

Quality Railways of Japan And its Contribution to India

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Ministry of Land, Infrastructure, Transport and Tourism

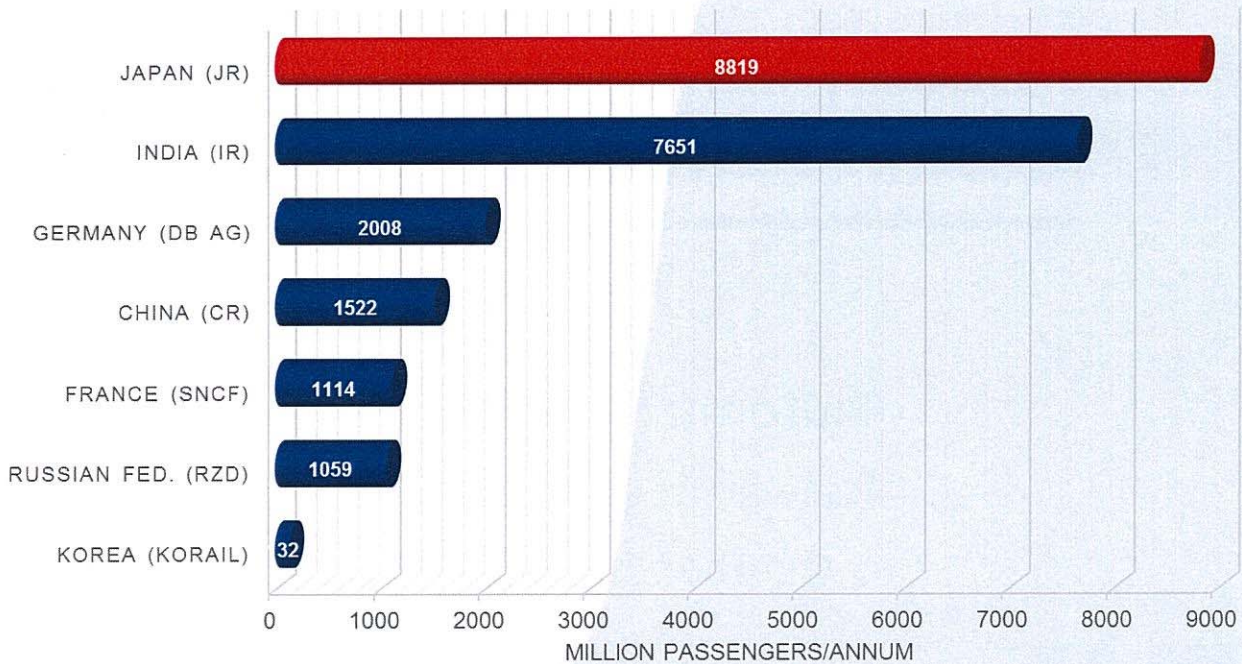


Outline

- Japan – A Country of Railway
- Japan's Quality Railways
- Railway Cooperation between India and Japan

Most Used Railway in the World

Number of Railway Passengers Per Annum

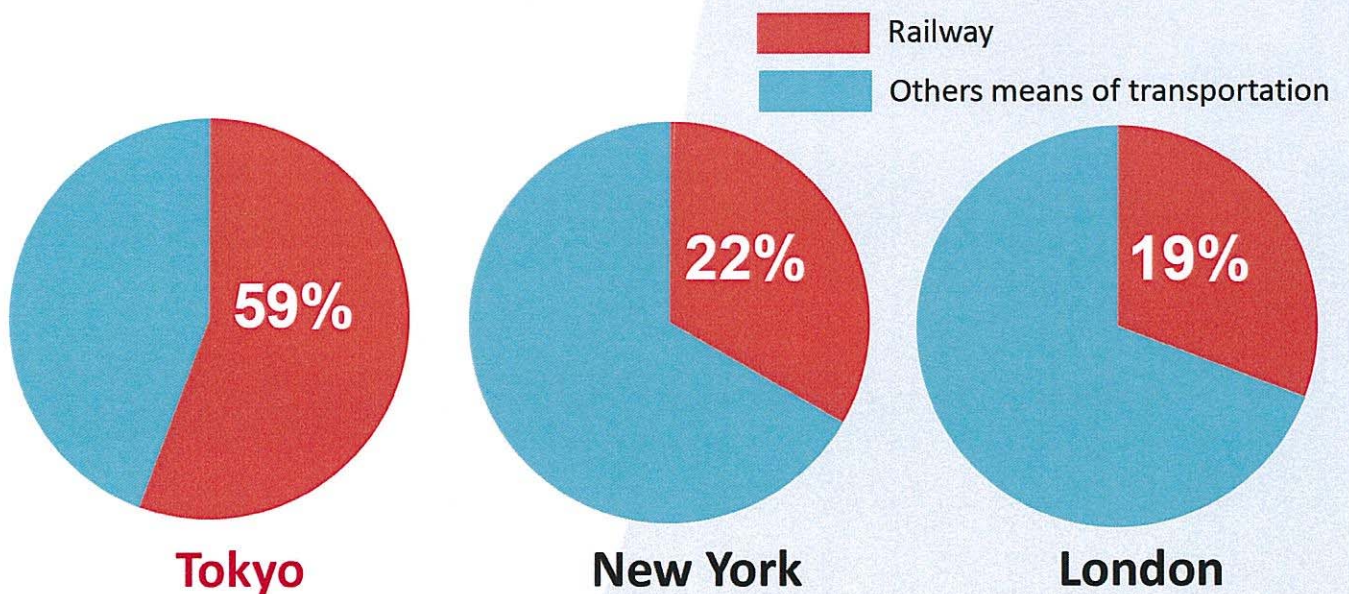


* The figure represents the total kilometers of the railways of the Six Japan Railway companies.

Source: UIC, International Railway Statistics 2011, 2013

Tokyo: The Most Railway Oriented Mega-City in the World

The Share of Railway Passenger Transport in the Major Mega-Cities in the World



*Tokyo covers the metropolitan area of Tokyo

*Date on Tokyo, New York and London are of FY2008, FY2007 and FY2006 respectively.

Every Type of Railway Technology in Operation



Shinkansen – World's Leading High Speed Rail System

Max. Operating Speed : **320km/h – Fastest** in the World

Total Length (in Operation) : **2,616km – 2nd Longest** in the World

Year of Inauguration : **1964 – Pioneer** of the HSR



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6

Japan’s Quality Railways

Five Elements to Characterize “Quality Railways”



7

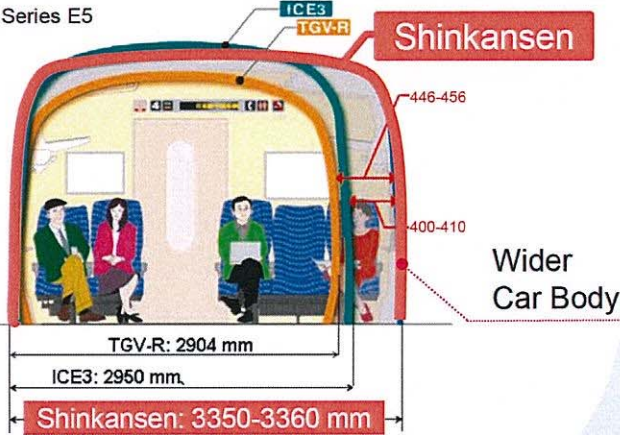
1 Economic Efficiency

Efficient Facilities Reduce Lifecycle Cost

(Lifecycle Cost = Capita Expense + Operating Expense)

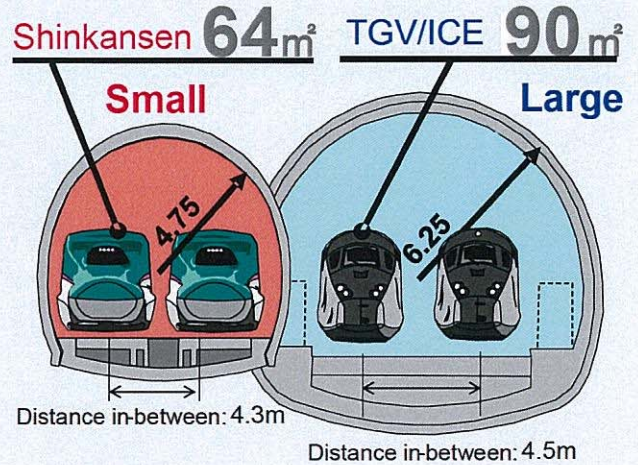
	Width (mm)	Seat Pitch (mm)	Seats/Car (No./car)
Shinkansen*	3350	1040	73.1
TGV-R	2904	900	37.5
ICE3	2950	920	53.6

* Series E5



Large Space Car

More Passengers



Air tightness of the car body allows smaller tunnel design.

Small Structure Components

1 Economic Efficiency (Cont'd)

Efficient Facilities Reduce Lifecycle Cost

- Minimization of structures and facilities
- Effective operation and maintenance



Reduce total life cycle cost

	Tokyo Station, Japan	Beijing South Station, China
Overview		
Platforms for HSR	3 platforms and 6 tracks	6 platforms and 12 tracks
Return Time	12 minutes	approx. 40 minutes
Number of Trains	426 trains / day (Arrival and Departure)	156 trains / day (Arrival and Departure)

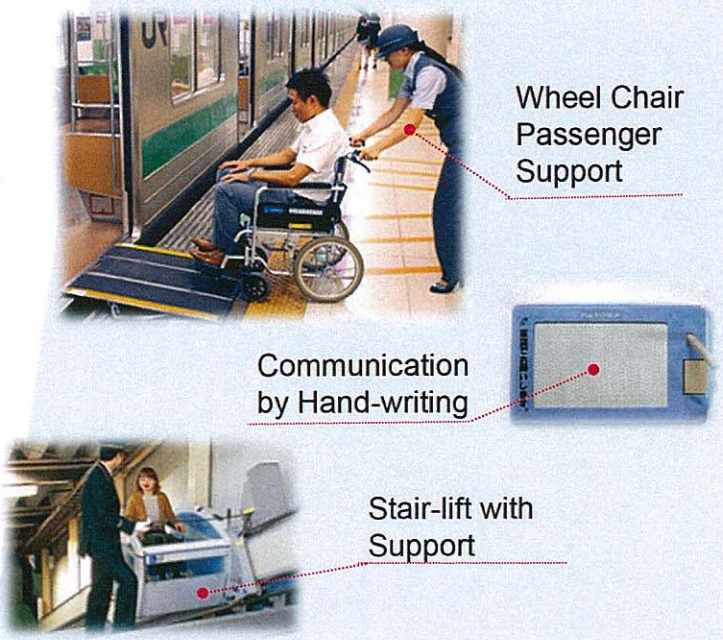
2 Inclusiveness

Promoting Barrier-Free Environment

by both Hardware & Software



Hardware



Software 10

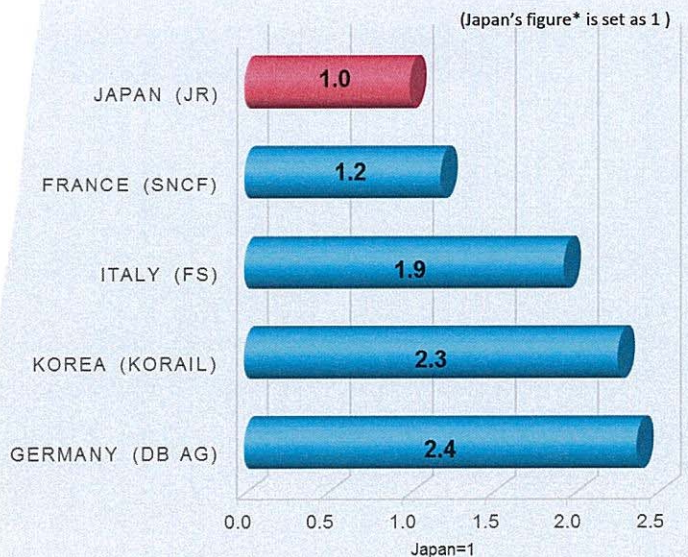
3 Safety & Resilience

Leading World's Railway in Safety

Accident History of High Speed Train

0	Fatalities Over 50 years In Passenger, 1964→2014	
77	Fatalities Derailment / Spain, 2013	
35	Fatalities Collision / China, 2011	
101	Fatalities Derailment / Germany, 1998	

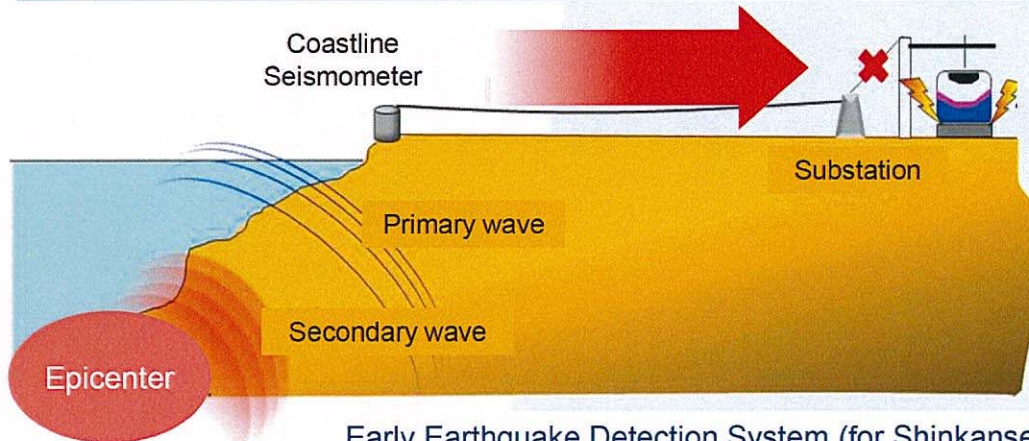
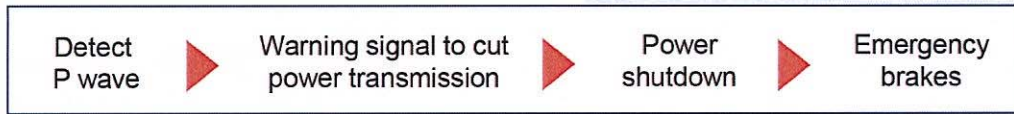
Ratio of Railway Accident per train-kilometer



* The figure represents the total kilometers of the railways of the Six Japan Railway companies.
Source: UIC, International Railway Statistics 2011, 2013

3 Safety & Resilience (Cont'd)

Tough Resilient Railway System to Disaster



Early Earthquake Detection System (for Shinkansen)

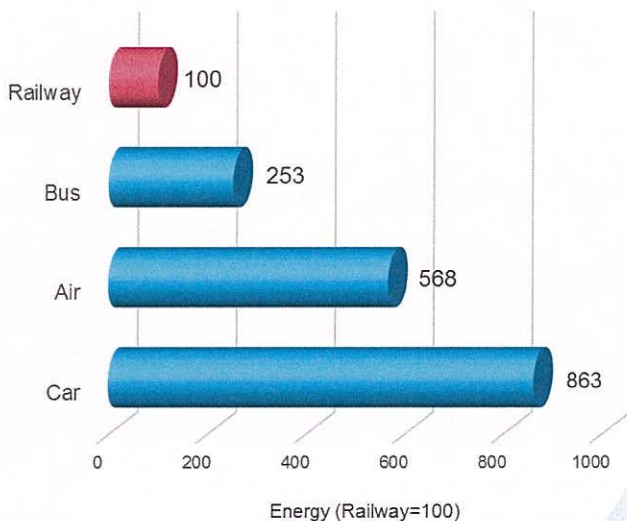
- Great East Japan Earthquake and Tsunami (2011) was the fourth biggest earthquake in the world after 1900.
- 27 trains were operated at the time, but none of the passengers were injured.

4 Sustainability

Pursuing Environment-Friendly Transportation

World's First Hybrid Railcar in Commercial Use

CO2 Emissions per Passenger-km (Japan, FY2008)



Series Kiha E200

-10% Fuel Consumption
(On Koumi Line / Maximum of 20% achievable)

-60% Harmful Exhaust Gases
(Emission of NOx gases and particulate matter)

- Developed by JR-East (East Japan Railway Company)
- Operating on Koumi Line
- Debut: July 2007
- Max. Operating Speed: 100km/h

Source: JRRT, "Characteristic and Role of Railway", JRRT Website, Accessed Feb, 2015

5 Convenience

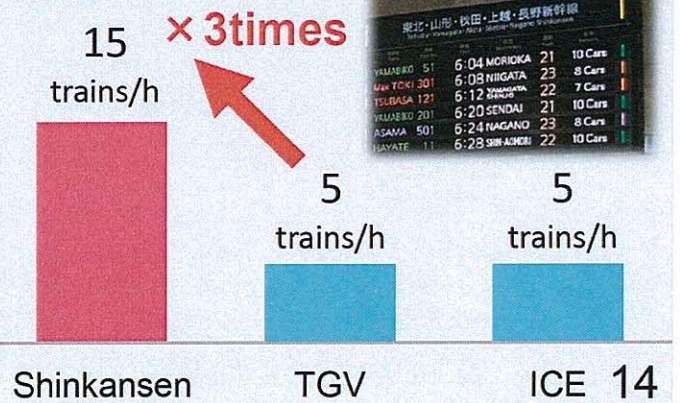
Extremely Reliable Operation

Average Delay Time Per Trip

Within **1** Min. (In case of Shinkansen)

Operating Frequency (At Peak Time)

15 Trains/Hour (In case of Shinkansen)



6 Amenities

Enrich Passenger's Daily Lives by Expanding Business Fields



78 Railway Operators

5,000 Stations

87 Million cards issued

As of March 2015

IC Card (e-money)

Commercial Development

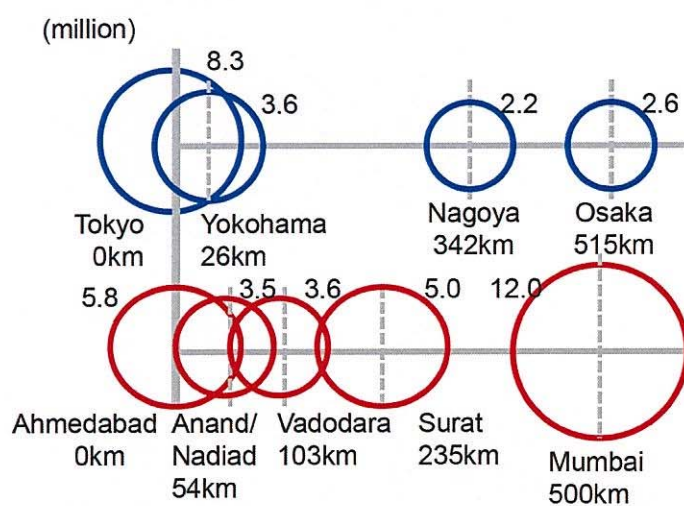
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Railway Cooperation between India and Japan

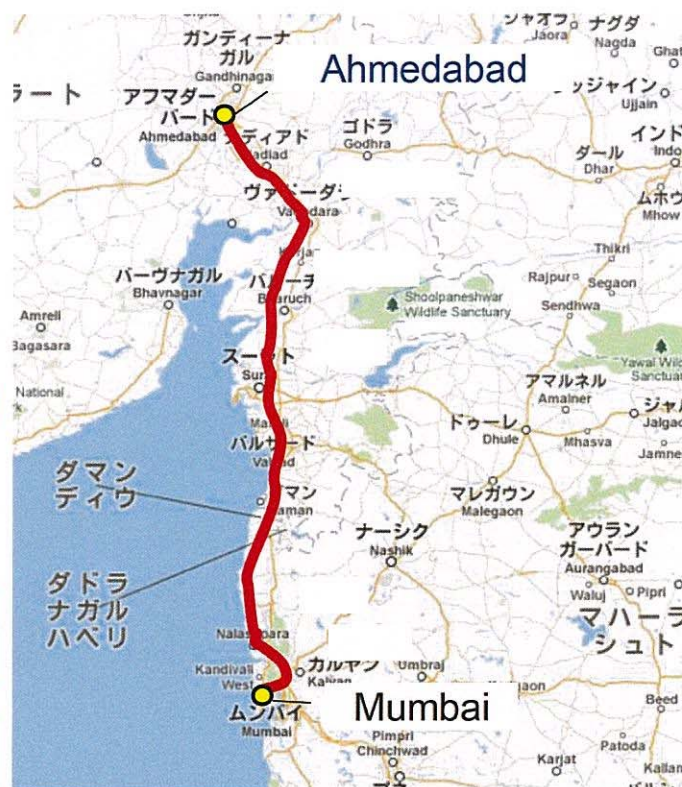
Mumbai – Ahmedabad Corridor

Population of cities(2008)



Mumbai – Ahmedabad corridor is appropriate for High Speed Railway

Joint F/S (by India & Japan) has been submitted in July 2015



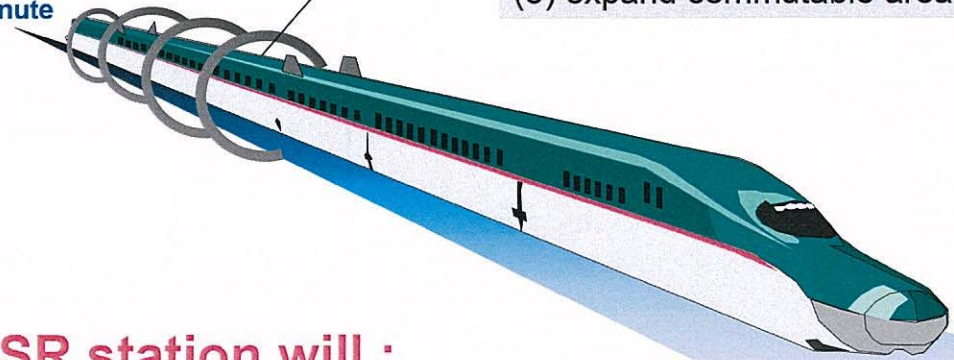
Your Life will change!



Mumbai
0 minute

HSR will :

- (1) expand business opportunities
- (2) activate consumption
- (3) expand commutable area



HSR station will :

- (1) become a new transit hub
- (2) have in-station retailing business
- (3) become a new city center

120 minutes



Ahmedabad
18

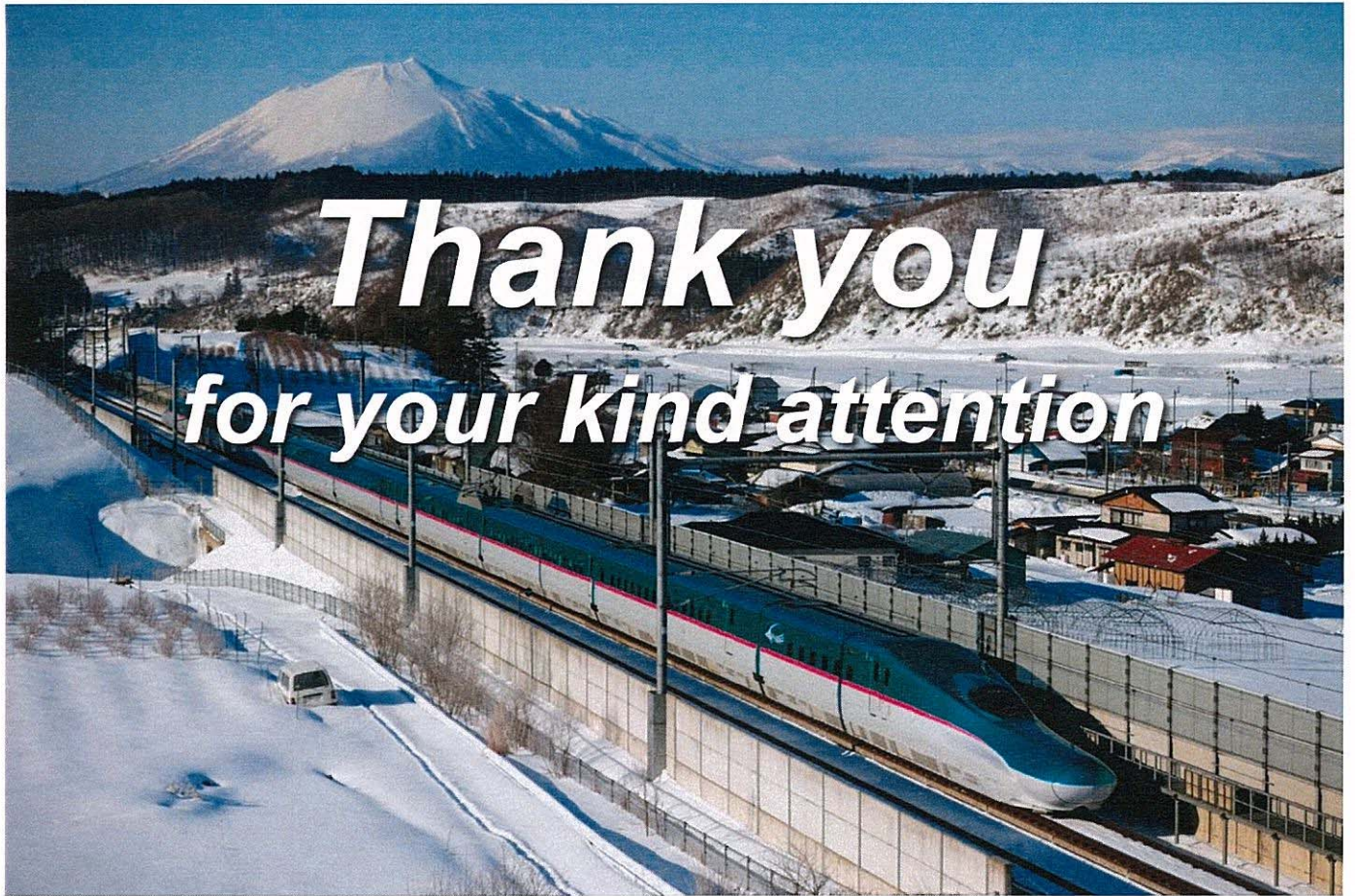
Cooperation in Wide Range of the Railway Field

Capacity Development

Deeper Relations Between Private Companies

Railway Safety

Railway Service



*Thank you
for your kind attention*

