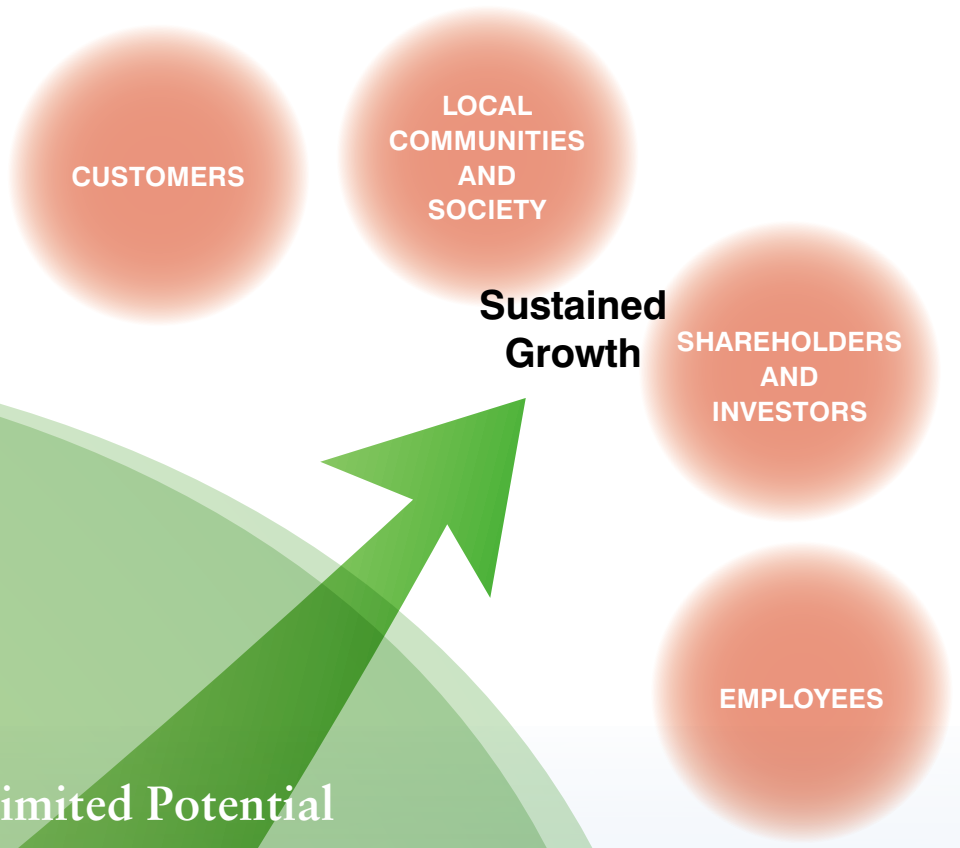
### Service quality reforms

Enhancing railway transportation networks and other measures

### Strengthening collaboration with local communities

Supporting earthquake recovery, stimulating tourism,  
and revitalizing communities

The JR East  
Group



## Pursuing Unlimited Potential

Our slogan for sustaining growth amid the volatility since the Great East Japan Earthquake

### Technological innovation

Forging strategies for conserving energy and the environment, utilizing ICT (information and communication technology), and operating Shinkansen at faster speeds

### Tackling new business areas

Globalization

Developing employees and creating a corporate culture that maximizes human potential



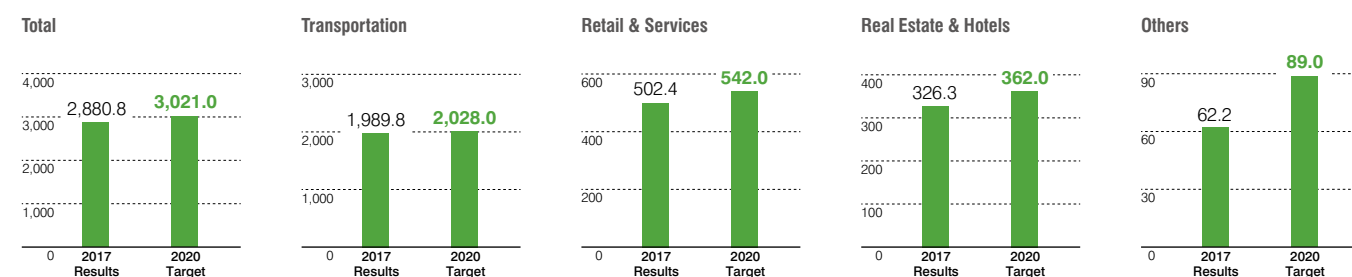
# Numerical Targets

JR East has set numerical targets for the next three years based on “JR East Group Management Vision V—Ever Onward,” which was announced in October 2012. Moreover, the Company revises these targets annually to reflect changes in business conditions.

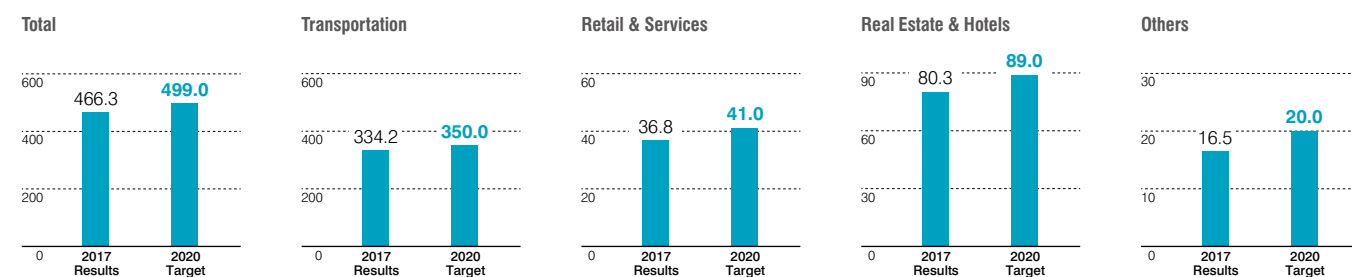
Based on this policy, JR East has set the following numerical targets for fiscal 2020.

## Numerical Targets

Consolidated Operating Revenues Billions of Yen (Years ended / ending March 31)



Consolidated Operating Income Billions of Yen (Years ended / ending March 31)



### Consolidated ROA (Ratio of operating income to average assets)

Fiscal 2017 Results **5.9%** → At the end of fiscal 2020 **Around 6%**

### Consolidated ROE (Return on average equity)

Fiscal 2017 Results **10.9%** → At the end of fiscal 2020 **Around 10%**

Note: From the fiscal year ending March 31, 2018, JR East has revised its reportable segment classifications to focus on operational headquarters in order to better enforce its management approach based on segments that carry out managerial decision-making. For summaries of each segment, please see page 3.

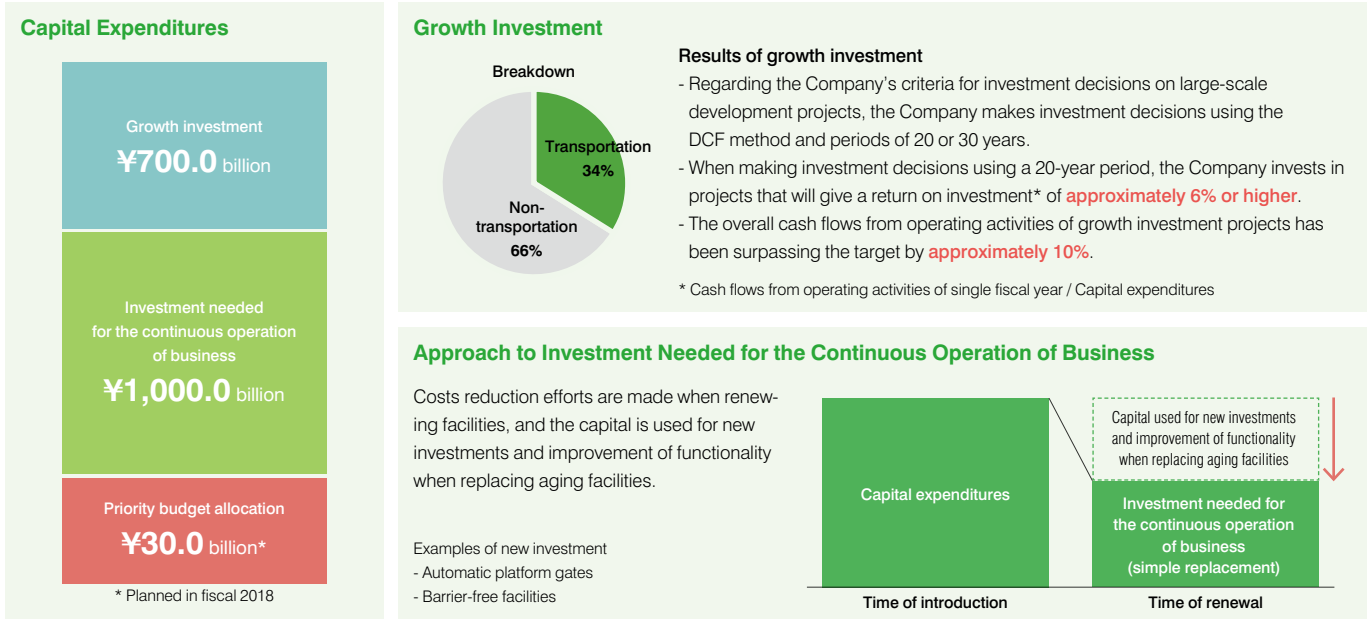
## Uses of Consolidated Cash Flows

	Targets	Fiscal 2018
Consolidated cash flows from operating activities	Approx. ¥2.1 trillion (Three-year total to fiscal 2020)	
Capital expenditures	Approx. ¥1.7 trillion (Three-year total to fiscal 2020)	¥530.0 billion*1
Investment needed for the continuous operation of business (Safety practice and transportation stability)	Approx. ¥1,000.0 billion (Approx. ¥600.0 billion)	¥319.0 billion
Growth investment	Approx. ¥700.0 billion	¥211.0 billion
Shareholder returns	(Medium- to long-term target) 33% total return ratio (to profit attributable to owners of parent)	¥140/share dividend Share buybacks*2
Debt reduction	(During the 2020s) ¥3.0 trillion interest-bearing debt balance	Reduce interest-bearing debt Around ¥30.0 billion

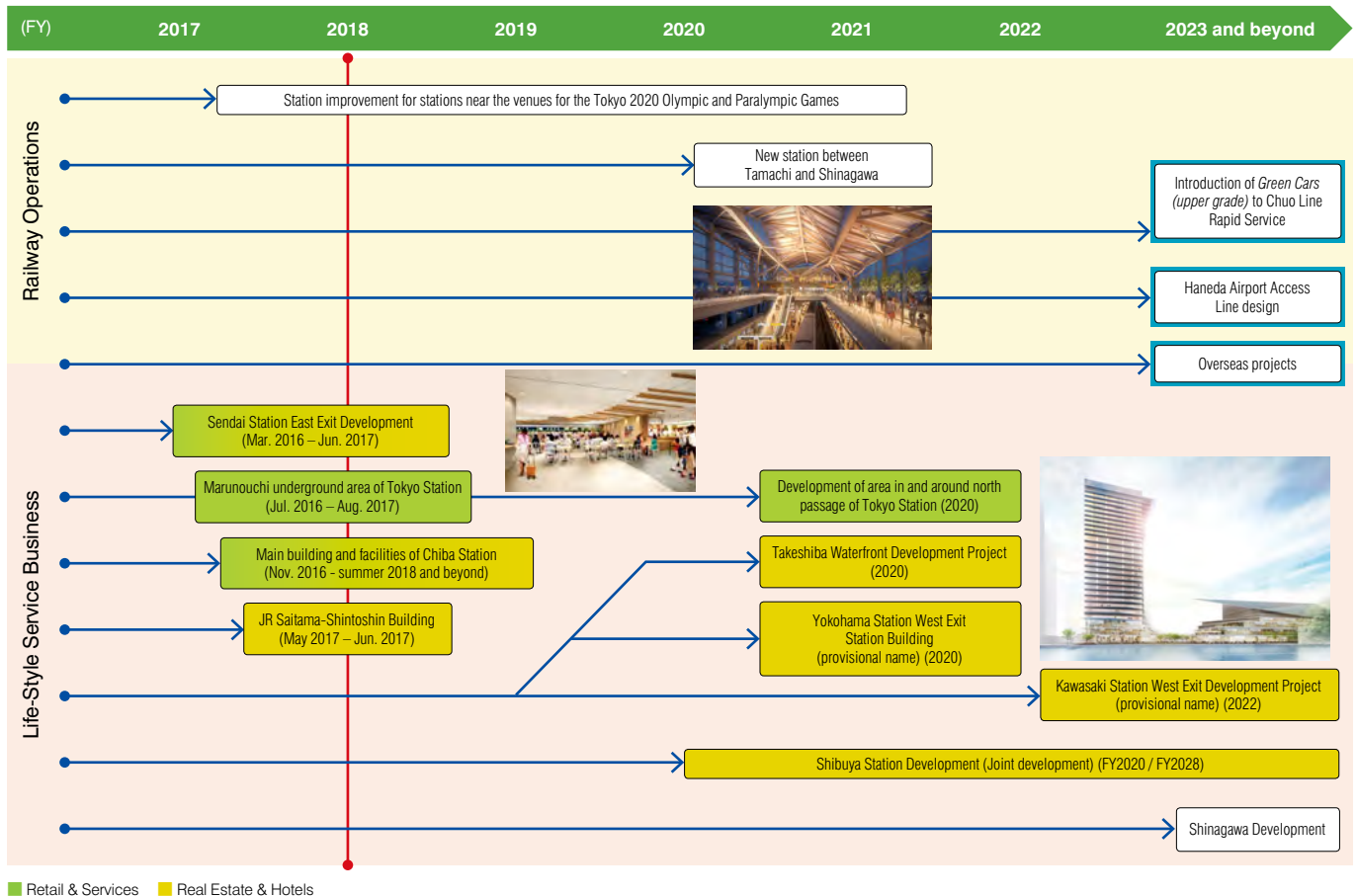
\*1 In addition, priority budget allocation maximum of ¥30.0 billion from the deposit balance on March 31, 2017 (capital expenditures of approximately ¥560.0 billion in total)

\*2 Share buybacks of maximum 4.5 million shares or ¥40.0 billion (May 1 to July 28, 2017)

## Capital Expenditures in Fiscal 2018 – 2020



## Major Projects Going Forward



# Priority Initiatives Going Forward

The JR East Group has positioned continued fulfillment of its “Eternal Mission” and sustaining growth by “Pursuing Unlimited Potential” as two important management pillars. In addition to the priority Groupwide tasks established last year, the Group will focus on the initiatives below.

## Priority Groupwide Tasks

### Improve the safety and reliability of transportation

In light of the time of change that it faces, with change in its railway systems, its increasingly flat division of work, and the rapid transition to the next generation of employees, JR East will proactively solve issues by strengthening related equipment and facilities and revising safety education and training.

### Take on the challenge of enhancing profitability

Given the realization of such projects as the opening of the Hokkaido Shinkansen Line to expand the railway network as well as the completion of *JR SHINJUKU MIRAINA TOWER*, the JR East Group will heighten the added value that it provides customers to take on the challenge of maximizing operating revenues.

## Eternal Mission

### *KIWAMERU* (Excel):

#### Pursuing “extreme safety levels”

##### Advance “Group Safety Plan 2018”

- Advance prevention by implementing rigorous measures for the prevention of reoccurrence and identifying weaknesses
- Revise safety education and training to be more practical
- Improve technical capabilities as a Group in collaboration with partner companies
- Strengthen Shinkansen facilities and railcars and electrical equipment in the Tokyo metropolitan area
- Advance safety measures related to platforms through the proactive installation of automatic platform gates and other measures

##### Build a resilient railway

- Steadily advance seismic reinforcement measures
- Properly renew aging facilities, including large-scale renovation of Shinkansen infrastructure and rail replacement on the Tohoku Shinkansen Line

### *MIGAKU* (Improve):

#### Service quality reforms

##### Advance the “Medium-term Vision for Service Quality Reforms 2017”

- Prevent transportation service disruptions including through the advancement of countermeasures for natural disasters and the prevention of equipment failure
- Minimize the impact of transportation service disruptions, respond to customers rapidly, and resume operations as soon as possible following disruptions
- Enhance information provision and support through such measures as conducting an assistance campaign in which personnel ask nearby customers whether they require assistance
- Advance the “JR East 2020 Project” by upgrading railway stations through such measures as developing barrier-free environments

##### Promote usage of railway networks (create tourism demand by conducting campaigns and other measures)

### *TOMO NI IKIRU* (Together):

#### Strengthening collaboration with local communities

##### Steadily promote the three approaches to town development

- Improve the convenience and establish the brand power of large-scale stations through such measures as the establishment of Shinagawa New Station (provisional name) and the advancement of town development centered on Shinagawa Station
- Increase added value through such measures as the renewal of existing stores
- Promote the line-side brand appeal of railway lines including through promotion of the *HAPPY CHILD PROJECT*
- Develop towns around Akita and other core railway stations in regional areas in collaboration with local municipal authorities and other bodies

##### Revitalize local industries (advance sextic industrialization and other measures)

##### Initiatives to promote Japan as a tourism-oriented nation (capture demand from visitors to Japan and other measures)

## Advance “TICKET TO TOMORROW” initiatives

JR East will steadily advance the “JR East 2020 Project” with a view to the Tokyo 2020 Olympic and Paralympic Games. Based on the “TICKET TO TOMORROW” slogan, the JR East Group will advance concerted initiatives aimed at providing high-quality services to meet customers’ expectations and creating a legacy for society beyond 2020. Not only in passenger rail transportation services but in a variety of business fields, individual employees will view changes as opportunities and continue taking the initiative to implement reform and taking on challenges.

## Pursuing Unlimited Potential

### **HIRAKU (Pioneer):**

#### **Technological innovation**

##### **Promote technological innovation**

- Minimize risk in the safety and reliability field by conducting trials of a maintenance vehicle location system and developing a local gust detection system
- Provide innovative services in the services and marketing field by realizing practical usage of communication signage and conducting research and development for next-generation Shinkansen
- Reform cost structures in the operations and maintenance field by advancing smart maintenance for railcars, railway tracks, and electrical equipment and developing automated driving technology and assistive technology for train crew members
- Aim to establish railway energy management by developing power-saving operational styles with a view to automatic power-saving train control in the energy and the environment field
- Build a cloud system platform to advance technological innovation in the four fields mentioned above

**Promote environmental strategies (initiatives aimed at reaching fiscal 2031 environmental targets and other measures)**

### **NOBIRU (Grow):**

#### **Tackling new business areas**

##### **Take on the challenge of overseas projects**

- Make progress in projects for high-speed railways in India
- Step up efforts aimed at participation in franchises in the U.K.
- Provide high-quality maintenance services for the *Purple Line* (Bangkok, Thailand)
- Increase level of technological support provided to and other measures for railway operators in Indonesia

**Develop life-style services business overseas (open JAPAN RAIL CAFE (Singapore) and other measures)**

### **HABATAKU (Empower):**

#### **Developing employees and creating a corporate culture that maximizes human potential**

##### **Provide further growth opportunities to motivate employees**

- Enhance open-application programs for personnel transfer and training
- Globalize corporate culture through the continued development of a diverse overseas assignment program
- Promote diversity

##### **Promote cohesive Group management**

- Entrench “Group Stretch Targets”
- Develop employee-friendly environments with a focus on Group companies

**Strengthen business management capabilities (pursue a compact and more highly efficient business execution framework and other measures)**



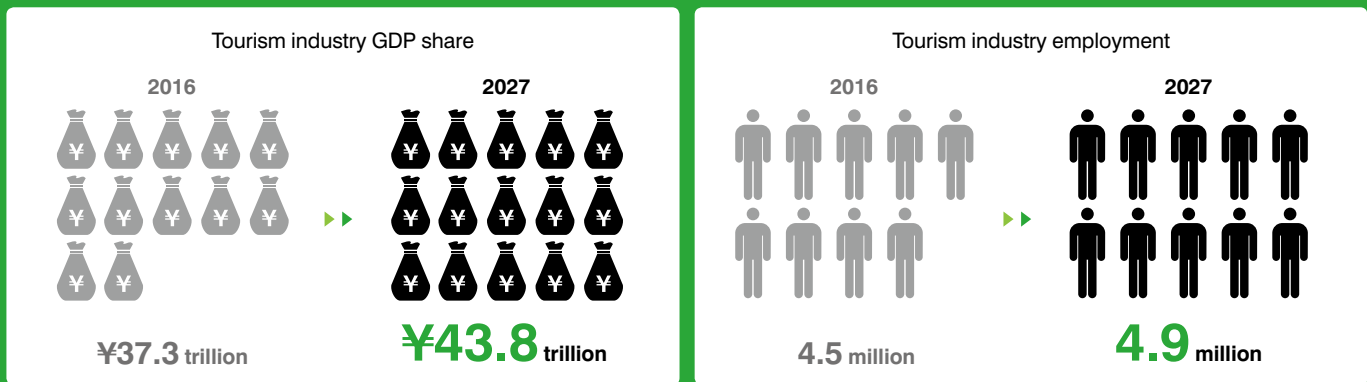
# Enhancing Profitability through Tourism Initiatives

## Anticipating Growth in Japan's Tourism Industry

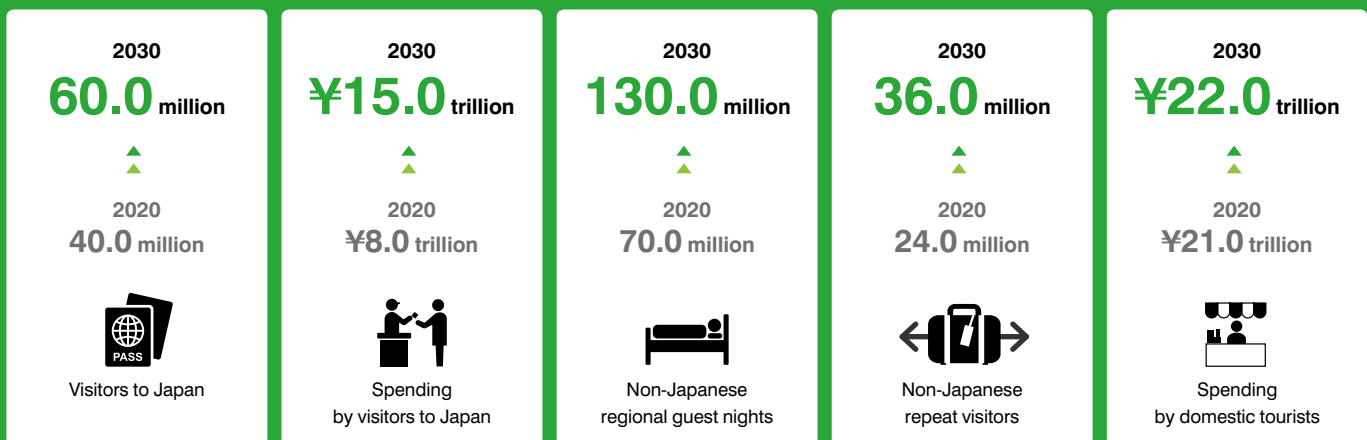
Japan's tourism industry promises to grow over the medium-to-long term. In 2016, it accounted for approximately ¥37.3 trillion of Japan's GDP and 4.5 million jobs. By 2027, this is projected to rise to ¥43.8 trillion and 4.9 million\*, respectively.

This expected expansion is attributable to the Japanese government's goal of making Japan a tourism-oriented nation and growing tourism into a key industry. The government has established a "Tourism Vision to Support the Future of Japan," which sets numerical targets for attracting visitors to Japan from overseas as well as for stimulating domestic travel demand.

\* Source: World Travel & Tourism Council, TRAVEL & TOURISM ECONOMIC IMPACT 2017 JAPAN



(Tourism Vision to Support the Future of Japan: Numerical Targets)



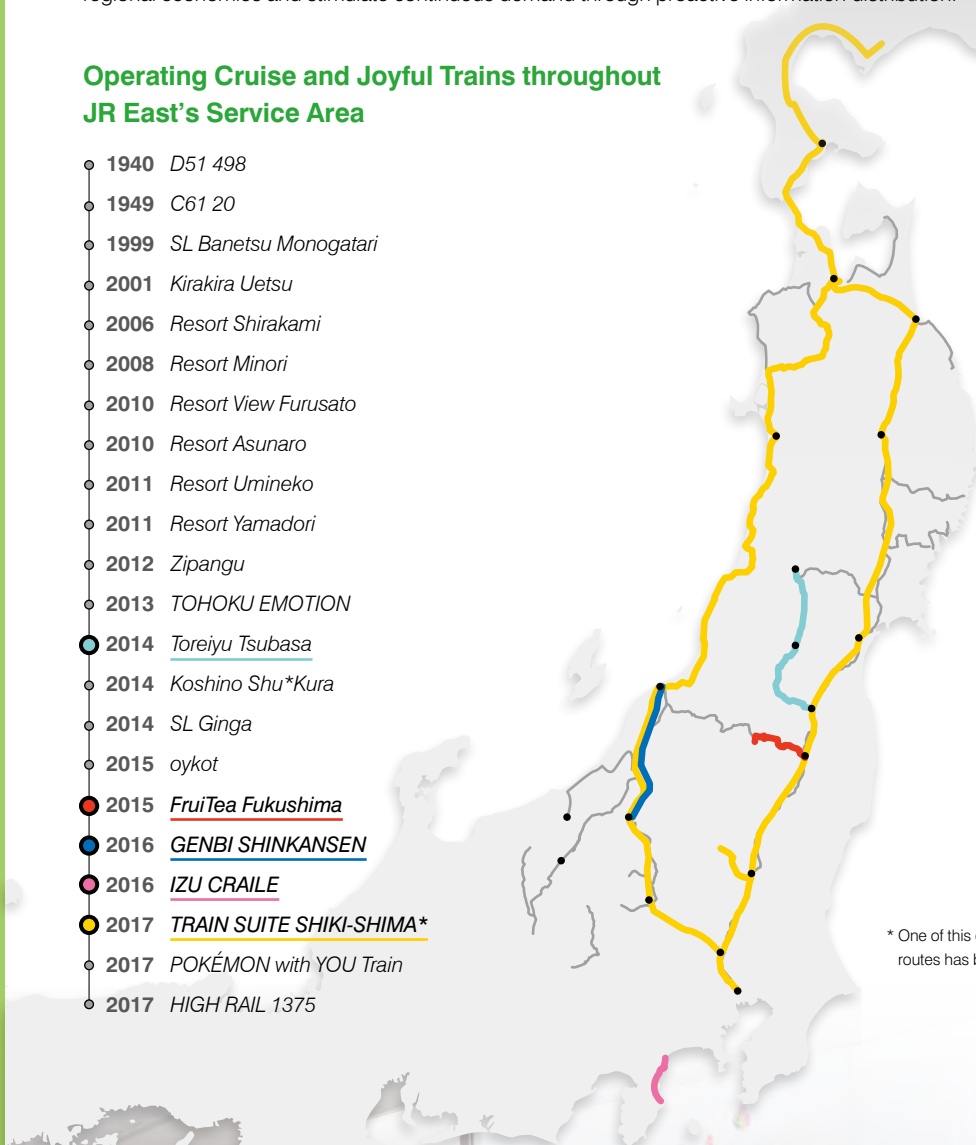
# Enhancing Profitability: Creating Cruise and Joyful Trains

In response to the projected medium-to-long-term growth of Japan's tourism industry, JR East is taking on the challenge of enhancing profitability by creating new-concept "cruise" and joyful trains. Through this initiative, the Company will open up a new future for railways. Cruise and joyful trains are specifically designed for tourism and operate on existing railway lines. Passengers board these trains for the "ride" itself, rather than using them as a mode of transportation. By operating these new trains, JR East will increase inter-regional railway travel and enhance profitability.

To heighten the appeal of cruise and joyful trains, the Company will work in partnership with municipal authorities to unearth and develop tourism resources in areas on cruise and joyful train routes. Further, JR East will contribute to regional economies and stimulate continuous demand through proactive information distribution.

## Operating Cruise and Joyful Trains throughout JR East's Service Area

- 1940 *D51 498*
- 1949 *C61 20*
- 1999 *SL Banetsu Monogatari*
- 2001 *Kirakira Uetsu*
- 2006 *Resort Shirakami*
- 2008 *Resort Minori*
- 2010 *Resort View Furusato*
- 2010 *Resort Asunaro*
- 2011 *Resort Umineko*
- 2011 *Resort Yamadori*
- 2012 *Zipangu*
- 2013 *TOHOKU EMOTION*
- 2014 *Toreiyu Tsubasa*
- 2014 *Koshino Shu\*Kura*
- 2014 *SL Ginga*
- 2015 *oykot*
- 2015 *Fruitea Fukushima*
- 2016 *GENBI SHINKANSEN*
- 2016 *IZU CRAILE*
- 2017 *TRAIN SUITE SHIKI-SHIMA\**
- 2017 *POKÉMON with YOU Train*
- 2017 *HIGH RAIL 1375*

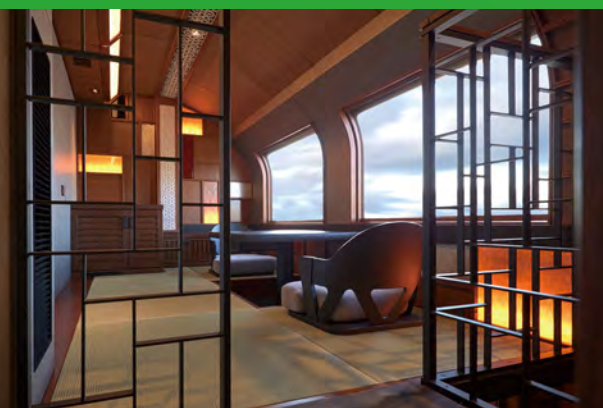


\* One of this cruise train's several routes has been included.

▶ The next two pages showcase some of JR East's cruise and joyful train excursions.

## Enhancing Profitability through Tourism Initiatives

# Increasing the Value of Railway Excursions



### TRAIN SUITE SHIKI-SHIMA

In May 2017, *TRAIN SUITE SHIKI-SHIMA* began operations. “*Shiki-shima*” is an old name for Japan, with “*shiki*” meaning “four seasons” and “*shima*” island. The name “*Shiki-shima*” encapsulates the tradition and seasonal beauty that passengers encounter as they relax and enjoy the passage of time and the changing scenery during their trips.

JR East offers a four-day, three-night *TRAIN SUITE SHIKI-SHIMA* package that shows passengers beautiful seasonal scenery and brings them into contact with lifestyles and cultures that exist harmoniously with nature. Also, the Company has a two-day, one-night package that features restful rural landscapes of woodlands, hills, terraced paddies, and vineyards that leaves passengers with a sense of the bond between each region and its traditional craft products.

*TRAIN SUITE SHIKI-SHIMA* carries passengers through a rich series of experiences and locales in a manner unique to train travel. Moreover, the design of this “cruise train” presents the train as a stage that unveils inspiring vistas of Japan’s abundant, beautiful countryside and provides insights into industries rooted in local communities and regional cultures that are still part of day-to-day life.

Onboard cuisine features lovingly prepared dishes that incorporate seasonal ingredients sourced from various regions of eastern Japan. The pleasant sound of the train on the tracks and the scenery passing by outside the window combine to make for a particularly elegant dining experience.







### **IZU CRAILE**

*IZU CRAILE* is a resort train that takes passengers through scenery rich in natural beauty as they enjoy a chat while savoring original dishes and drinks that feature ingredients from Izu. The resort train's design gives a softer, feminine feel to the powerful look of the Series 651 limited express railcars. Golden pink lines depict cherry blossom trees, sea wind, and rippling waves that are emblematic of Izu—evoking the atmosphere of a stylish resort for adults.



### **GENBI SHINKANSEN**

The *GENBI SHINKANSEN* is a unique train that enables passengers to appreciate works of modern art while traveling by Shinkansen. In each railcar, modern art created by prominent artists specially for the *GENBI SHINKANSEN* is on exhibit. Additionally, the train features a café that serves coffee made according to a local recipe and desserts made from carefully selected local ingredients. Other attractive features include an onboard playroom where children can interact with modern art first-hand and beautiful panoramas along the route.



### **FruiT<sub>e</sub>a Fukushima**

Japan's orchard kingdom, Fukushima Prefecture, produces all sorts of fruit, including apples, Asian pears, peaches, and grapes. *FruiT<sub>e</sub>a Fukushima* is a "traveling café," created around the concept of an elegant space for enjoying uniquely crafted desserts and beverages made from local Fukushima fruit while gazing out the train windows or having a leisurely conversation.



### **Toreiyu Tsubasa**

The name "Toreiyu" is a blend of the Japanese pronunciations of the English word "train" (torein) and the French word "soleil" (soreiyu), meaning sun. The railcar interior is equipped with reserved tatami mat seating; a bar counter stocked with locally brewed Yamagata sake, wine, and juice; and footbaths for relaxing while enjoying the scenery outside the window. While onboard, passengers can take a stroll as though in a hot spring town and enjoy this new mode of Shinkansen travel.



# Pursuing “Extreme Safety Levels”

## Basic Approach to Safety

Safety has been the JR East Group’s top management priority since its establishment, and the Group has worked constantly to heighten safety levels. Learning from unfortunate accidents in the past, the JR East Group is continuing to lower risk through accident prevention efforts, which focus on steadily establishing personnel initiatives as well as physical infrastructure countermeasures and systems.

Safety measures are never-ending. Accordingly, the JR East Group will continue its tireless, concerted efforts to improve safety by pursuing a goal of zero accidents involving passenger injuries or fatalities and zero accidents involving employee fatalities, including employees of Group companies and partner companies.

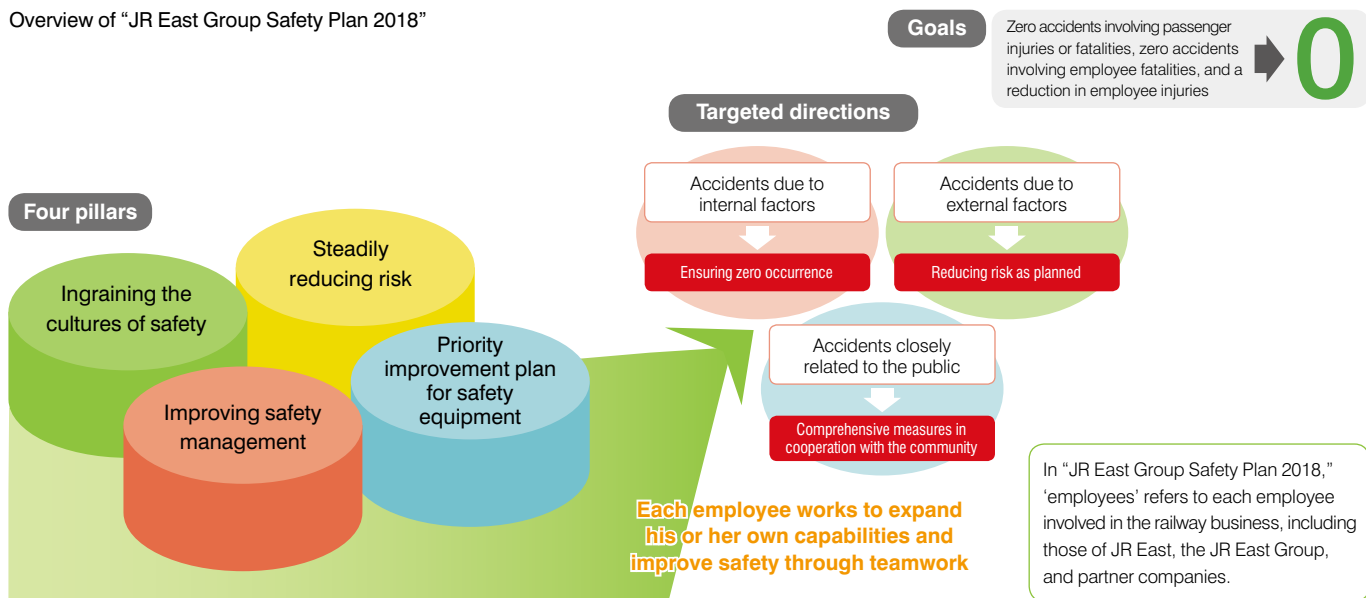
## “JR East Group Safety Plan 2018”

Reflecting the fact that safety is our highest priority, the JR East Group has implemented safety plans every five years since its establishment.

Under the current “JR East Group Safety Plan 2018,” the whole JR East Group is taking on the challenge of realizing “extreme safety levels” through the safety improvement efforts of each employee in the Group’s businesses.

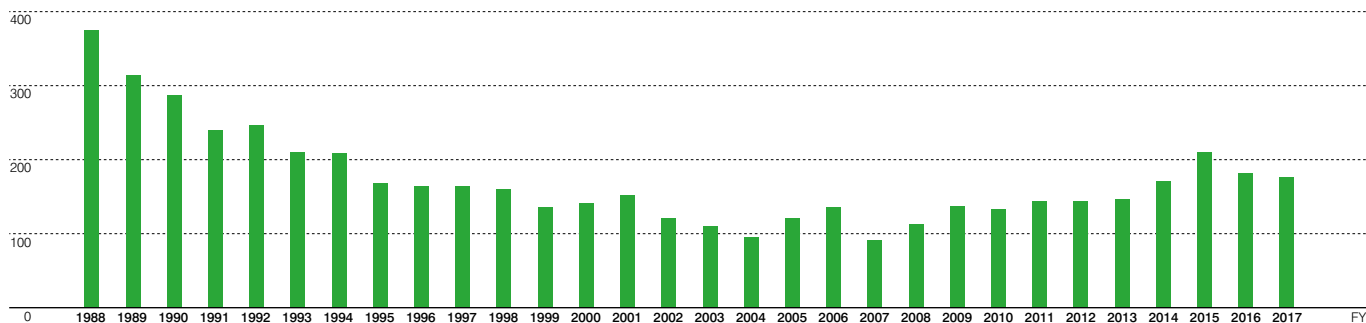
“JR East Group Safety Plan 2018” clarifies policies in relation to preventing accidents, such as accidents due to internal factors, and sets out specific measures. Under the plan, the JR East Group will improve safety management capabilities by ensuring skills and expertise are passed on and by promoting an appreciation of the gravity of accidents to foster safety-conscious personnel.

### Overview of “JR East Group Safety Plan 2018”



### Trends in Railway Accidents

Railway Accidents



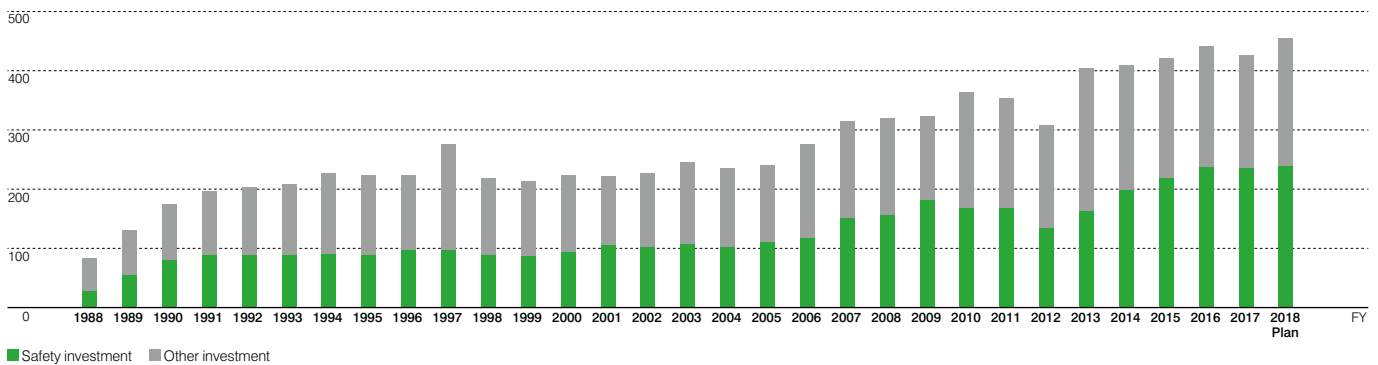


## Safety Facilities Investment

JR East has invested more than ¥3 trillion in safety measures since its establishment in 1987. “JR East Group Safety Plan 2018” calls for investment in safety of approximately ¥1 trillion during the five years from fiscal 2015. Accordingly, JR East will continue establishing safety facilities.

### Trends in Safety Investment and Other Investment

Billions of Yen



## Preparations for Natural Disasters

### Seismic Reinforcement Measures

In response to the 1995 Great Hanshin-Awaji Earthquake, JR East began steadily taking seismic reinforcement measures and completed all reinforcement of Shinkansen lines. JR East has also completed seismic reinforcement of conventional lines, excluding parts of the southern Kanto and Sendai areas due to other construction work.

Additionally, to further improve safety in the event of an earthquake, JR East is reinforcing railway viaduct columns susceptible to failure due to bending caused by strong earthquake motion. Furthermore, since fiscal 2013, in preparation for a possible earthquake directly beneath the Tokyo metropolitan area, JR East has been undertaking seismic reinforcement of embankments, cuttings, bricked arch railway viaducts, and electric poles. JR East has also begun taking measures to prevent collapse of the ceilings and walls of railway stations and platforms. In conjunction with these efforts, JR East is undertaking seismic reinforcement of railway viaduct columns and bridge columns ahead of schedule. Moreover, in light of the Great East Japan Earthquake, JR East has begun seismic reinforcement of station buildings used by more than 3,000 passengers per day and seismic reinforcement of electric poles for Shinkansen lines.



Seismic reinforcement measures (use of steel plate wrapping to reinforce Shinkansen railway viaduct columns)

### Tsunami Countermeasures

Before the Great East Japan Earthquake occurred, JR East had been establishing operational restriction methods and tsunami danger zones for each location, preparing manuals, and holding study sessions and drills on instructing and assisting passengers to alight from trains during evacuations. JR East believes that these efforts enabled prompt evacuation of passengers from tsunami danger zones at the time of the earthquake.

Based on lessons learned from the tsunami at the time of the Great East Japan Earthquake, in January 2012 JR East undertook a Companywide revision of rules, manuals, and drills and established employee action guidelines for evacuation when there is danger of a tsunami.



Drill on instructing and assisting passengers to alight from trains during evacuations

### Rainfall Countermeasures

To protect railway tracks from landslides due to rainfall, JR East takes disaster prevention measures for trackside embankments in all line segments in a planned manner. Concentrating on the Tokyo metropolitan area and Shinkansen routes, JR East will take countermeasures to ensure safe and reliable transportation.



Embankment slope protection (spray-frame work)

Pursuing “Extreme Safety Levels”

**Platform Safety Measures**

To ensure the safety of customers on platforms, JR East is installing emergency train stop warning systems. Moreover, JR East is proceeding with the introduction of automatic platform gates on the Yamanote Line. By the end of August 2016, JR East had begun using automatic platform gates at 24 railway stations, excluding five railway stations at which JR East plans to implement large-scale improvements: Hamamatsucho, Tokyo, Shimbashi, Shinjuku, and Shibuya stations. Further, JR East is considering the introduction of automatic platform gates at Akabane, Ueno, Oimachi, Tsurumi, Urawa, Saitama-Shintoshin, and Yurakucho stations on the

Keihin-Tohoku Line; Shin-Koiwa Station on the Sobu Rapid Line; and Shinanomachi and Sendagaya stations on the Sobu Local Line.

Other initiatives include increased installation of Braille blocks that indicate which direction is away from the edge of the platform. For railway stations where the daily number of passengers exceeds 100,000, JR East has completed installation of these blocks. For railway stations where the daily number of passengers is less than 100,000, JR East is also proceeding with the installation of these blocks, mainly at the stations used frequently by visually challenged customers.

**Platform Safety Measures**

CP lines

Painting the ends of platforms red or orange to create CP (color psychology) lines encourages caution among railway passengers and improves visibility for station personnel and conductors. JR East is currently introducing CP lines to test their effectiveness.

Braille blocks that indicate which direction is away from the edge of the platform

The inner line of the blocks is trimmed with lined bumps so that visually challenged customers can tell which side is away from the edge of the platform.

Automatic platform gates

To improve visibility, JR East is installing automatic platform gates with glass doors.

Trial introduction of new-type automatic platform gates

On a trial basis, in fiscal 2017 JR East introduced new-type “smart” automatic platform gates—which have wider openings, are low cost, and enable shorter construction periods—at Machida Station on the Yokohama Line.



“Smart” automatic platform gates at Machida Station



Fall detection mat

If someone falls off a platform, mats placed under platforms, parallel to railway tracks, detect their presence and direct incoming trains to stop.

Emergency train stop warning systems

By pushing an emergency stop button installed on platform pillars, people on platforms can notify drivers, conductors, and station personnel of danger.



Station platform safety campaigns

JR East uses posters in railway stations and the Train Channel to conduct platform safety campaigns that seek the cooperation of customers. The Train Channel is an onboard information display installed in railcars operating on such lines as the Yamanote and Chuo Rapid lines. In fiscal 2017, JR East conducted a station platform safety campaign with 24 other railway operators.

Industrial television for platforms and station concourses

By installing monitoring cameras on platforms and in station concourses, JR East is improving safety on platforms and strengthening security in station concourses.



# Service Quality Reforms

## Basic Approach to Service Quality

The “JR East Group Management Vision V—Ever Onward” cites “Service Quality Reforms” as part of the Group’s “Eternal Mission.” To become a corporate group that is the preferred choice of customers and local communities, the JR East Group will reform service quality through cross-divisional and cross-sectional teamwork with the aim of becoming No. 1 for customer satisfaction in the Japanese railway industry. To this end, the JR East Group will improve transportation service quality by heightening reliability and comfort, creating railway services customers can use confidently, and pursuing customer-friendly railway services rigorously.

The JR East Group prepared the “Medium-term Vision for Service Quality Reforms 2017,” a three-year plan that began in 2015. This vision is founded on increasing mutual communication with customer feedback as the starting point and developing personnel and organizations that proactively think and act from the customer’s perspective. On these foundations, the vision positions five pillars for further improvement: reliability, information provision during service disruptions, confidence, comfort, and service.

## Initiatives for Visitors to Japan

To benefit from the recent surge in demand from visitors to Japan, JR East is taking active measures, such as offering appealing products and conducting promotions through close collaboration with destination regions. Further, in preparation for the Tokyo 2020 Olympic and Paralympic Games, JR East is stepping up efforts to cater to visitors to Japan so that they can use the railway network with confidence and in comfort.

### Initiative Example (1)

#### Free Public Wireless LAN Service for Visitors to Japan

As of March 31, 2017, JR East provides free public wireless LAN services at locations and on train services that visitors to Japan use frequently, including 89 railway stations, mainly on the Yamanote Line; JR EAST Travel Service Center sites; and all *Narita Express* services. Moreover, JR East provides this service in English, Chinese, Korean, and Japanese.



### Initiative Example (2)

#### Station Numbering System

To make railway services more readily understandable so that not only visitors to Japan but all customers can use them with confidence, JR East is steadily introducing a station numbering system to the Tokyo metropolitan area. JR East began this initiative at Meguro Station in August 2016. JR East is also introducing signs showing railway station names in Japanese, English, Chinese, and Korean.

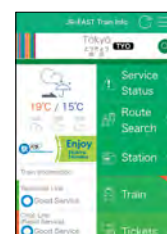


Station numbering system

## Provision of More Information When Transportation Service Disruptions Occur

On March 10, 2014, JR East released the *JR-EAST Train Info* app for smartphones to provide timely information reflecting the needs of each customer. Through the app, JR East gives access to train operation information, which includes the information of 15 private railways. The app also provides real-time train position information for 21 lines in the Tokyo metropolitan area—including the Yamanote, Keihin-Tohoku, and Ueno-Tokyo lines—as well as for limited express services and Shinkansen lines. Moreover, thanks to JR East’s coordination with the Tokyu Line App and the Tokyo Metro App since October 7, 2016, passengers have been able to check train positions for the lines of the three companies seamlessly. Further, on March 31, 2017, JR East introduced a transfer guide to the *JR-EAST Train Info* app. This new feature gives exit information based on the route a customer is taking as well as easy access to station concourse maps and other useful information. Also, passengers can now use the app to search for bypass routes when transportation service disruptions occur. Other innovative features allow customers using the Yamanote Line to view the position and number of the railcar in which they are riding; information about stops in their line segment, such as transfer routes, platform maps, and station concourse maps; and the level of crowding and temperature in each railcar of the train they are on as well as in each railcar that is operating on the Yamanote Line.

In addition, JR East has been providing an English version of the *JR-EAST Train Info* app since March 20, 2015. Based on the Japanese app, this app offers train operation information, station concourse maps of major railway stations, and other information in English. JR East’s other initiatives include the *JR East Train Operation Information Push Notification* service for smartphones, which began providing timely information on train services in JR East’s service area on June 17, 2013. For 48 lines beyond the coverage of the *JR-EAST Train Info* app, JR East has been offering the *Doko-Train* service since March 22, 2014. This service allows customers to view train operation and position information.



JR-EAST Train Info app



# Strengthening Collaboration with Local Communities

## Basic Approach to Collaboration with Local Communities

The JR East Group’s existence depends on the vitality of eastern Japan and of Japan as a whole. Therefore, as a company responsible for railways—which form part of society’s infrastructure—and as a member of local communities, the Group will work with each community to establish and move toward its target profile. Specifically, the JR East Group will energize the local communities to which it belongs through a three-pronged approach to town development focused on “the development of large-scale terminal stations,” “the creation of desirable line-side area brands,” and “the revitalization of core regional cities.”

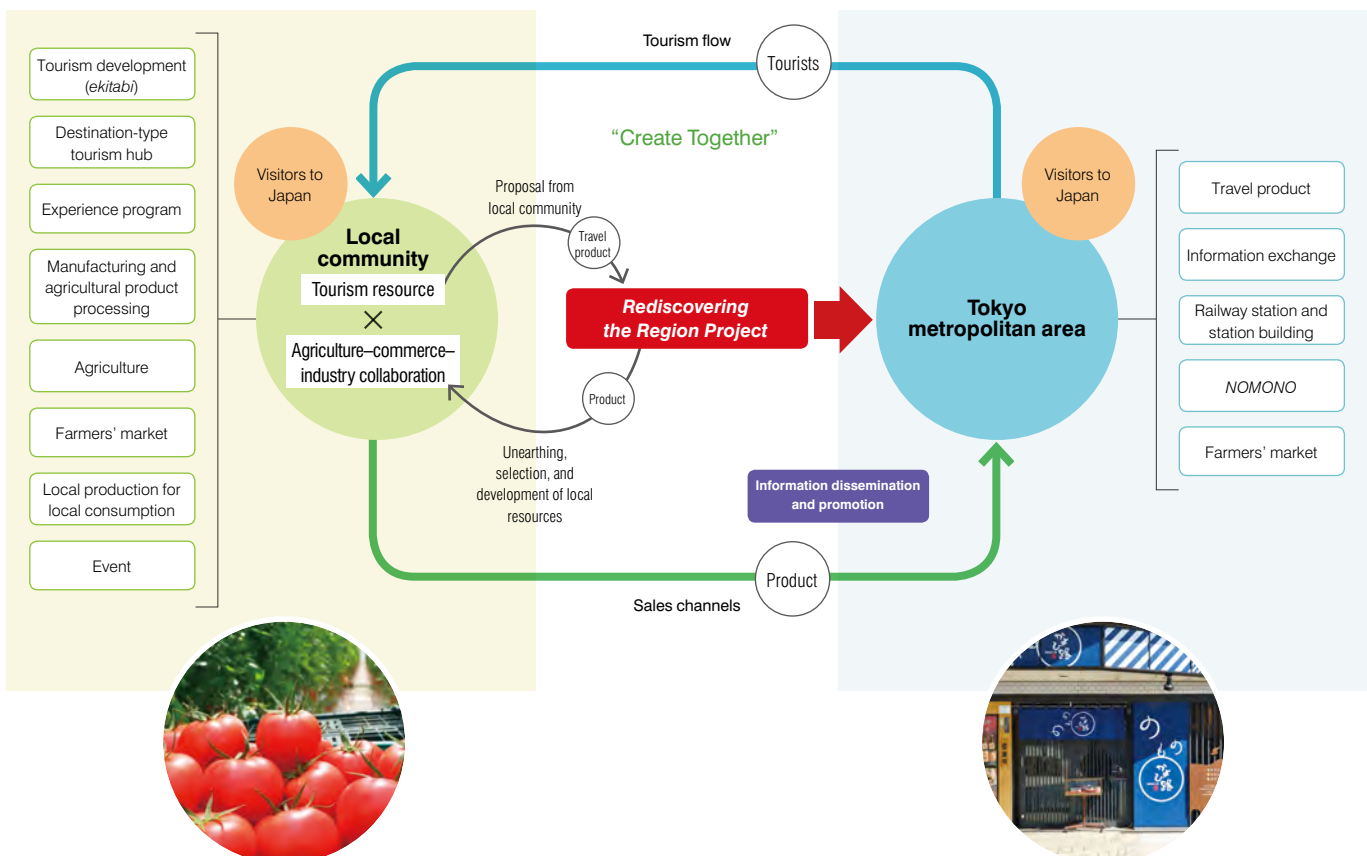
## Development of the Rediscovering the Region Project

Based on a “Create Together” strategy of enhancing cooperation with local communities, JR East is advancing the *Rediscovering the Region Project*. The aim of the project is to create potential markets that bring increased circulation of people and goods between the Tokyo metropolitan area and other regions and to attract overseas visitors to Japan. The JR East Group has railway networks, railway stations that serve as centers of local communities, extensive business know-how, and sales channels and advertising media centered on the Tokyo metropolitan area. The strategy utilizes the Group’s unique abilities to discover traditional cultures, local

products, and other tangible and intangible tourist resources as well as to promote the exchange of information and to expand sales channels between the Tokyo metropolitan area and local communities.

To develop the *Rediscovering the Region Project*, the JR East Group intends to promote the distribution of regional local products in the Tokyo metropolitan area by utilizing existing infrastructure, such as its Tokyo metropolitan area logistics bases and the trunks of highway buses. Aiming to advance these efforts, the JR East Group established Regional Revitalization Logistics Limited Liability Partnership (LLP) in April 2016.

Rediscovering the Region Project Conceptual Diagram



## NOMONO 1-2-3 Project

The *NOMONO 1-2-3 Project* is a manufacturing project that supports eastern Japan through product development and sales in collaboration with regional farming, forestry, and fishing industries. The project's goals are to strengthen collaboration with local communities and to advance manufacturing in regions based on a *sextic industrialization*\* model linking primary, secondary, and tertiary industries. To these ends, the JR East Group will initiate manufacturing that uses high-quality ingredients, such as local produce, and superior processing techniques.



Shinshu Jibie Venison Burger, which uses venison from Shinshu

\* The expansion of agriculture, forestry, and fisheries to include food processing, logistics, and marketing

## Childcare Support Services HAPPY CHILD PROJECT

The JR East Group is promoting the *HAPPY CHILD PROJECT* to create communities that give peace of mind to parents raising children. The Group offers a wide range of support to parents raising families, including the hosting of events in which parents and children can participate and the opening of nursery schools in line-side areas and other child-rearing support facilities mainly in the Tokyo metropolitan area.

### Initiative Example (1)

#### Child-Rearing Support Facilities— Help for Working Parents

To support parents who are working and raising children, the JR East Group is opening child-rearing support facilities, such as nursery schools near stations, which are usually within a five-minute walk of railway stations. The Group began opening child-rearing support facilities in 1996. As of May 2017, the Group had 102 such facilities, and it plans to have 130 facilities by April 2020. In addition to allowing parents to drop off and pick up their children on the way to and from work, nursery schools in line-side areas enable fathers to take their children to nurseries and thereby participate more in child rearing.



Nursery school near a railway station, Toda Ekimae Sakuraso Nursery School

### Initiative Example (2)

#### Development of COTONIOR Complexes

The JR East Group is opening multipurpose child-rearing support and senior citizen-care facilities themed on interaction among generations. The Group coined the name *COTONIOR* by combining the words “*codomo*,” which is Japanese for “child”; “*to*,” which is “and” in Japanese; and “senior.” Currently, the Group operates three *COTONIOR* complexes in Kichijoji, Akabane, and Nishi-Funabashi. Thanks to

innovative layouts, seasonal events, and other features, *COTONIOR* complexes have become heartwarming places where children and seniors interact and different generations meet.



COTONIOR Kichijoji

#### JR Niigata Farm Co., Ltd.

In accordance with the “Thriving with Communities” component of the management policy set out in “JR East Group Management Vision V—Ever Onward,” the JR East Group is conducting manufacturing with a view to introducing *sextic industrialization* to regions and expanding sales channels for the local products of regions.

Established by taking advantage of the regulatory easing that Niigata enjoys as a National Strategic Special Zone, JR Niigata Farm Co., Ltd., cultivates rice suitable for use as a basic ingredient of sake and sells a locally brewed sake, *Niigata Shupoppo*, at stores in railway stations.

The JR East Group will continue helping to revitalize local economies and grow inter-regional railway travel by deepening collaboration with local communities, cultivating agricultural produce, advancing *sextic industrialization*, and disseminating information on food culture to enhance regions' appeal.



#### Oyatsu TIMES

*Oyatsu TIMES* is a series of snacks that the JR East Group developed in collaboration with local producers encountered through the operations of *NOMONO* local product stores, which sell tasty products from all over eastern Japan. The aim of this initiative is to revitalize regions by expanding the market for local products.

Launched in March 2016, the snacks have seen sales grow steadily, with their sales area expanding from the Tokyo metropolitan area to encompass the whole of eastern Japan in May 2016. Further, the snacks are garnering the

endorsement of a new group of local product fans. The snacks' main purchasers are women in their 20s to 40s, most of whom were previously unfamiliar with regions' local products.



Oyatsu TIMES snack series



# Technological Innovation // Environment

## Basic Approach to the Environment

The JR East Group formalized its basic philosophy and policies in 1992 and established activity guidelines in 1996. Our specific environmental preservation measures are based on these.

### Basic philosophy

- The entire JR East Group, as a member of society, will diligently strive to balance global environmental preservation with its business activities.

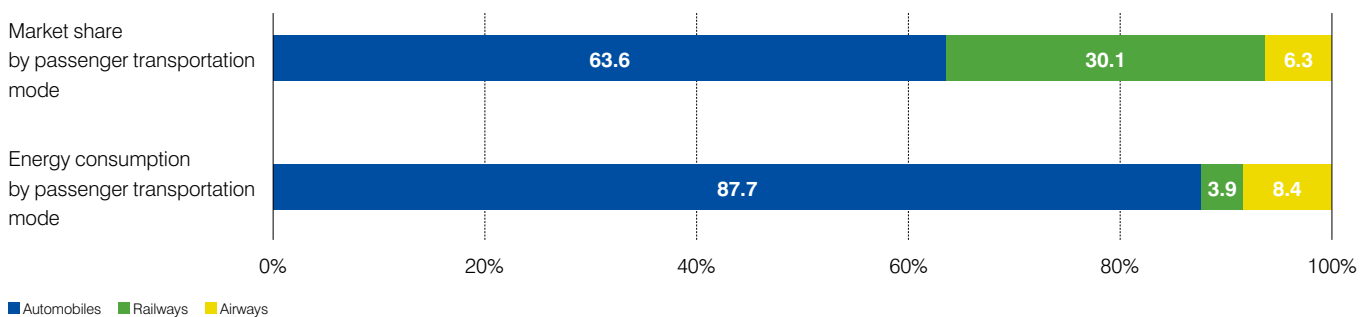
### Basic policies

- To contribute to creating a global environment for the future through our business activities for our customers and local communities
- To develop and provide the technology needed to protect the global environment
- To maintain our concern for the global environment and raise the global environmental awareness of our employees

## Environmental Superiority of Railways

Regarding passenger transportation in Japan, railways provide approximately 30% of passenger transportation but only account for roughly 3.9% of total energy consumption. This clearly demonstrates that trains have better energy efficiency per unit of transportation volume than automobiles and other means of transportation.

Energy Consumption Volume and Transportation Market Share (Fiscal 2015 Results)



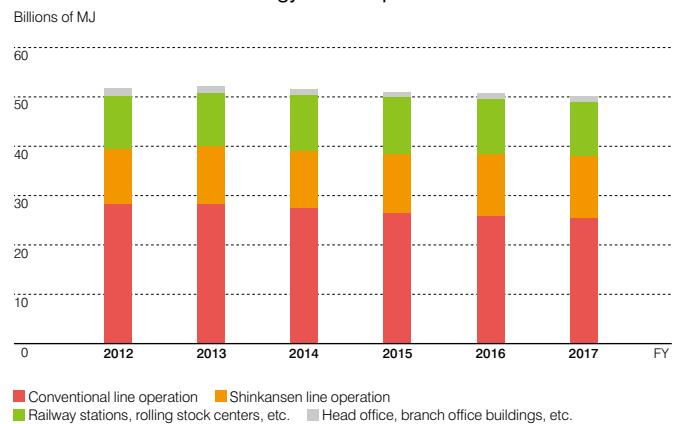
Source: Compiled based on data from the Energy Conservation Center, Japan (ECCJ)'s Handbook of Energy & Economic Statistics in Japan 2017

## Energy Conservation and CO<sub>2</sub> Reduction

### —Measures to prevent global warming—

The electricity consumed by JR East for train operations as well as for lighting and air-conditioning at railway stations and in offices is supplied by its own power plants and electric power companies. Besides electricity, JR East uses diesel fuel and kerosene for diesel train operations and for air-conditioning at stations and in offices. JR East will continue saving energy in train operations, which account for about 80% of our total energy consumption, and taking a range of measures at operating bases to reduce CO<sub>2</sub> emissions.

Breakdown of JR East's Energy Consumption



### Calculation Method

Figures have been calculated pursuant to the calculation methods stipulated in the Act on the Rational Use of Energy and the Act on Promotion of Global Warming Countermeasures. However, figures for electricity generated by JR East have been multiplied by 9.76 MJ/kWh.

## Fiscal 2031 Goals

Since 1996, JR East has been conducting environmental conservation activities with a focus on specific goals. Given that the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change (COP21) adopted the Paris Agreement, which will become a new international framework for climate change countermeasures after 2020, JR East has set environmental goals to be achieved by fiscal 2031.

Category of environmental conservation activities	Performance indicators	Targets to be met by FY2031
Measures to prevent global warming	Energy consumption from railway business activities ▶	<b>25%</b> reduction (compared to FY2014)
	CO <sub>2</sub> emission volume from railway operations ▶	<b>40%</b> reduction (compared to FY2014)

### Initiative Example (1)

#### Development of Model Eco Stations

JR East has developed model *eco stations*, which incorporate energy-saving technologies, renewable energy technologies, as well as an array of other environment-friendly technologies. In March 2012, Yotsuya Station began full-scale operations as the inaugural model *eco station*, with Hiraizumi Station becoming the second model *eco station* in June 2012.

In March 2017, Urawa Station on the Tohoku Main Line became the first railway station to introduce an energy management system that automatically and optimally controls station power usage to match station business hours, timetables, and the weather. Further, the railway station has introduced platform benches with a new design that incorporates reused turf from local soccer fields. At Niitsu Station on the Shinetsu Main Line, in April 2017 JR East introduced a station building auxiliary power unit that supplies power to certain station facilities from batteries that store regenerative power produced when trains brake, and in the remodeling of waiting rooms JR East incorporated natural materials, such as timber from railway forest thinning and charcoal. Also, JR East's eighth model *eco station*, Musashi-Mizonokuchi Station on the Nambu Line, is using CO<sub>2</sub>-free hydrogen energy based on a comprehensive collaboration agreement concluded with the city of Kawasaki. In this initiative, JR East has introduced an autonomous hydrogen energy supply system that only requires water and sunlight to function. Fuel cells use the stored hydrogen to generate power, which is then supplied to certain station buildings.



Urawa Station, a model *eco station*



Autonomous hydrogen energy supply system at Musashi-Mizonokuchi Station, a model *eco station*

### Initiative Example (2)

#### Diesel Hybrid Railcars and Accumulator Railcars

The Kiha E200 Series railcars, which entered service on the Koumi Line in July 2007, are the world's first diesel-powered, electric motor-driven hybrid railcars. Compared with previous railcars, fuel consumption has been reduced by about 10%, and the noise of trains idling at railway stations and accelerating on departure has been lowered by 20–30 dB. Also, from October to December 2010 JR East began operating Series HB-E300 railcars, a new type of resort train equipped with a hybrid system similar to the Kiha E200 Series railcars, in the Nagano, Aomori, and Akita areas. Further, Series HB-E210 railcars began operating on the Senseki-Tohoku Line in May 2015. Additionally, as a new measure to reduce environmental burden in non-electrified line segments, JR East is developing an energy-accumulating railcar system, or accumulator system, which debuted in March 2014 with the Series EV-E301 railcar, also known as the ACCUM railcar, on the Karasuyama Line. The introduction of the Series EV-E301 railcar has eliminated the exhaust gas and reduced the CO<sub>2</sub> emissions and noise associated with diesel railcar engines. Most recently, in March 2017 JR East introduced catenary and battery-powered hybrid accumulator railcars, Series EV-E801 railcars, to the alternating current (AC) line segment between Akita and Oga stations.



Series EV-E801 railcar



Series EV-E801 railcar's energy flow monitor

# Technological Innovation // Medium-to-Long-Term Vision

## Basic Approach to Technological Innovation

JR East has drafted a “Medium-to-Long-Term Vision for Technological Innovation” in preparation for advances in the Internet of Things (IoT), big data, and artificial intelligence (AI), and with a view toward realizing technological innovation that is one step ahead of the times.

- JR East will leverage IoT, big data, and AI to rigorously reform its services so that they cater to the actual needs of customers. Our aim is to realize a revolution in mobility\*<sup>1</sup> that overturns conventional ideas.
- JR East will use AI to create new value from data that it gathers through various business activities in the fields of safety and security, service and marketing, operation and maintenance, and energy and environment.
- To that end, JR East will promote further open innovation to incorporate the newest technologies from around the world and build an “Innovation Ecosystem”\*<sup>2</sup> that can constantly produce innovative services in mobility.

\*1 The movement of customers from points of departure to destinations

\*2 Industrial collaboration among companies and other bodies to advance technological innovation

## Overview of “Medium-to-Long-Term Vision for Technological Innovation”

### (1) Safety and Security

“Anticipate and Minimize Risk”

To keep a pace with the levels of safety that society will expect in the future, it is important to utilize IoT, big data, and AI for the identification of accident precursors, the unearthing of risks that are difficult to find based on existing knowledge and experience, and the advancement of preventive measures. With this in mind, JR East will pursue ultimate safety levels by advancing R&D, combining technologies in the fields of intelligent transport systems and robotics while taking into account human factors.

### (2) Service and Marketing

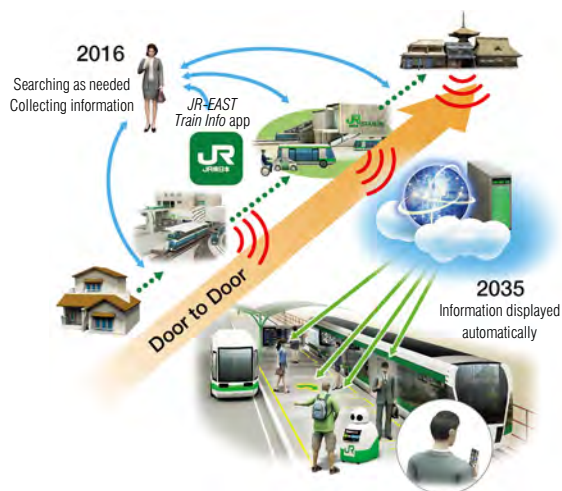
“Providing Customers with Service Now, Service Here, Service for Me (Now-Here-Me)”

JR East will advance efforts to provide each customer with real-time, easy-to-follow information not only about our transportation services but also about other transportation services. In the future, through flexible train operations and advanced collaboration with other transportation providers, JR East will provide mobility services that enable seamless “door-to-door” mobility. In addition, JR East will concentrate more personnel on the provision of high-quality services that only humans can offer with the aim of lifting its hospitality to the next level.

### (3) Operation and Maintenance

“Devising Work Styles for a Smaller Productive Population”

More efficient and effective maintenance has become possible through frequent collection and analysis of data from rolling stock and infrastructure, which enables optimally timed maintenance and the monitoring of safety. Aiming to realize practical application of this type of maintenance, JR East is steadily advancing measures through new Series E235 railcars that operate on the Yamanote Line. JR East will also advance such innovations as autonomous driving technology, robotization, and AI-supported operations.



“Door-to-door” mobility and “Now-Here-Me” service

### (4) Energy and Environment

“Establishing a Railway Smart Grid”

JR East is not merely an end user but also maintains a comprehensive energy network that encompasses capabilities from generation through to transmission and distribution. By incorporating such new technologies as renewable energy, energy saving, and energy storage into this network, JR East aims to establish a railway smart grid that reduces railways’ energy consumption 25% and CO<sub>2</sub> emissions 40% versus fiscal 2014 levels by fiscal 2031.



Next-generation energy network

# Tackling New Business Areas

## Basic Approach to Tackling New Business Areas

“JR East Group Management Vision V—Ever Onward” sets out “Tackling new business areas—Globalization” as an important task. Accordingly, JR East is drawing on its experience and expertise to develop new business areas and realize growth. Railway projects are in the pipeline worldwide. The overseas railway market is expected to grow an average of 2.6% per year and expand to roughly ¥22 trillion in 2020. Given this trend, JR East is developing businesses globally by collaborating with companies at home and abroad while leveraging its expertise in the operations and maintenance field. This field encompasses train operation planning, management, support, and implementation as well as the maintenance of facilities and equipment. While giving priority to Asia due to its dramatic growth, JR East will participate in railway projects in countries worldwide.

## Participation in Indian High-Speed Railway Project

Of the seven high-speed railway lines that India's government has announced plans to develop, it has decided to adopt Japan's Shinkansen technology for the high-speed railway project between Mumbai and Ahmedabad. This decision was based on a memorandum of understanding concluded between the governments of Japan and India for cooperation relating to the development of a high-speed railway system. The governments concluded this memorandum based on a summit meeting between prime ministers Abe and Modi, held on December 12, 2015, and a joint declaration issued on the same day.

Currently, the governments of Japan and India are holding talks about specific business schemes for the high-speed railway. Following talks on November 11, 2016, the governments announced a progress report on the high-speed railway plan and scheduled work to begin in 2018 and the high-speed railway line to open in 2023. As public and private entities work together in these discussions, JR East is providing technical support based on its extensive experience as a Shinkansen operator.

In addition, in March 2016 the Japan International Cooperation Agency (JICA) commissioned a Group company, Japan International Consultants for Transportation Co., Ltd. (JIC), to provide consulting services relating to a project for the formulation of high-speed railway technical standards. Known as the Indian High-Speed Railway-Related System Development Support Project, this project is currently under way. Moreover, JR East has enhanced its internal organization by appointing executives with responsibility for the Indian high-speed railway project.

## Participation in Thailand's Purple Line Project

JR East is partnering with Marubeni Corporation and Toshiba Corporation in a project to provide comprehensive maintenance for the railcars and ground installations of the *Purple Line*, a mass rapid transit railway in Bangkok, Thailand. Beginning operations on August 6, 2016, the *Purple Line* is a railway line in Thailand's capital, Bangkok, which links the Bang Sue district, in the northern part of the city, to the Bang Yai district in the northwestern suburbs. In December 2013, through a joint investment with Marubeni and Toshiba, JR East established a maintenance company, Japan Transportation Technology (Thailand) Co., Ltd., in Bangkok.

For a 10-year period, this company provides maintenance services for railcars, signals, railway tracks, power systems, automatic platform gates, the automated fare collection system, and rail yard facilities. In addition, Japan Transport Engineering Company (J-TREC) manufactured and provided 63 railcars, comprising 21 sets of three-car stainless-steel trains for use on the *Purple Line*.



Opening of the Purple Line

## Providing Technical Support to Overseas Railway Operators

Jakarta, Indonesia's capital, is developing public transportation infrastructure to relieve chronic traffic congestion. As part of these efforts, the city is tackling the need to rapidly increase existing railways' transportation capacity. In response, JR East transferred 476 Series 205 railcars, previously used on the Saikyo Line and other lines, to the PT KAI Commuter Jabodetabek urban rail system for three years. At the same time, JR East has provided technical support for the maintenance of the transferred railcars to ensure they operated reliably since 2013. Also, since 2016 we have been providing additional technical support to improve train services.



Providing technical support

## Opening of JAPAN RAIL CAFE in Singapore

In December 2016, JR East opened *JAPAN RAIL CAFE* in Singapore. As well as providing information about travel to Japan, the center is a place where locals with a passion for Japan can meet. Also, JR East showcases the appeal of railway travel at travel expositions and other overseas events.



JAPAN RAIL CAFE

# Developing Employees and Creating a Corporate Culture that Maximizes Human Potential

## Basic Approach to Personnel Development

The capabilities of each employee underpin the JR East Group. The Group’s basic philosophy is to employ personnel based on their personalities and capabilities and foster personnel patiently until they fully realize their potential.

## Promotion of Diversity Management

JR East Group employees have diverse viewpoints and values, reflecting gender and other attributes, experience, and skills. The JR East Group views this diversity as a strength.

Accordingly, the JR East Group is advancing diversity management with the aim of being a corporate group in which all employees can realize their capabilities to the fullest. At the same time, the Group is emphasizing collaboration among all generations from young employees through to older, highly experienced employees.

### Initiative Example (1)

#### Promoting Involvement of Female Employees

As the systems under which its employees work are varied, JR East views the involvement of female employees as a litmus test of diversity. Since its establishment, JR East has primarily increased gender equality by making such positions as train crew member available to women. As a result, female employees now work in all areas of our operations. Given that female employees’ careers are lengthening, JR East will rapidly foster female employees as prospective managers. Specifically, JR East has set targets for hiring, development, and promotion, which are stated below.

#### Pursuing Targets for the Empowerment of Female Employees

- Ensure that by the end of fiscal 2019 women account for at least 30% of new graduate hires and 40% of new graduate hires who want to be train crew members
- Develop workplaces where different work styles are possible and all employees remain motivated
- Ensure that by the end of fiscal 2019 women account for 5% of managerial positions

As of April 1, 2017, women accounted for 12.2% of employees, or 6,912 employees, and 4.1% of managers, or 166 managers. There are an increasing number of women in important positions, such as head office and branch office general managers, station masters and other supervisors of facilities in the field, and Group company directors. As of June 23, 2017, JR East has appointed one female outside director and two executive officers.



Seminar to help employees balance work and childcare

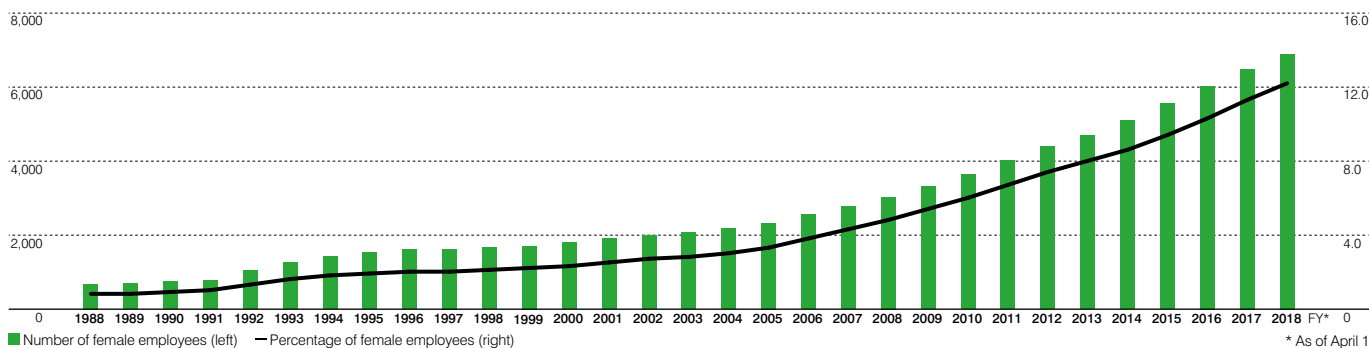
### Initiative Example (2)

#### Employing People with Disabilities

As of June 2017, 2.45% of our workforce consisted of employees with disabilities. These employees work alongside other employees in a broad range of positions. Also, aiming to meet our social responsibility to an even greater degree by promoting the employment of people with disabilities and establishing working conditions amenable to them, JR East established JR East Green Partners Co., Ltd., in April 2008. The company acquired certification as a special subsidiary in May 2009.

## Number and Percentage of Female Employees

Persons / %





*Initiative Example (3)*

### Benefiting from the Elder Employee System

In fiscal 2009, JR East introduced the Elder Employee System. Under this system, approximately 80% of employees who reach retirement age continue working for Group companies, which benefit from these employees' capabilities and skills. The system helps retired employees to further stabilize their finances until they reach a fully pensionable age and enables Groupwide know-how accumulation.

### Heightening the Capabilities of Personnel

The JR East Group intends to enhance the capabilities of personnel throughout the Group. In light of employees' aspirations, the Group will strengthen the management capabilities of managers, pass on skills, and conduct employee development programs that include Group companies.

	Target	Priority Initiative
Personnel development	General employees	Measures responsive to employees' aspirations
	Managers	Measures to enhance management capabilities
	Group companies	Enhancement of personnel capabilities throughout the JR East Group
Passing on of skills	Employees of all ages	Effective passing on of technology and skills and education about essence of work



Tunnel inspection training

### Globalizing Our Corporate Culture

More than 600 JR East employees, many of whom are from frontline operations, participate enthusiastically in overseas training and study programs every year. For some time, JR East has conducted an overseas study program for employees studying for MBAs. In addition, JR East offers an overseas experience program that gives roughly 100 employees an opportunity to experience other cultures while learning another language. This program sends participants to cities worldwide, including those in non-English speaking countries, for three-month homestays. JR East also conducts an on-the-job training program for overseas railway consulting, in which approximately 30 employees

participate for about three months in overseas railway consulting projects centered on Group company Japan International Consultants for Transportation Co., Ltd. Other programs include overseas training for roughly 500 employees that is focused on Southeast Asia.



On-the-job training program for overseas railway consulting in India

### Certified as a Highest-Grade "Eruboshi" Company

JR East has created conditions that enable women to play an active part in its operations. For example, JR East has been hiring more women and expanding and improving systems that help employees balance family and professional commitments. As a result, women do an increasingly wide range of jobs. Currently, 40% of "Eruboshi" logo train conductors working on the Yamanote Line are women. Further, the number of female leaders is rising every year as more women become branch office chiefs, head office and branch office general managers, and supervisors of facilities in the field, such as station managers and assistant managers. In recognition of these advances, the Ministry of Health, Labour and Welfare certified us as a highest-grade, or grade three, "Eruboshi" company based on the Act on Promotion of Women's Participation and Advancement in the Workplace.



#### "Eruboshi"

There are five assessment criteria. Companies satisfying one or two criteria are classified as grade one, those satisfying three or four are grade two, and those satisfying all are grade three.

#### Assessment Criteria

- (1) Hiring
- (2) Retention
- (3) Overtime and holiday working
- (4) Management position
- (5) Career diversity