

High Speed Rail & SHINKANSEN

Kozo FUJITA

Railway Bureau, MLIT

April 30, 2015

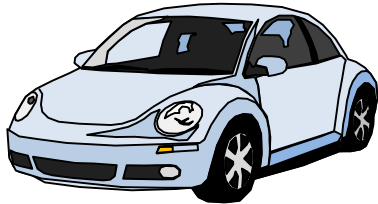


Topics

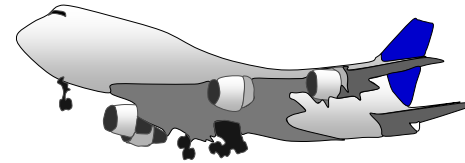
- 1. Why High Speed Rail (HSR) is preferred**
- 2. Japan's experience in HSR project**
- 3. HSR era has come to California**

1. Why HSR is preferred?

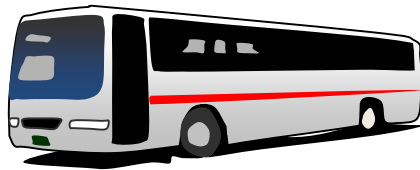
Automobile



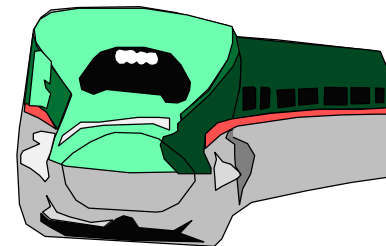
Airplane



Bus



High Speed Rail (HSR)

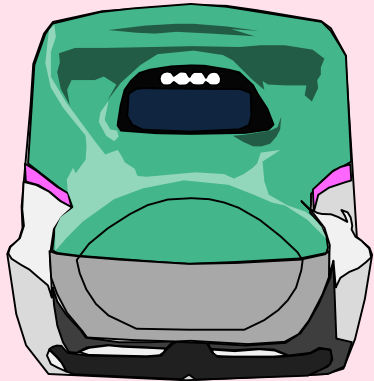


How safe is HSR?

0

fatalities
for
50 years

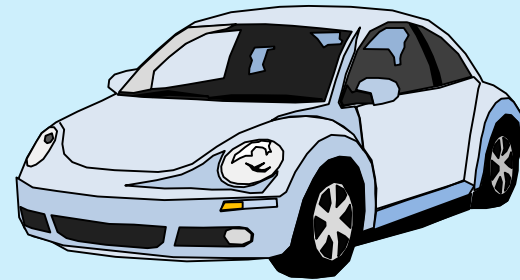
1964→2014



12

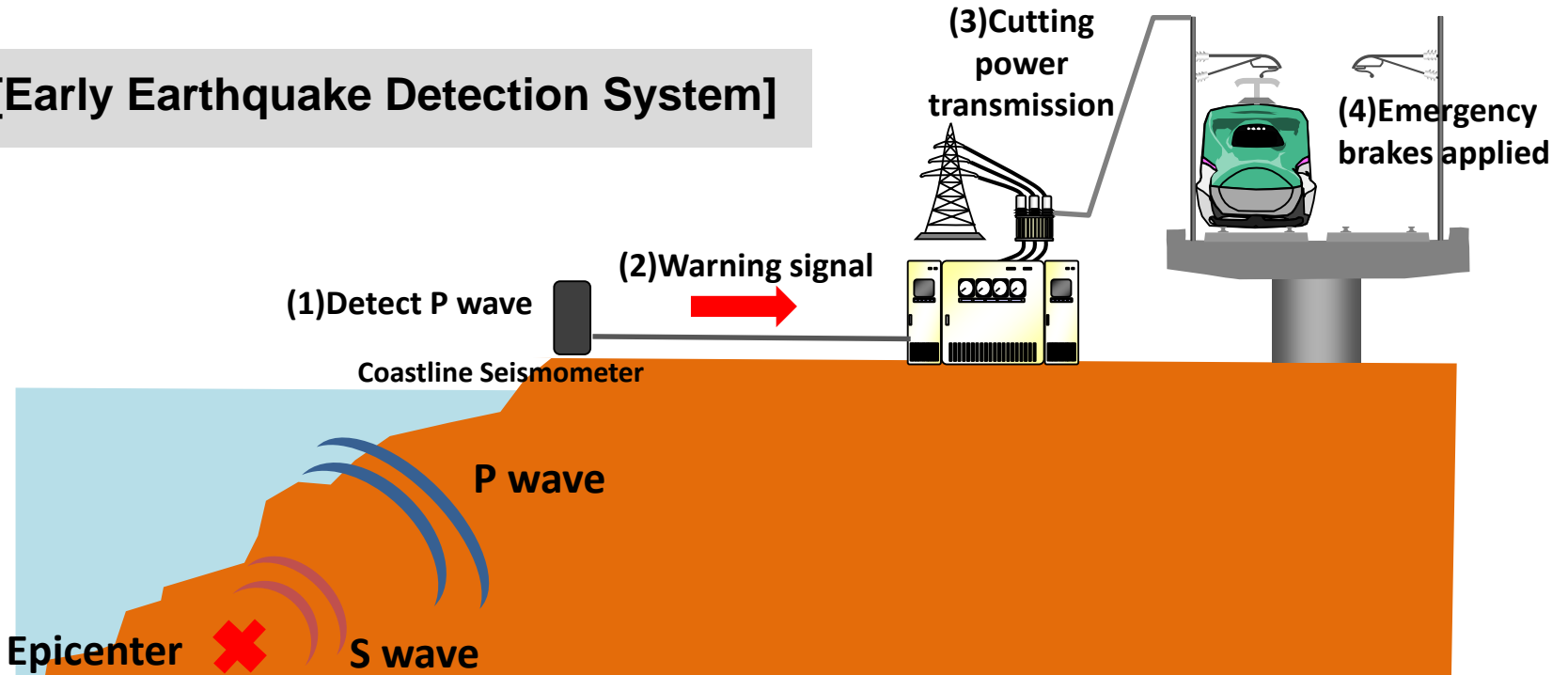
fatalities
per day

in Japan in 2013

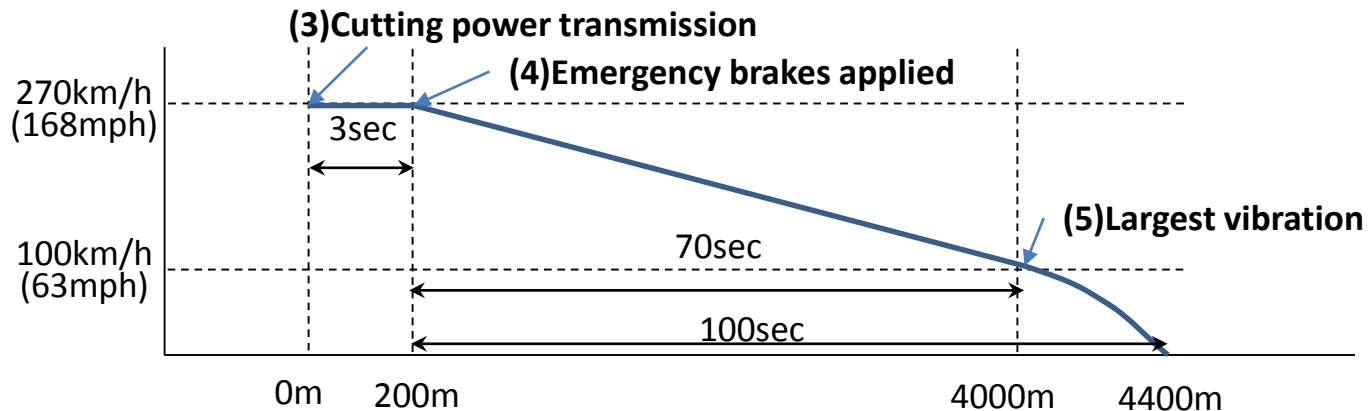


(Best practice of safety management ~Seismic measures~)

[Early Earthquake Detection System]



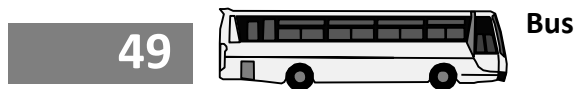
[Actual functional flow at the time of Great East Japan Earthquake in 2011]



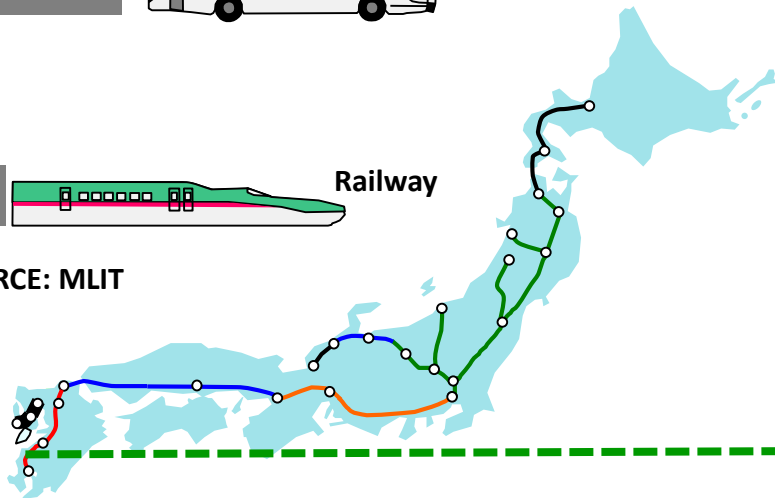
Effect of modal shift

Comparison of CO₂ EMISSIONS

(g-CO₂/person·km)



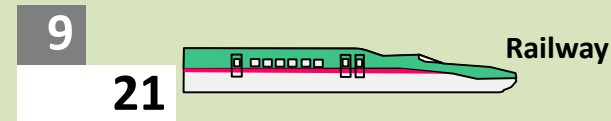
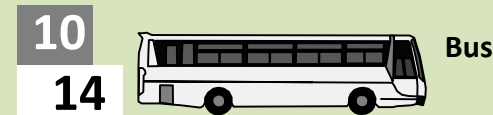
SOURCE: MLIT



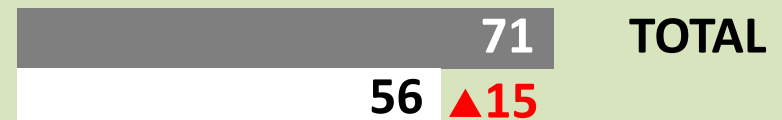
Actual Reduction of CO₂ EMISSIONS

In case of Kyusyu Shinkansen (tonnage/day)

CO₂ emission between Fukuoka (Hakata) and Kagoshima after the opening of the Phase-1 section



Legend:
Before opening
After opening

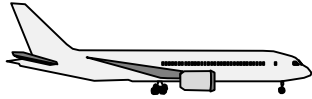


SOURCE: JRJT

Even though emissions from the rail sector increased due to increased Shinkansen passenger traffic, emissions from planes decreased substantially and contributed to a total emission decrease of 15 tons/day.

How fast is HSR?

Airplane



560mph
(900km/h)

SHINKANSEN



(Series E5)



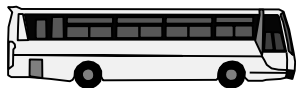
200mph
(320km/h)

Acela Express



150mph
(240km/h)

Automobile/Bus



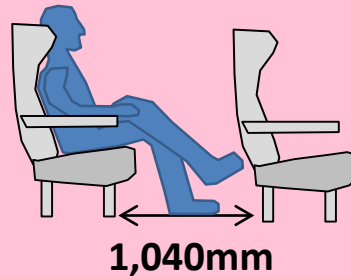
65-75mph
(105-120km/h)

How comfortable and reliable is HSR?

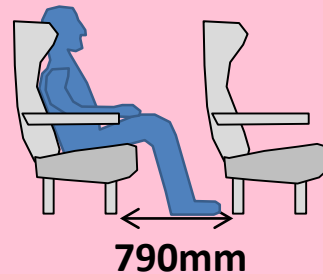
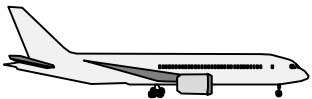
Comfortable

Comparison of seat pitch in ordinary class

SHINKANSEN



Airplane



Reliable

Number of suspensions/delays per day in Japan

0.25

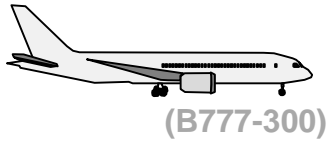
trains /day FY2013

180

flights /day FY2013

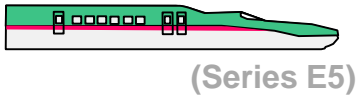
How many people can HSR accommodate?

Airplane



500 seats

SHINKANSEN



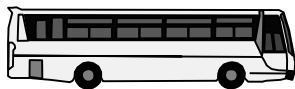
731 seats
(10 cars)*

Acela Express



304 seats
(8 cars including 2 loco & 1 cafe)

Automobile/Bus

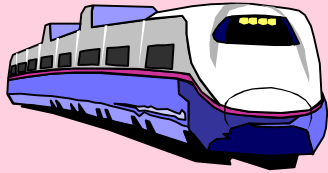


50 seats

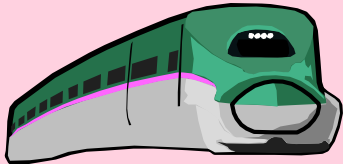


*Maximum number of seats of E4 series, which consists of 16 bi-level cars, is 1,634.

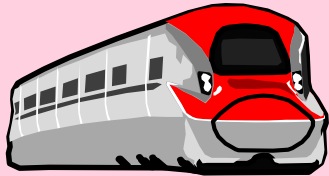
High Speed Rail is ...



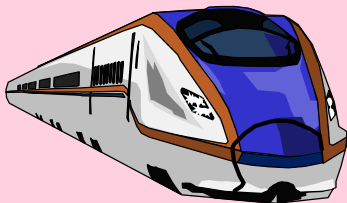
SAFE



FAST



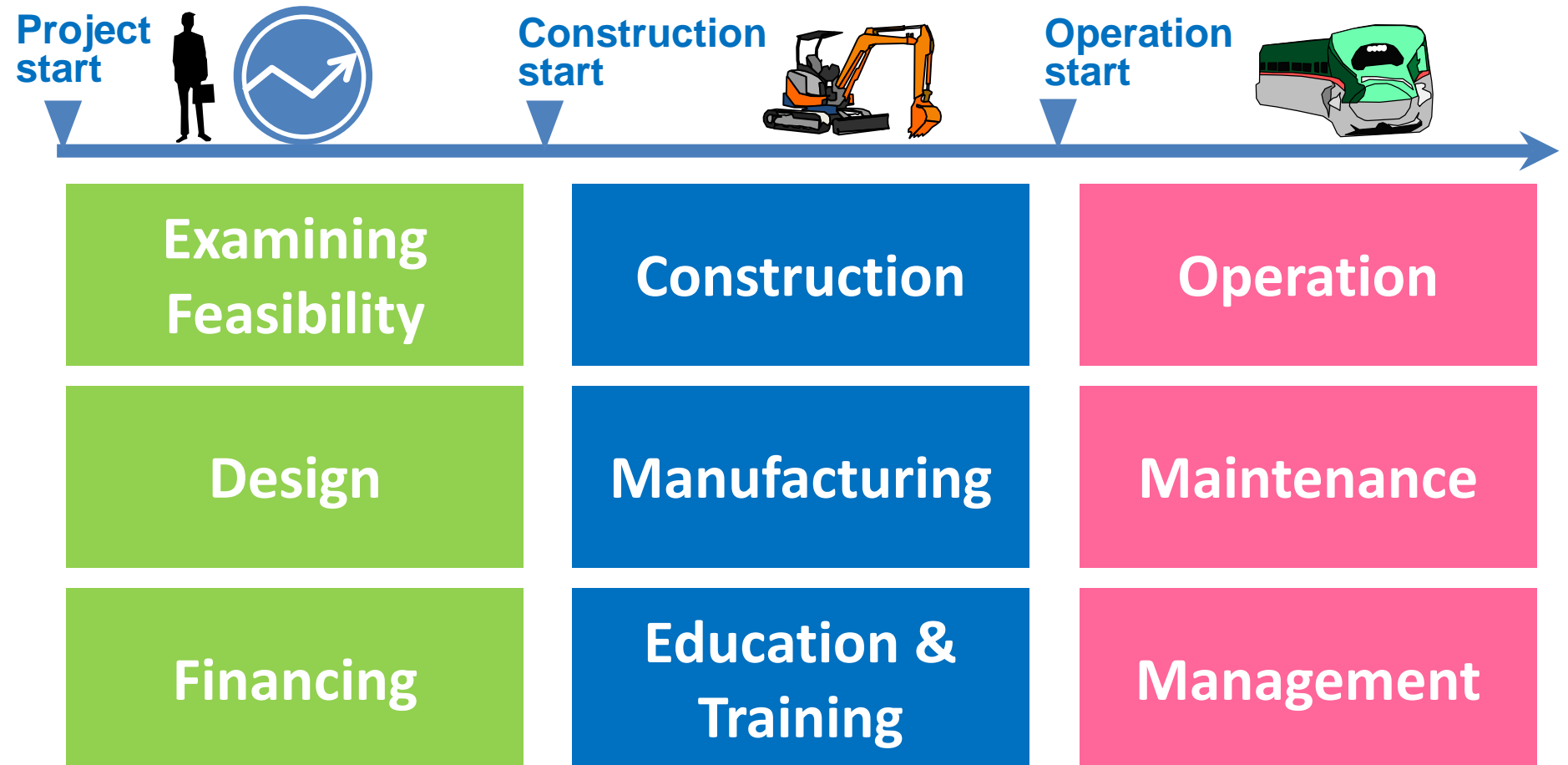
**COMFORTABLE &
RELIABLE**



MASS TRANSPORTATION

2. Japan's experience in HSR project

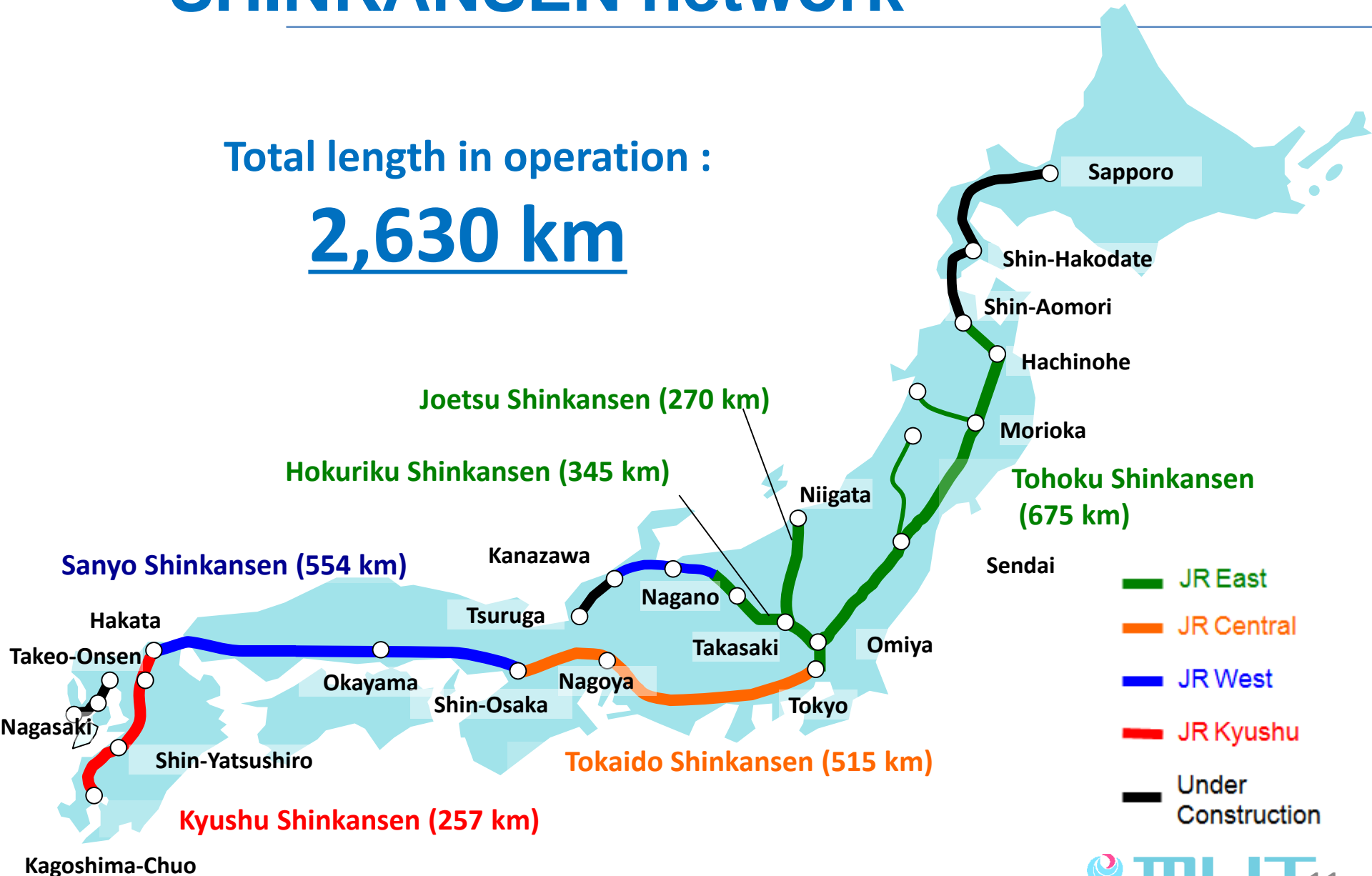
We are well experienced in HSR project as the SHINKANSEN has 50 years' history.



SHINKANSEN network

Total length in operation :

2,630 km



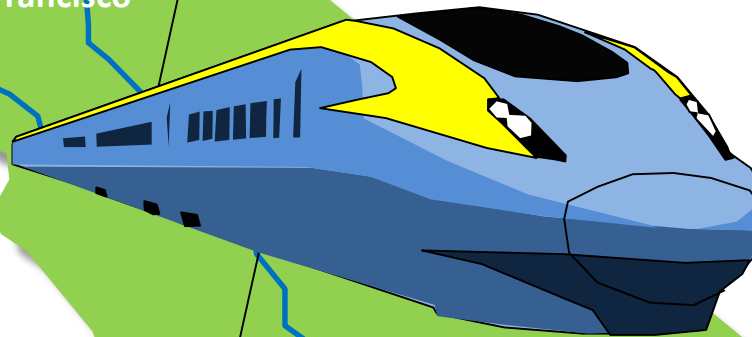
3. HSR era has come to California

State of California

HSR will :

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

Sacramento
San Francisco



HSR station will :

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

Los Angeles

Anaheim

San Diego