

# The impact of the introduction of HSR and the measures to enhance the benefits

-From the Experience of Japan-

Yosuke TAKADA



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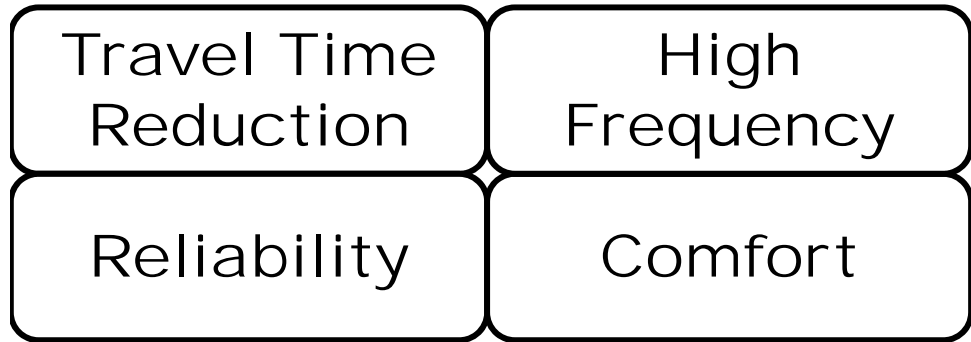


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# Today's Topic

- The suitability of Ahmedabad-Mumbai corridor for the introduction of High Speed Railway(HSR) and its impact
- The measures to enhance the impact of HSR from the experience of Japan

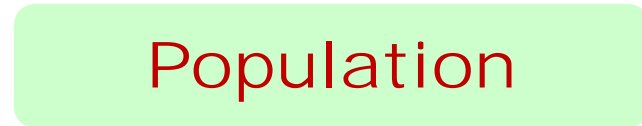
# Benefits by HSR and criteria



Close relationship with...



Close relationship with...



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# Criteria for HSR Candidate Corridor Selection

(Result of Study in Phase II)

- GDP per capita: Over 5,000 USD
- Distance: **Under 1,000 km**
- **The number of cities of over 500,000 population**
- Rail traffic volume: Over **2,000 passengers/day** when GDP per capita will reach 5,000 USD
- Volume of other transport mode  
(Aviation and Bus service)



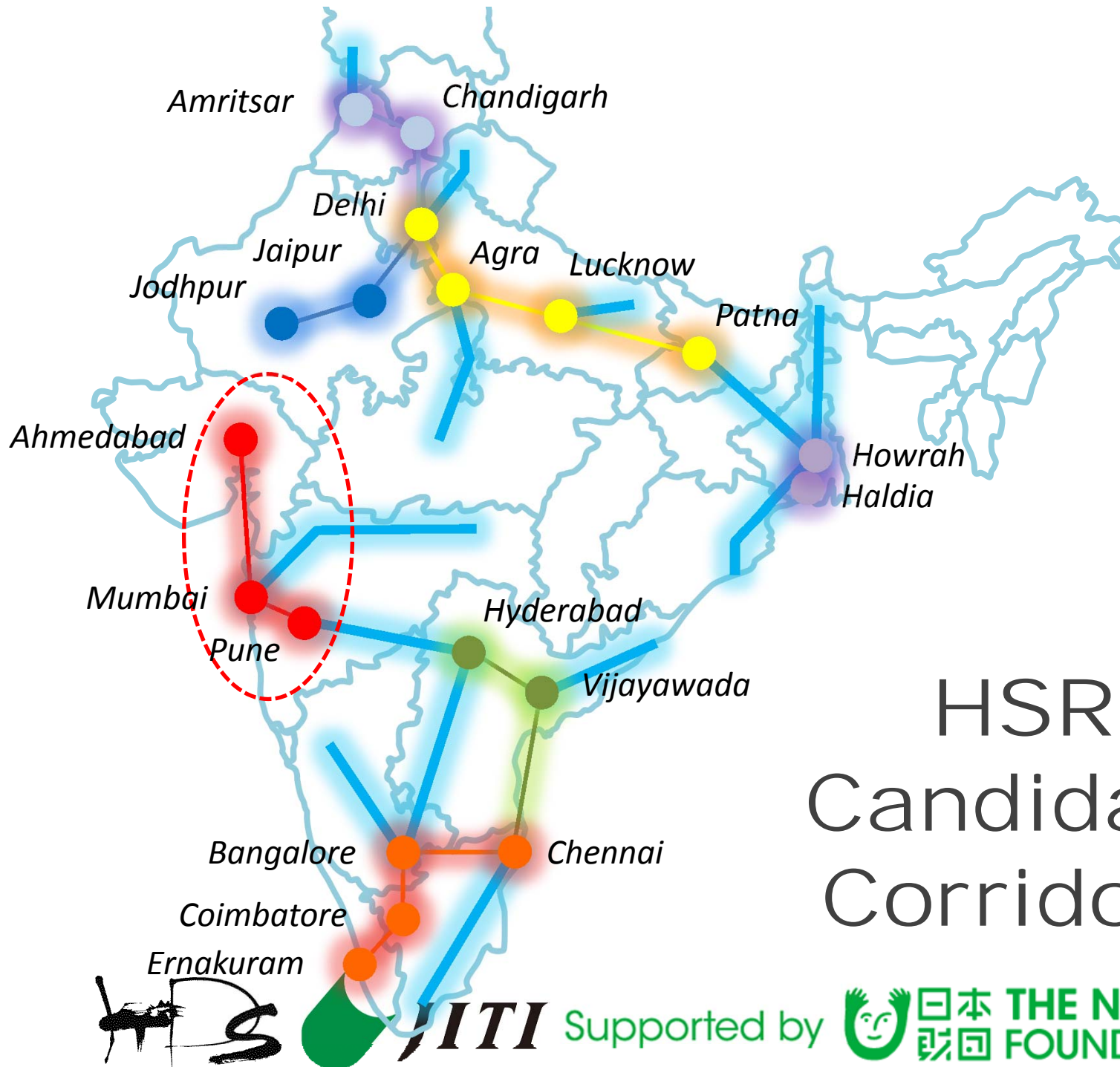
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# HSR Candidate Corridors



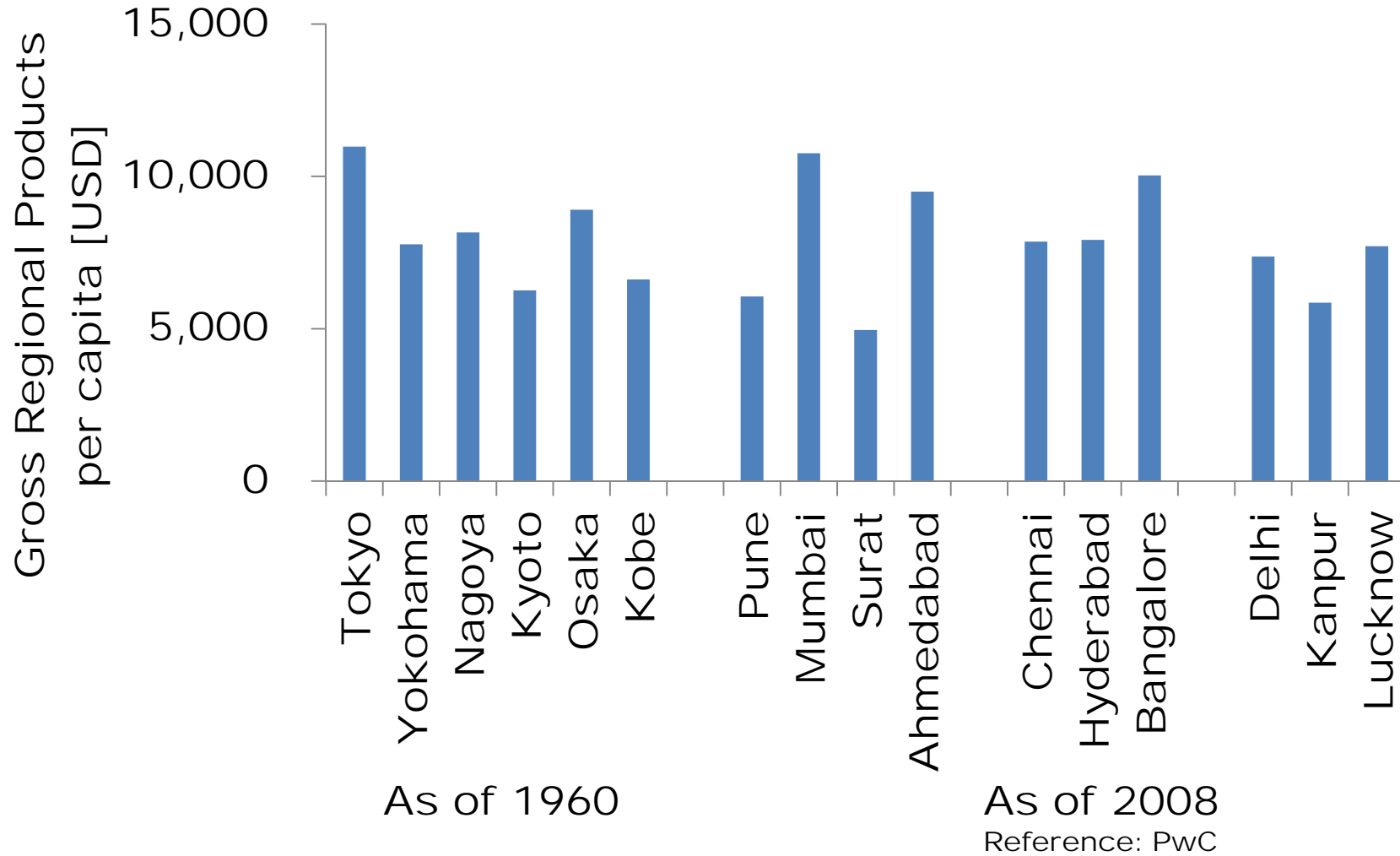
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# GRP per capita

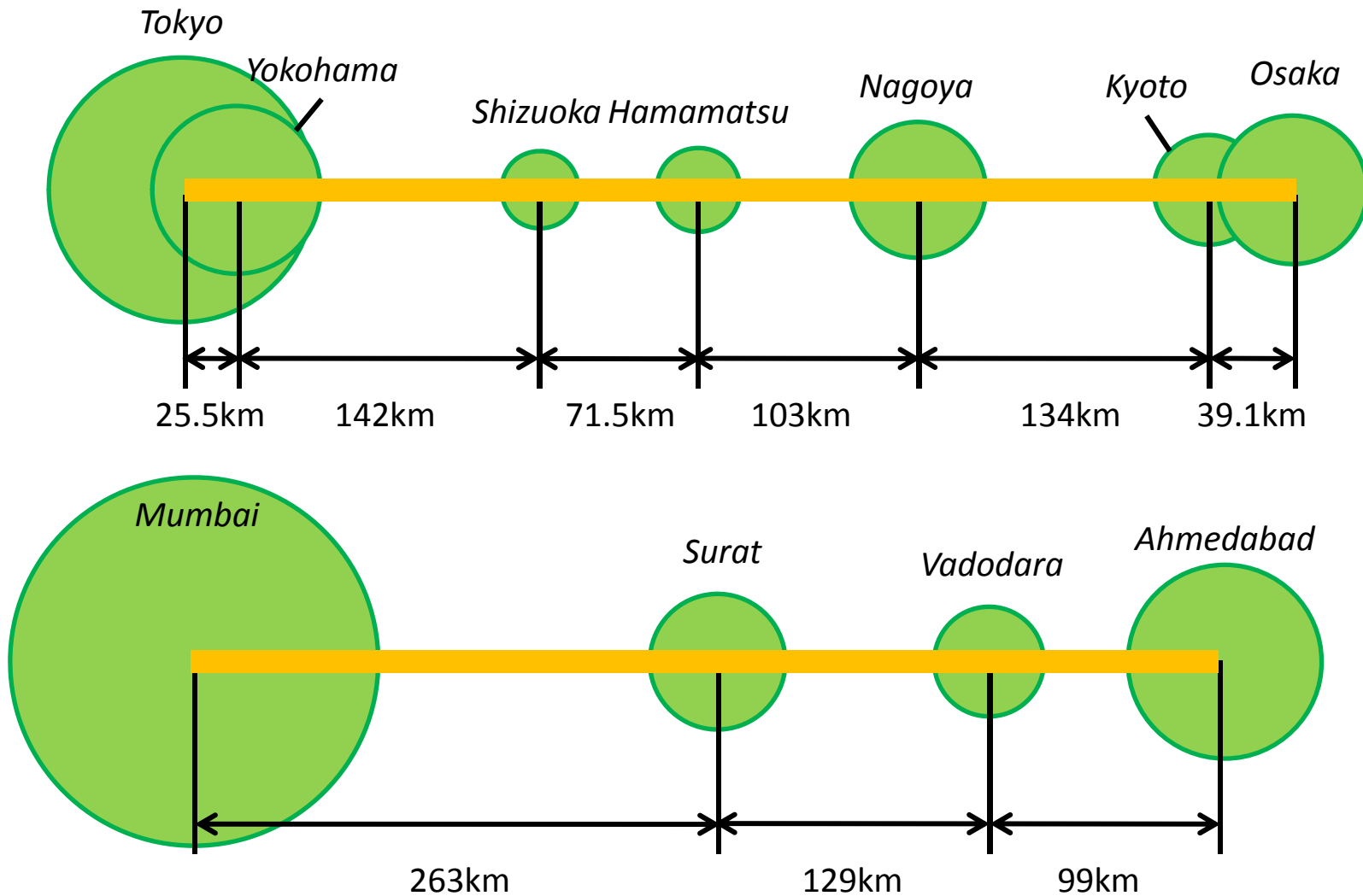


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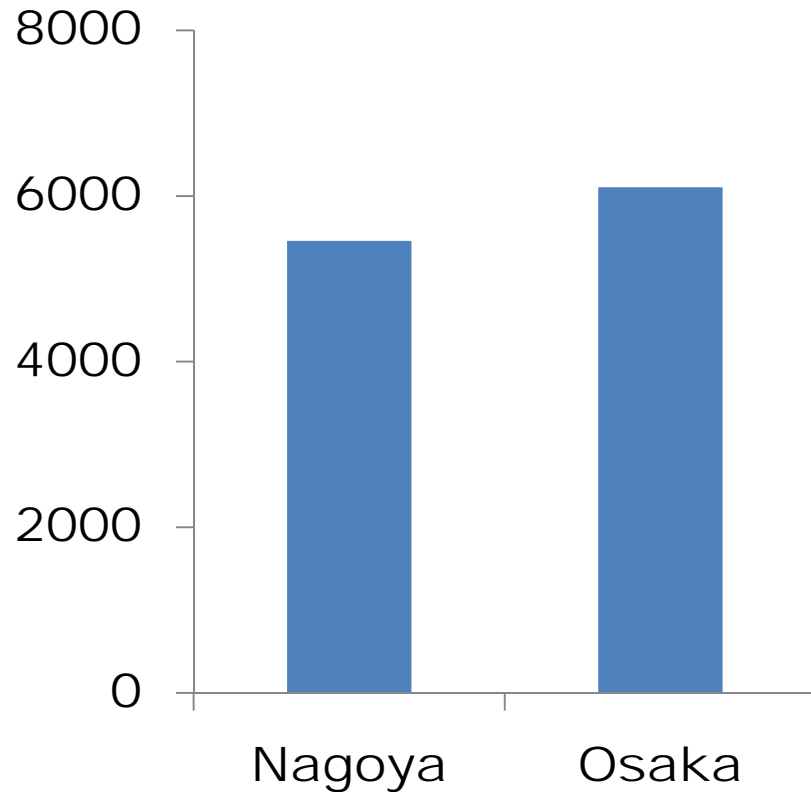
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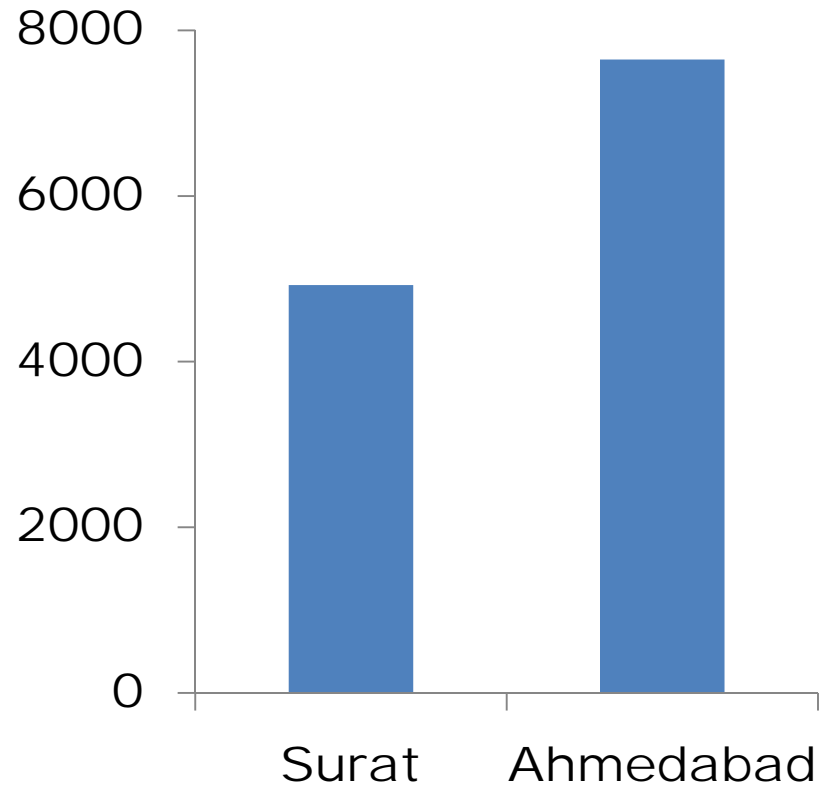
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# Railway Passenger Number Per Day

Actual number as of 1962 from Tokyo



Estimated number as of 2015 from Mumbai



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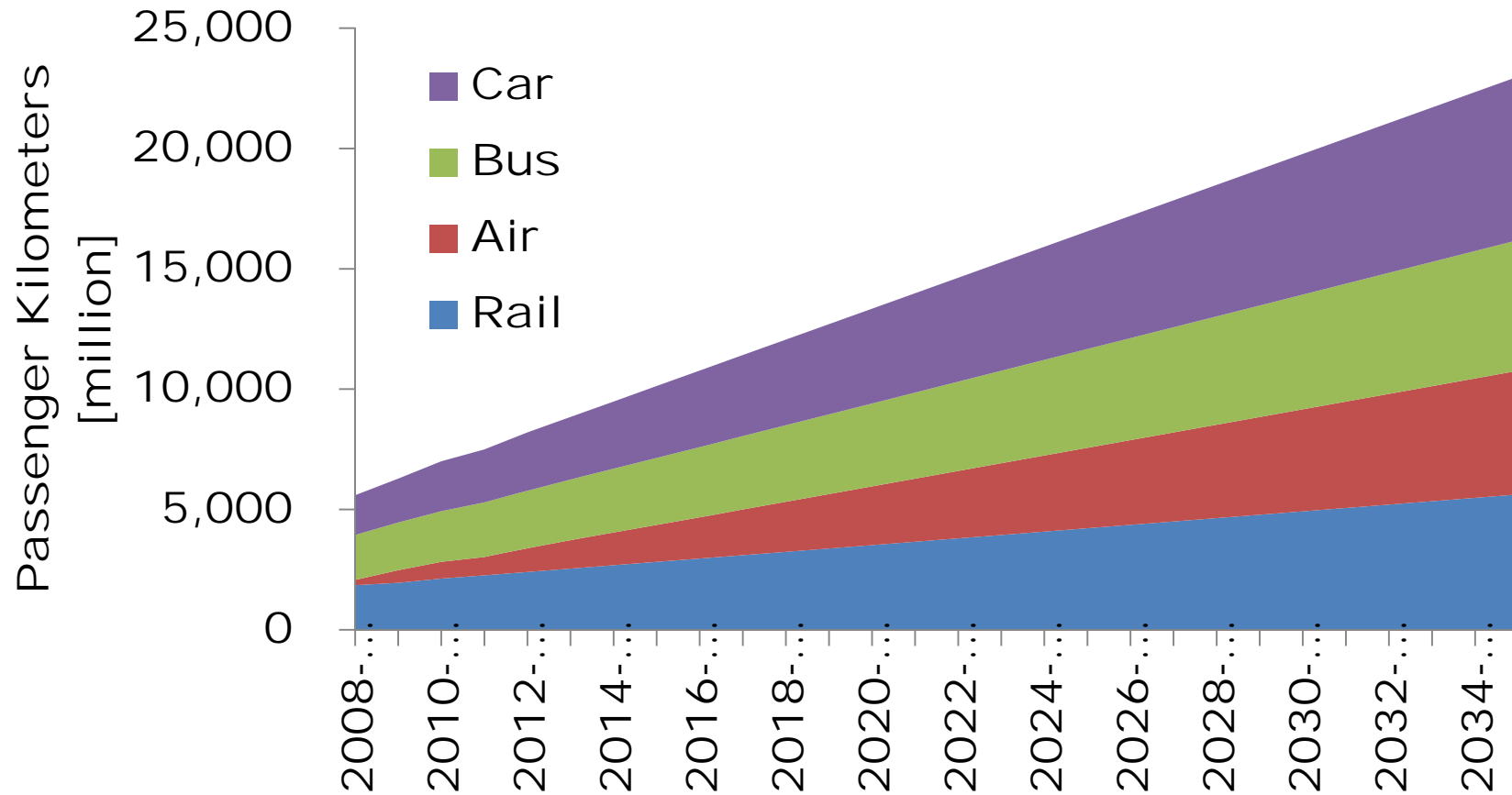
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# BAU Scenario on the Corridor



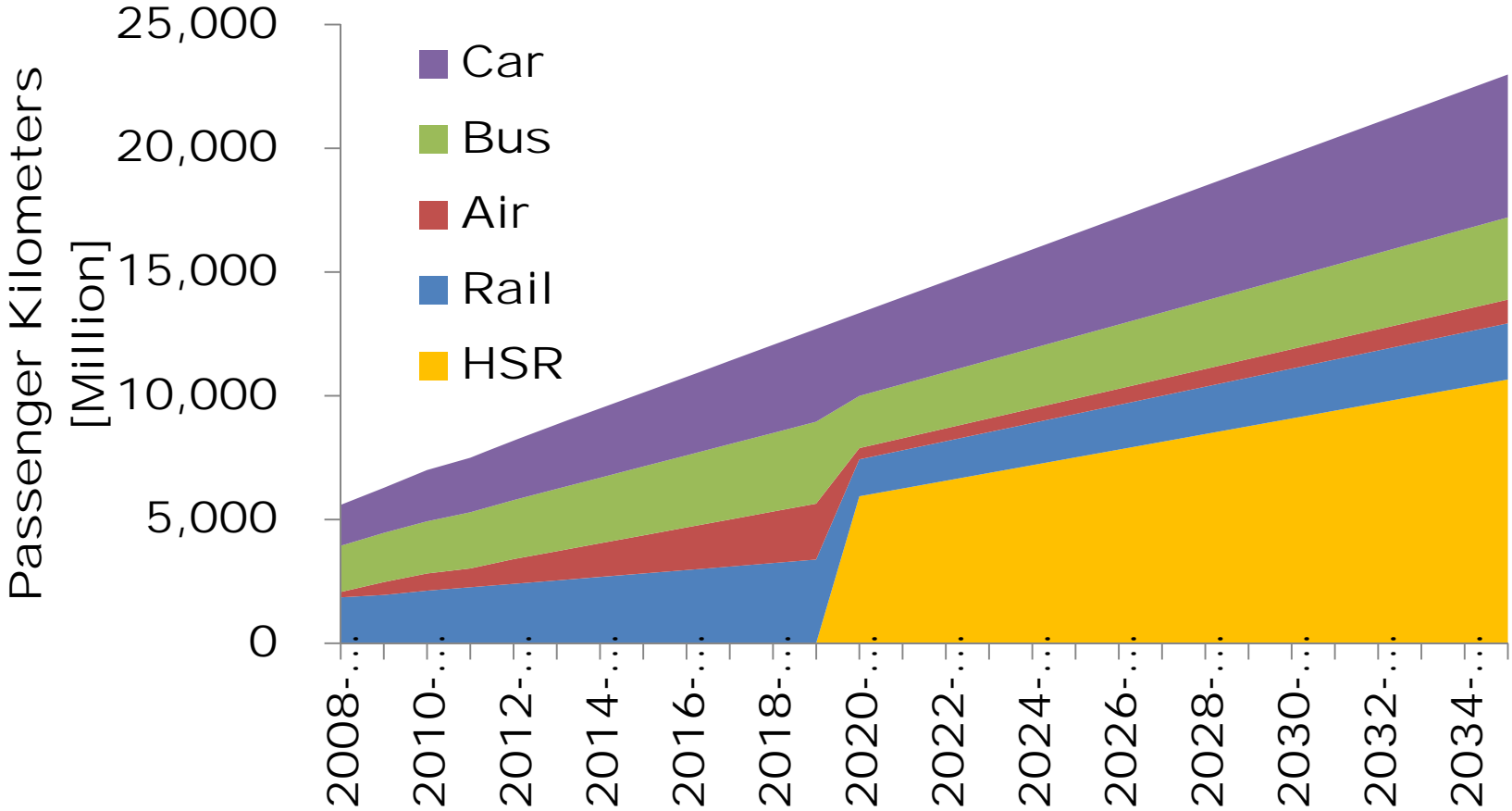
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# With HSR Scenario on the Corridor



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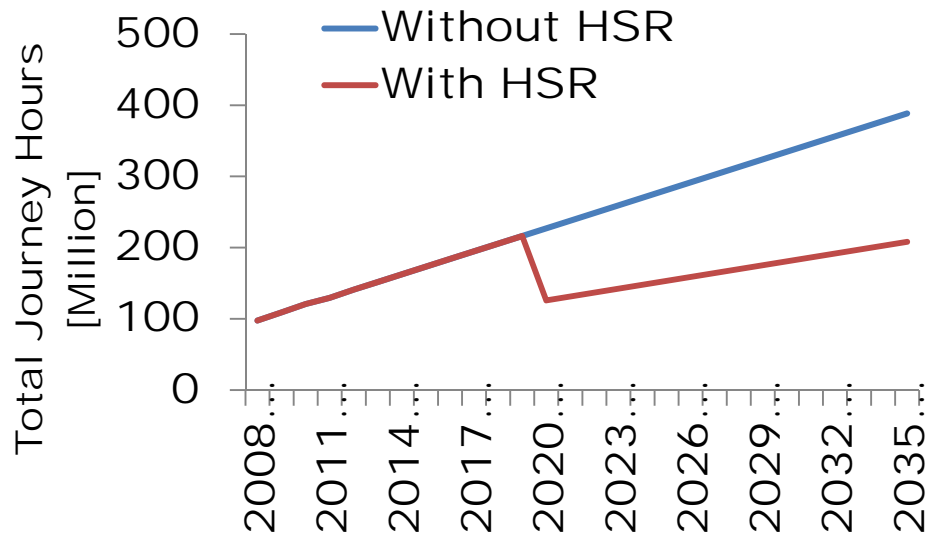
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# Time Saving Effect

## -Summation of time saving-



- Between 2020 to 2035, average annual savings will be **141 million hours**
- In monetary term, it will be **Rs. 17.2 billion** every year

This is just the assumption of time saving effect. There are many other benefits brought by HSR.

Then, what measures are effective to enhance the benefits?



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# Measures to enhance the benefits of HSR

-from the experience of the Shinkansen -

-HSR Station location in large cities  
(Access to/from City Central Area )

-Uptake of Various needs

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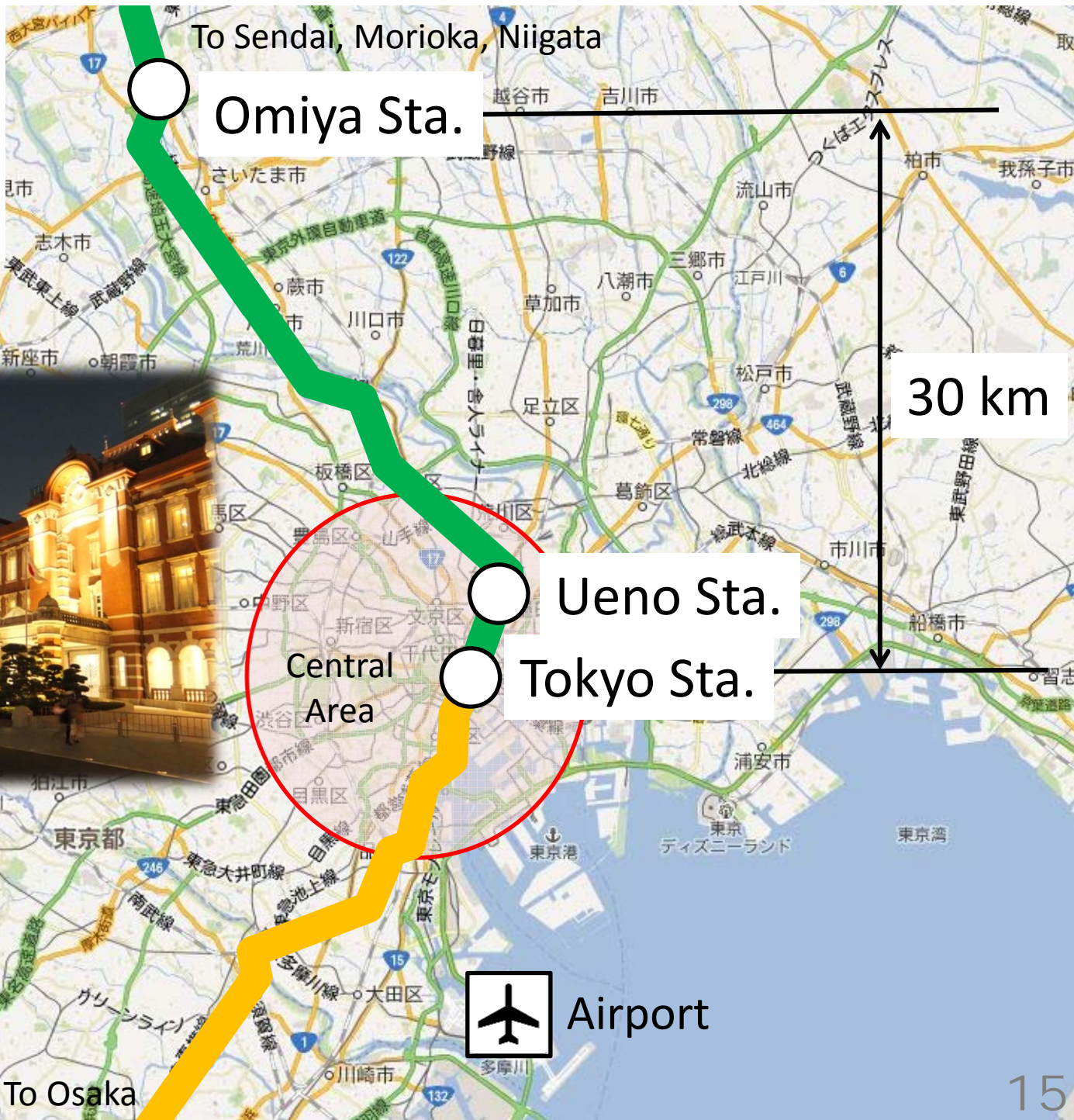
# Importance of Station Location

- To enhance the impact of HSR introduction, the HSR station should be located in the city central area (especially central business district)
- If it is difficult, the HSR station should be connected to the central area by conventional rail or urban transport (Metro, BRT, LRT etc)

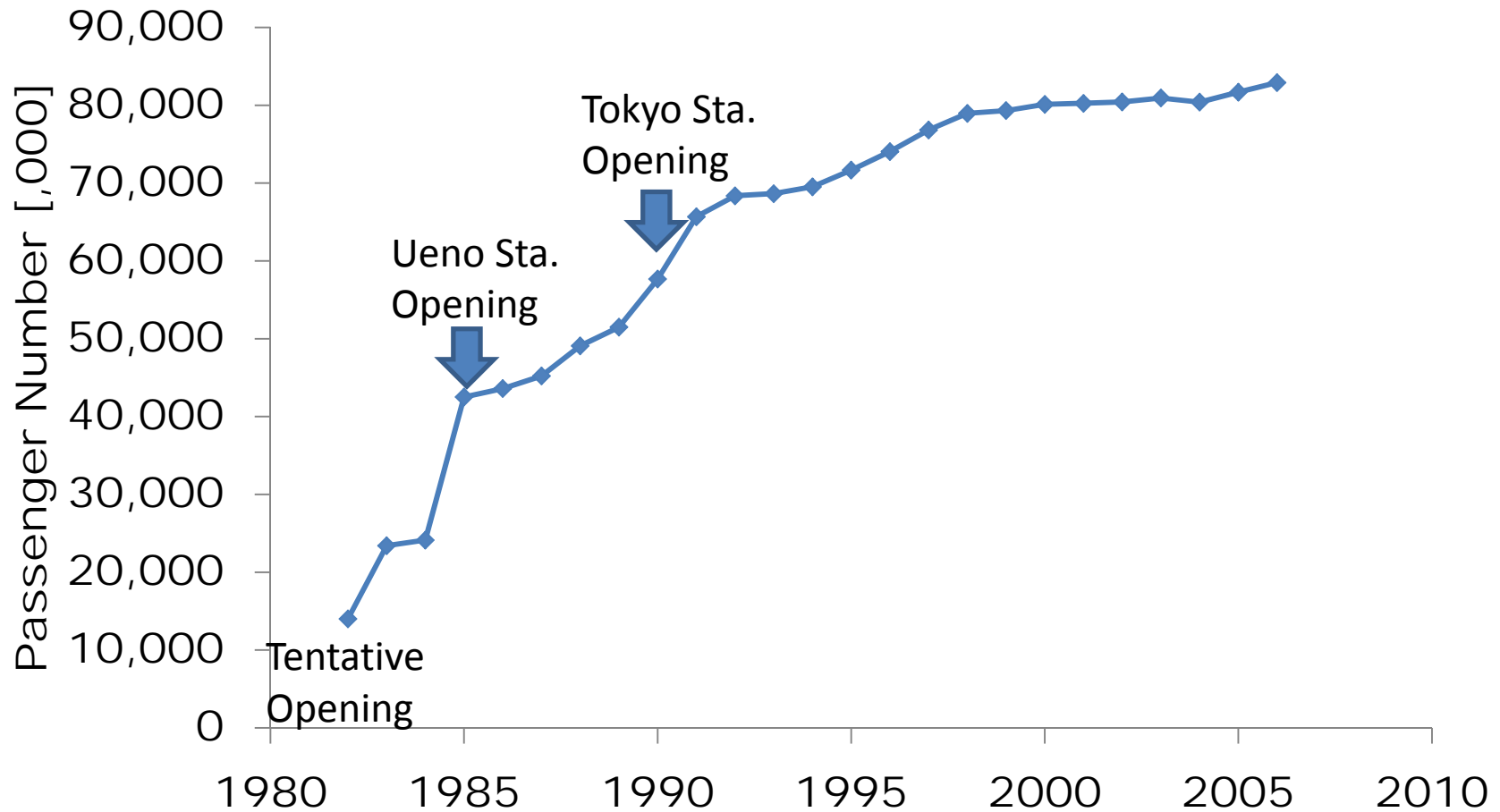


# Tokyo

Direct access  
via new line



# Passenger Number on Tohoku Shinkansen



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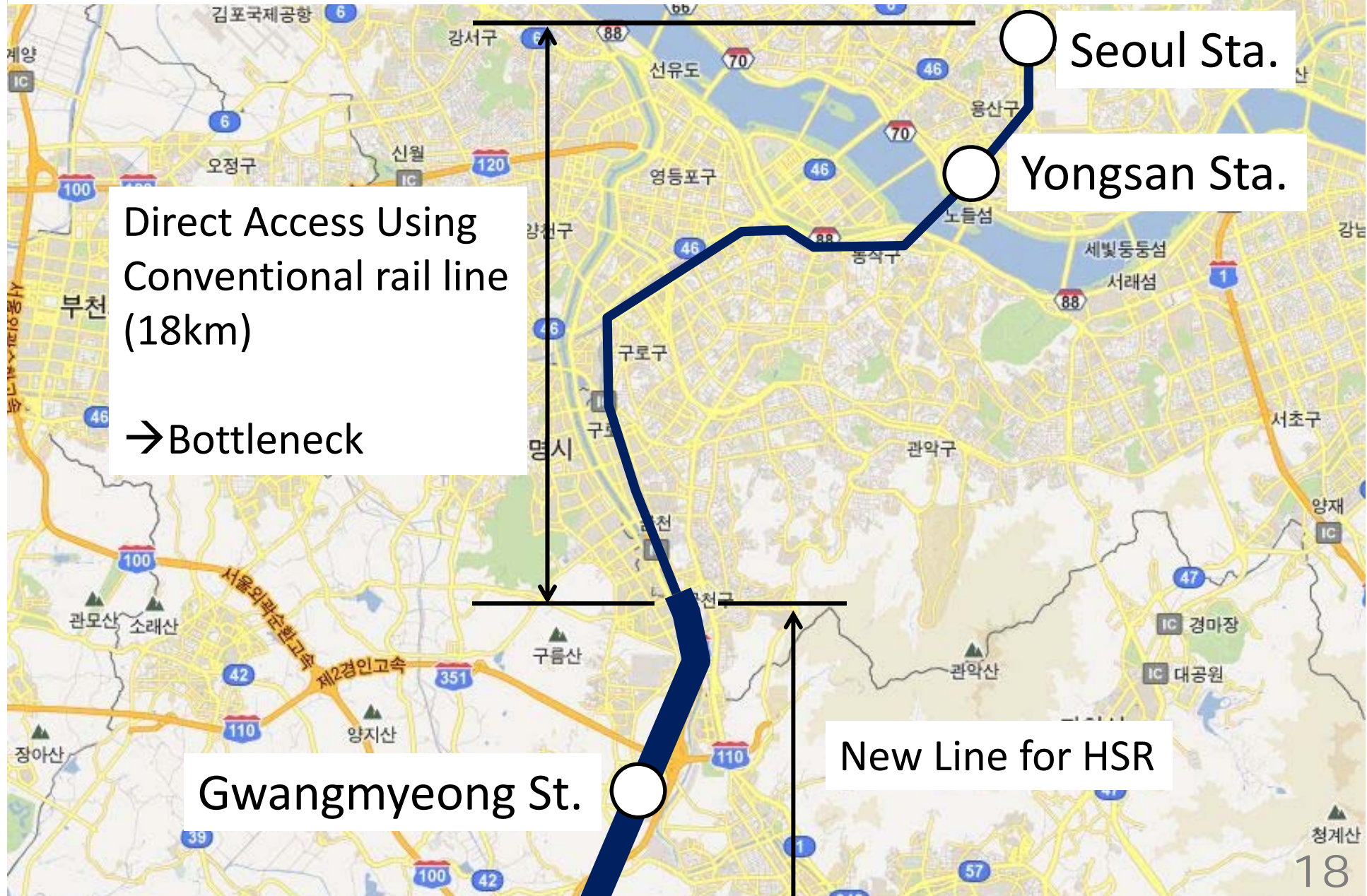


# Shin Osaka

Access using conventional line and subway



# Seoul Direct access via conventional rail





# Transforming conventional rail as urban transit



Express Service  
on Conventional Rail



Frequency Increasing  
of local train



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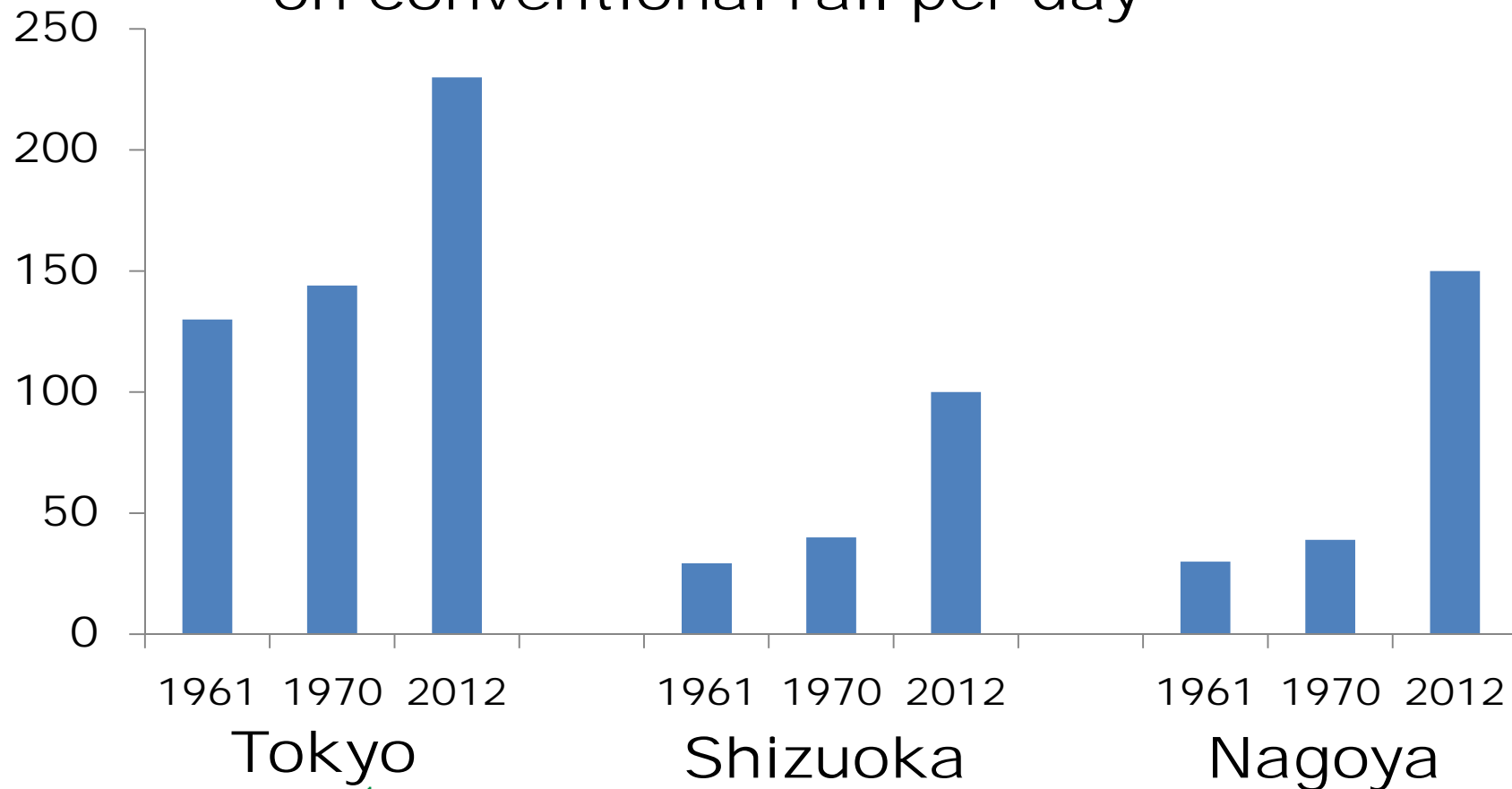
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# Transforming conventional rail as urban transit

The number of local train services on conventional rail per day



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# Measures to enhance the benefits of HSR

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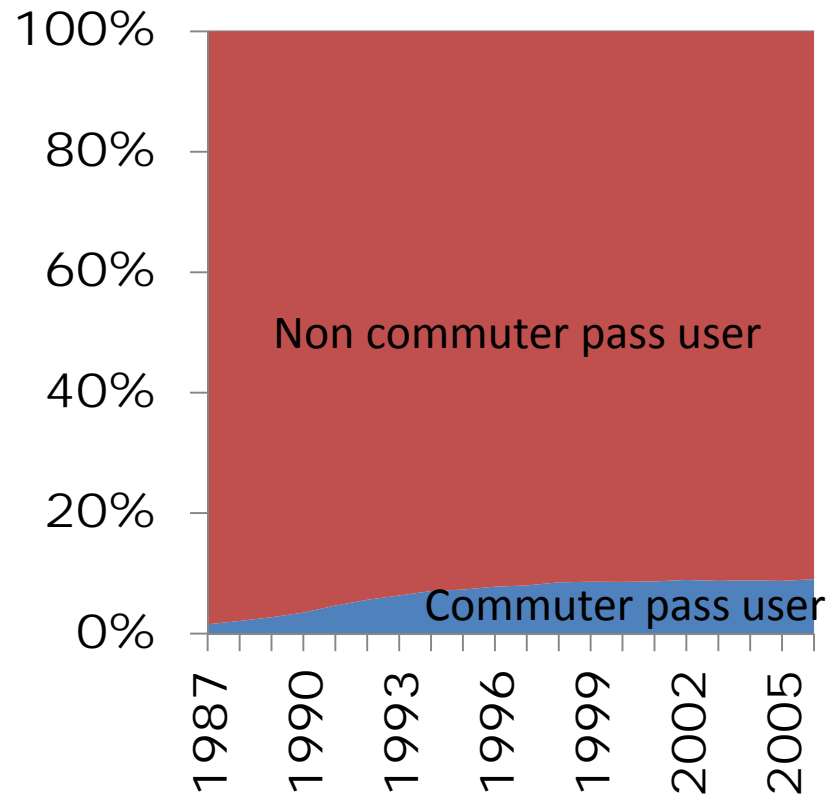
-Uptake of Various needs

# Uptake of Various Needs

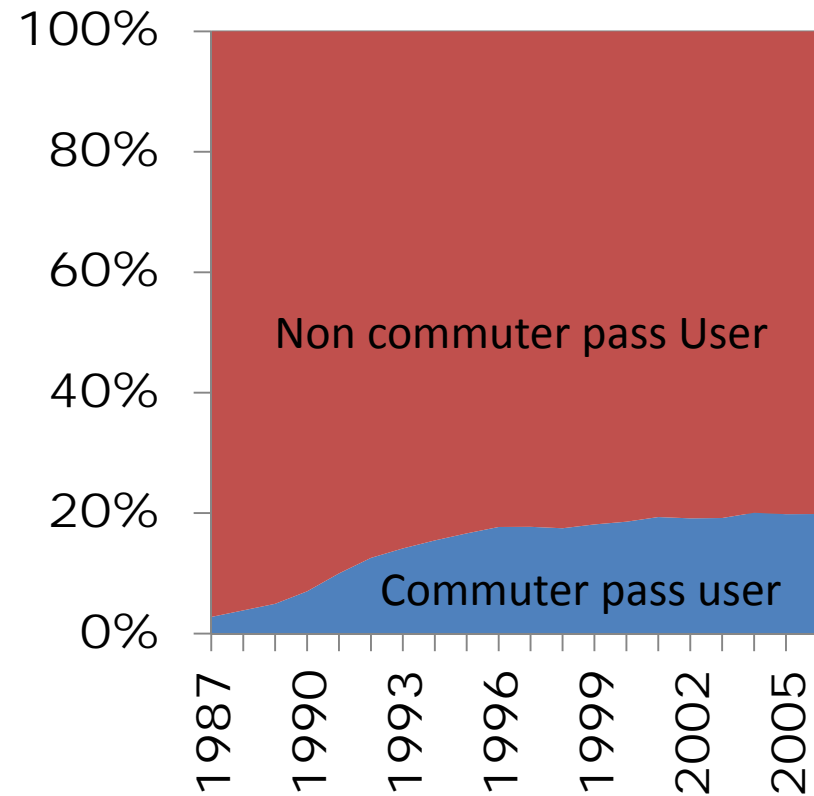
- In the case of Japanese Shinkansen,
  - Station interval: 60-70 km
  - Non stop service and stops at every station service are served
- In the result...
  - People living in medium size cities can use the Shinkansen service
    - Approximately 17% of the users are from medium size cities
  - Commuting by HSR

# Shinkansen as Commuter Train

Tokaido Shinkansen  
(West bound)



Tohoku & Joetsu Shinkansen  
(North bound)



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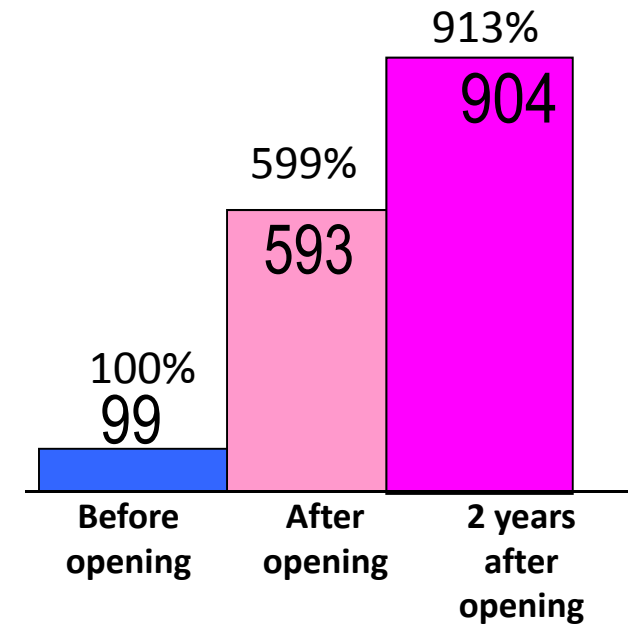
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# Commuting by HSR in Rural Areas -The Case of Kyushu Shinkansen-



## ● Commuting by Rail

Daily number of commuter pass users (persons/day)

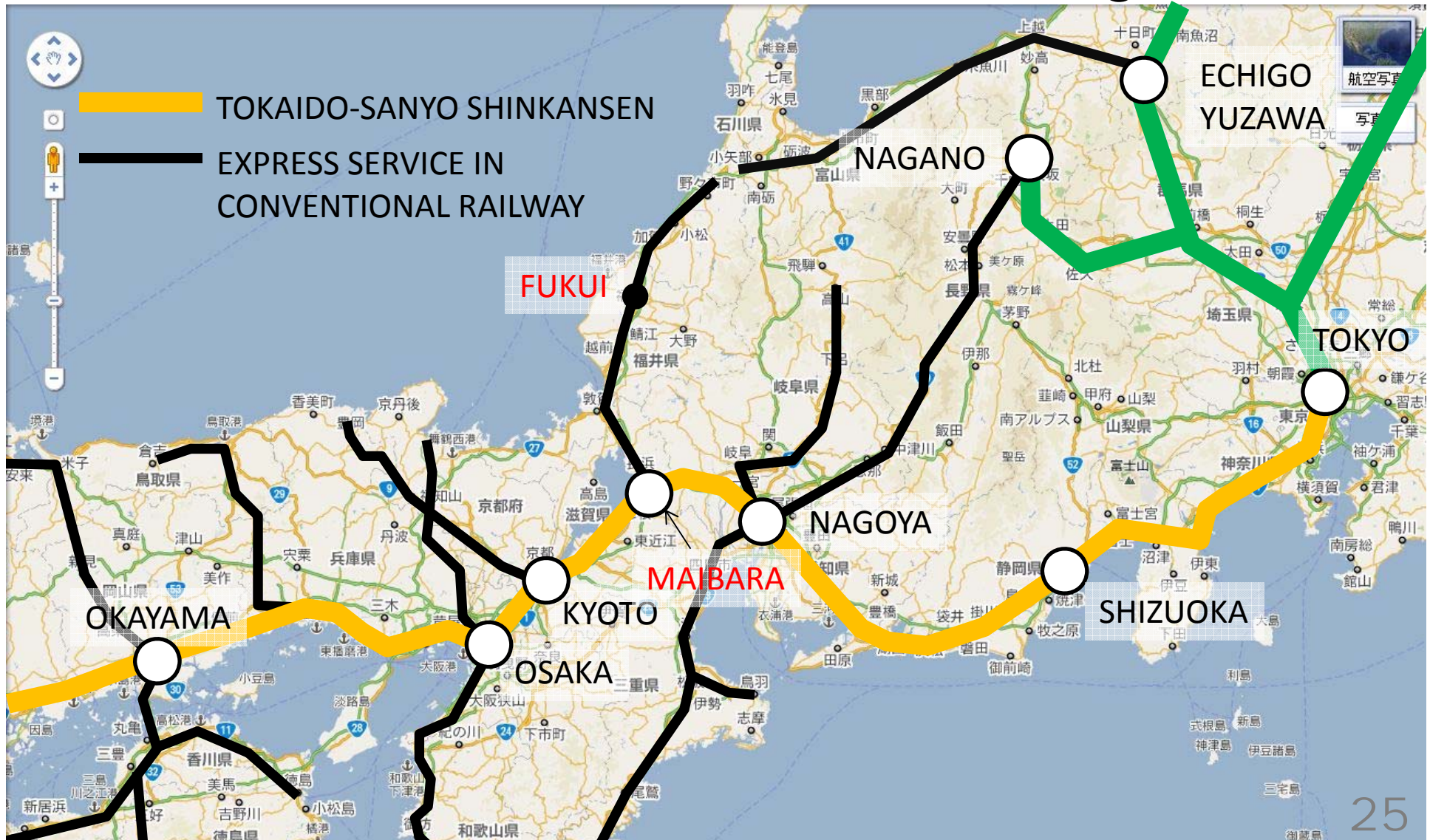


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# Integration of HSR and Conventional Railways



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Express Service  
on Conventional Rail

Fukui - Maibara: 1 h 6 min

Tokaido Shinkansen

Maibara - Tokyo : 2h 25min

Total Time: 3 h 30 min



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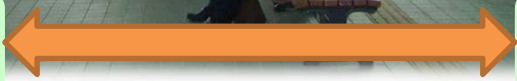
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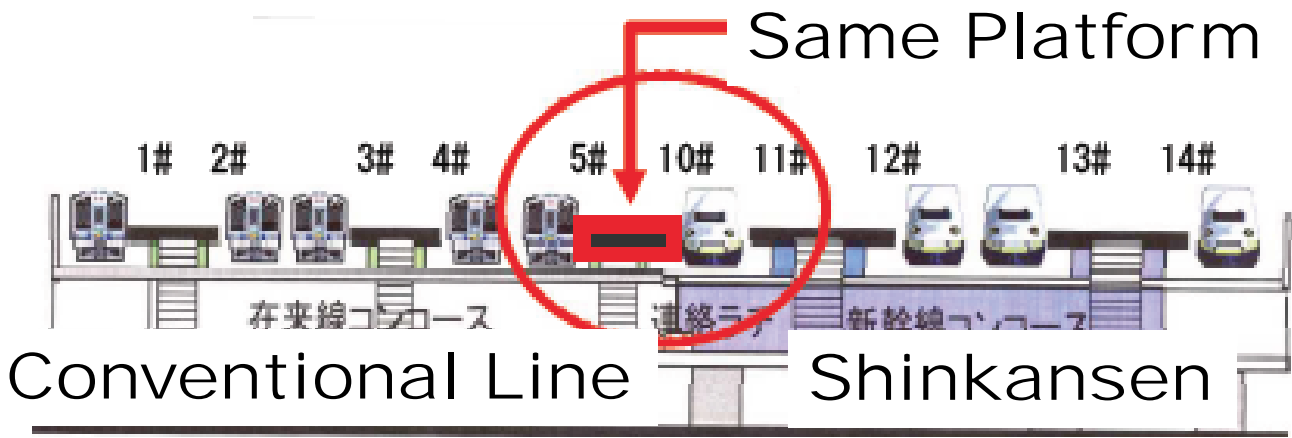


Conventional Line

Shinkansen



Transfer on same platform



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# Conclusion

- India has many corridors suitable for HSR.
- Especially, the Ahmedabad-Mumbai corridor is very suitable for HSR and it is expected that the introduction of HSR there will bring a lot of benefits , according to the case study.
- It is important to implement various measures to enhance the benefit brought by the HSR, including the efficient locating of the stations. And the experience of the Japanese HSR (Shinkansen) seems to be good examples .