Introduction of the N700-I Bullet Train

The World's Safest and Most Efficient High Speed Rail System

January 13, 2012

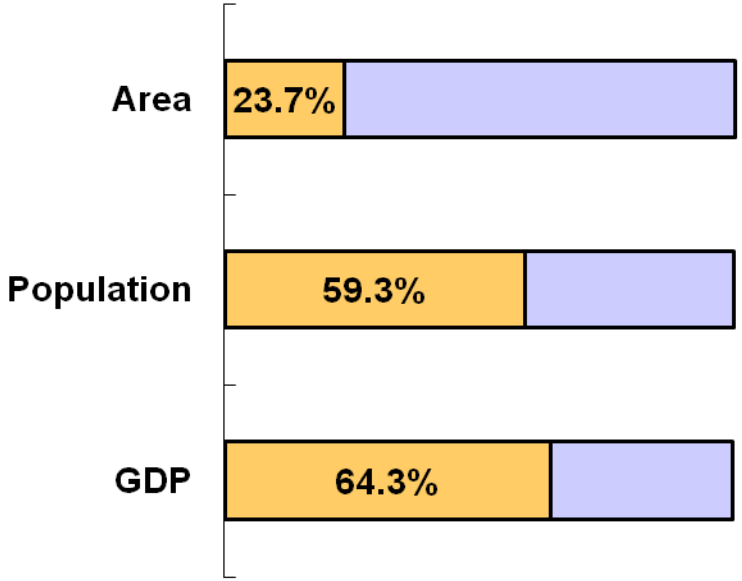
Tsutomu Morimura
Central Japan Railway Company

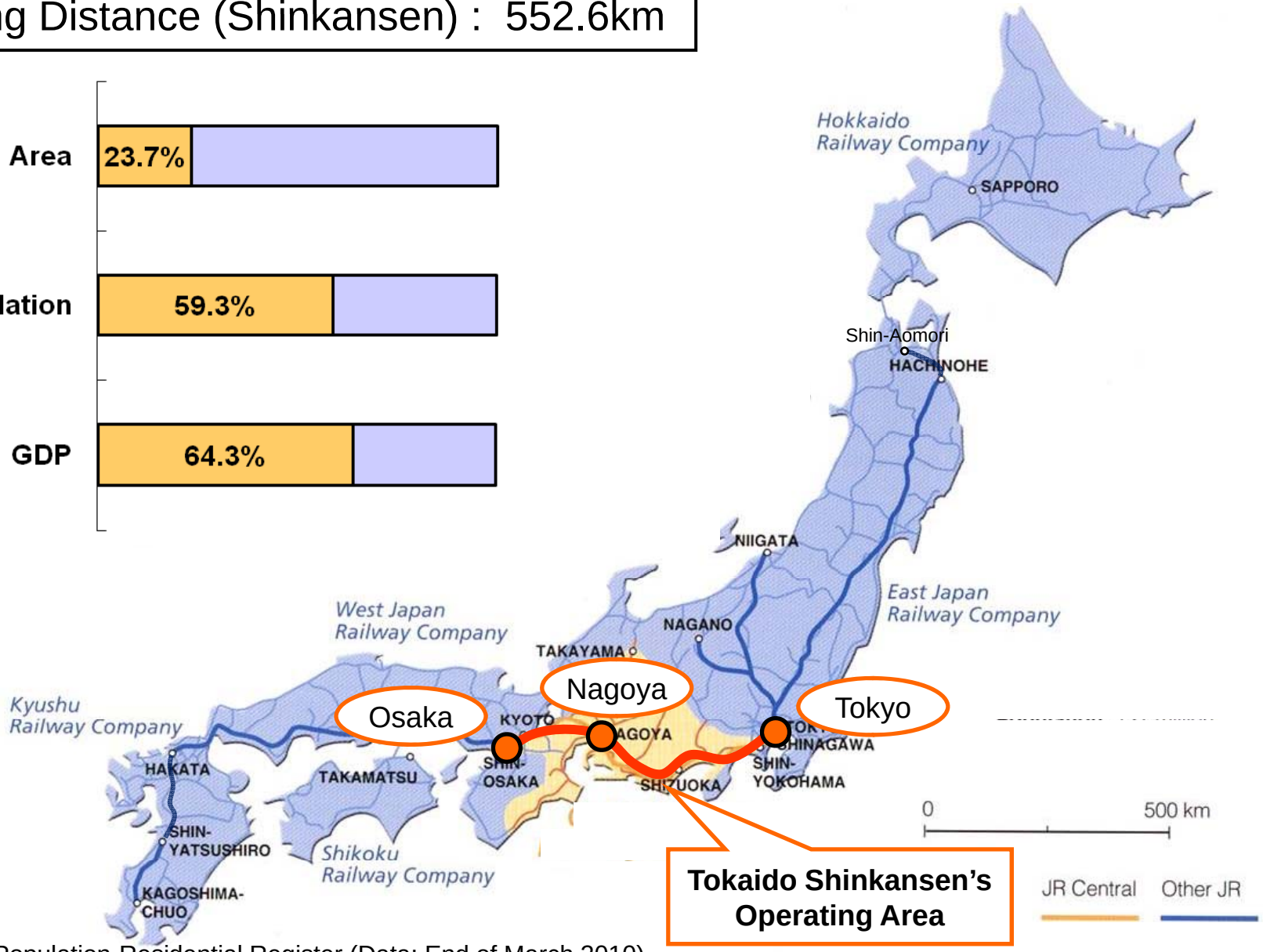
Contents of Presentation

- **Overview of Central Japan Railway (“JRC”) and the Tokaido Shinkansen**
  - Safety & Punctuality
    - Dedicated Line with No Level Crossings
    - Automatic Train Control (ATC)
    - Shinkansen General Control Centre
- **Introduction of the “N700-I Bullet”**
  - What is the “N700-I Bullet”?
  - Rolling Stock Specifications
    - Low Energy Consumption
    - Mass Transport
    - Optimum Seat Capacity

JRC and the Shinkansen Network

Operating Distance (Shinkansen) : 552.6km





*Sources

Population: Population-Residential Register (Data: End of March 2010)

GDP: Annual Report on Prefectural Accounts (Data: FY2009.3), Economic and Social Research Institute, Cabinet Office

Safety and Punctuality

- Safety

ZERO accident record, unbroken
since 1964 (over 47 years)
= **ZERO** passenger injuries or fatalities
from train accidents

- Punctuality

Annual average delay per train is
0.6 minutes *1 *2
= Less than **One minute**

*1 : Including delays due to uncontrollable causes, such as natural disasters

*2 : Standard for train delays; JR Central : “delay” = >1 minute, Europe : “delay” = >15 minutes

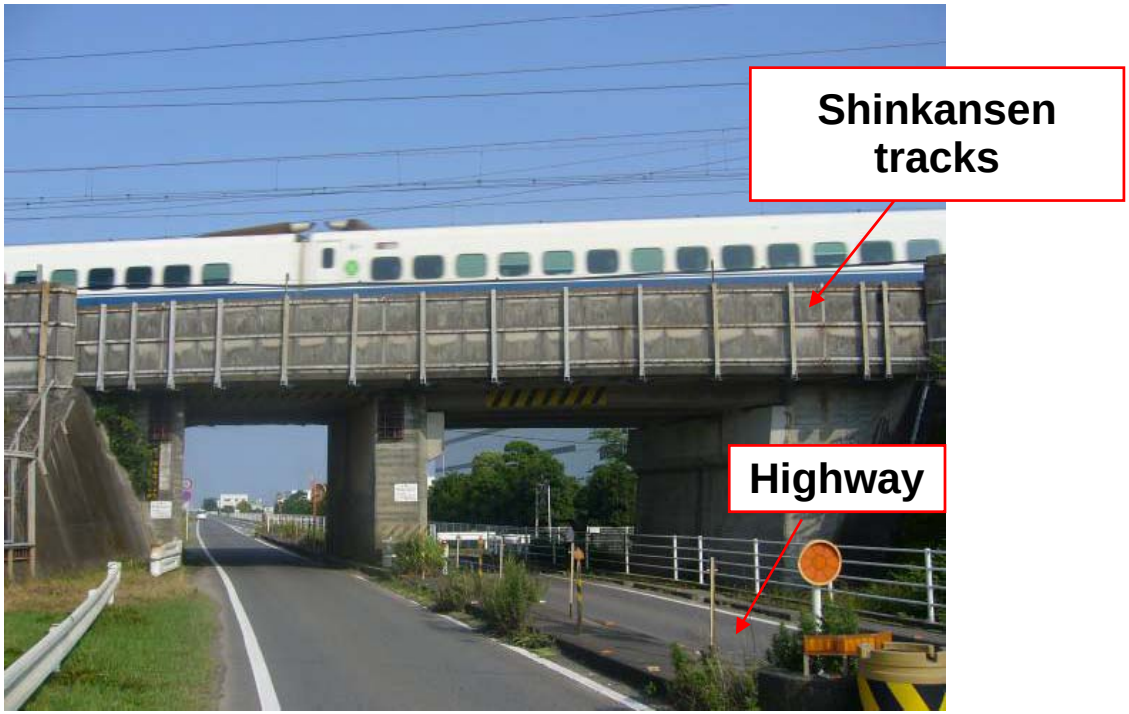
Safety and Punctuality

Dedicated Line with No Level Crossings

A dedicated, closed passenger rail system with

- complete separation of passenger and freight traffic
- full grade separations

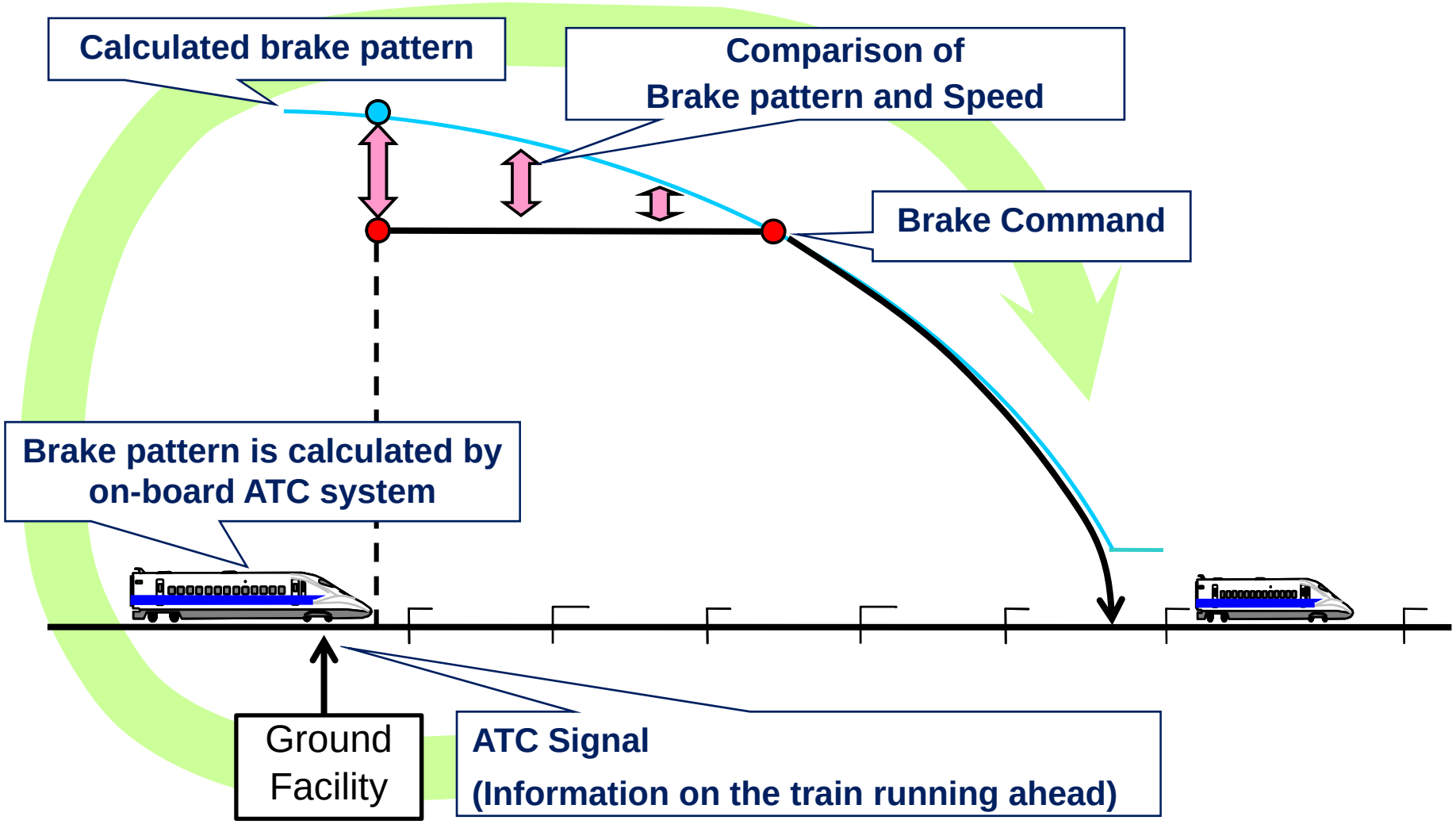
zero possibility of catastrophic collision with goods trains or motor vehicles



Safety and Punctuality

Automatic Train Control (ATC)

- Eliminates possibility of collision with train running ahead
- 100% safety record in Japan for over 47 years

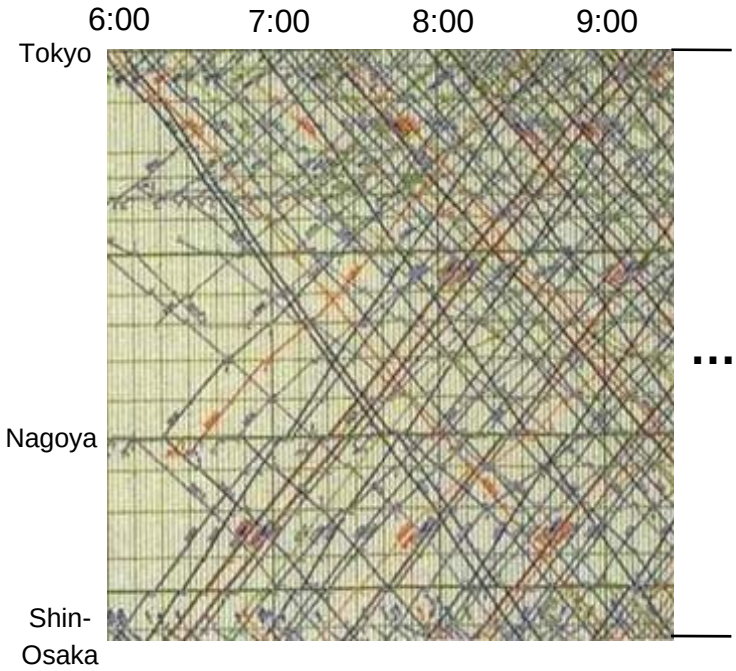


Safety and Punctuality

Shinkansen General Control Centre
(Computer-aided Traffic Control)

- Monitors operational condition of trains and facilities
- Manages train operations comprehensively
- 100% safety record in Japan for over 47 years

Shinkansen General Control Centre (Tokyo)



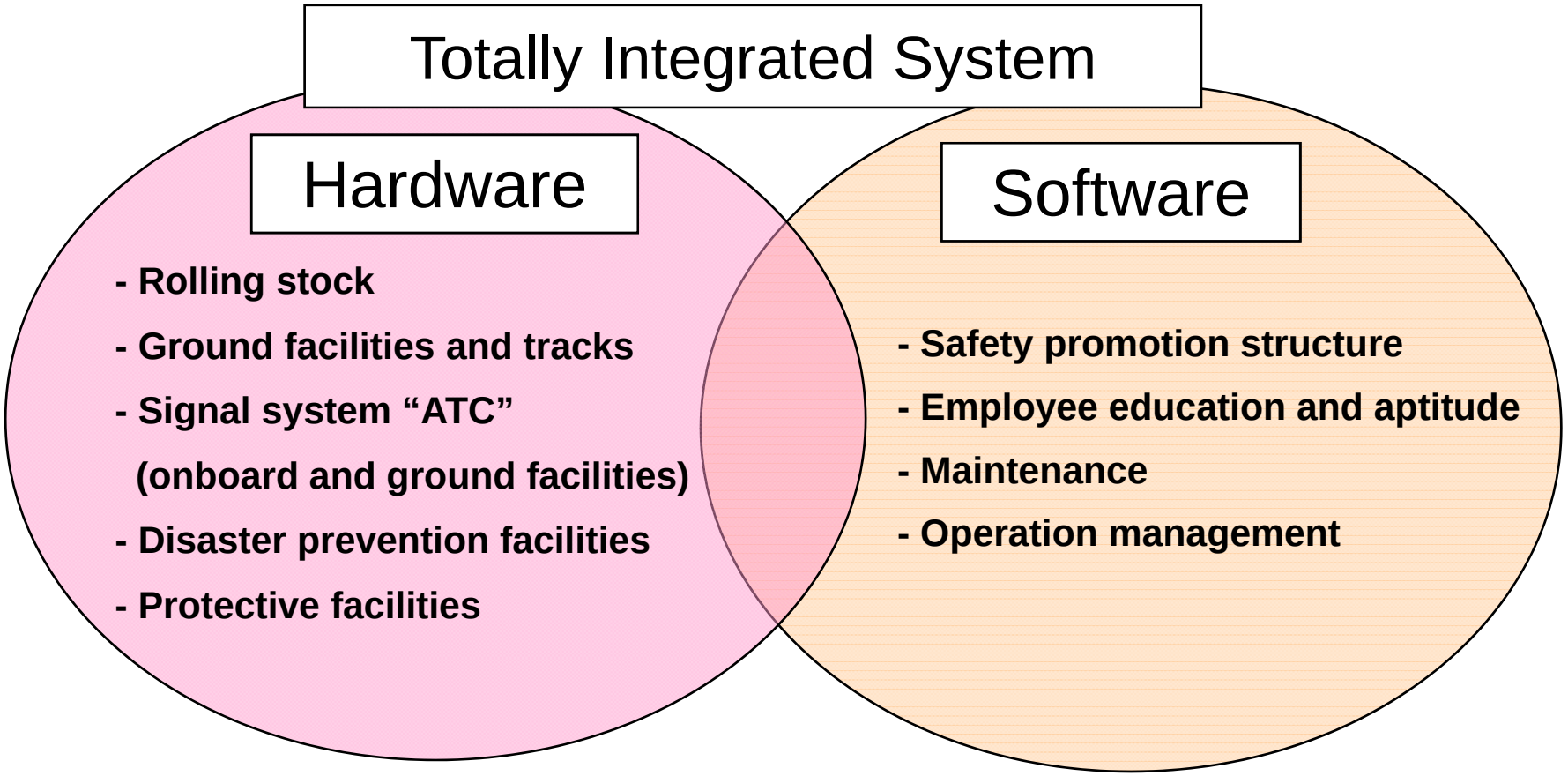
Schedule Diagram

The “N700-I Bullet”

“N700-I (I :International) Bullet”

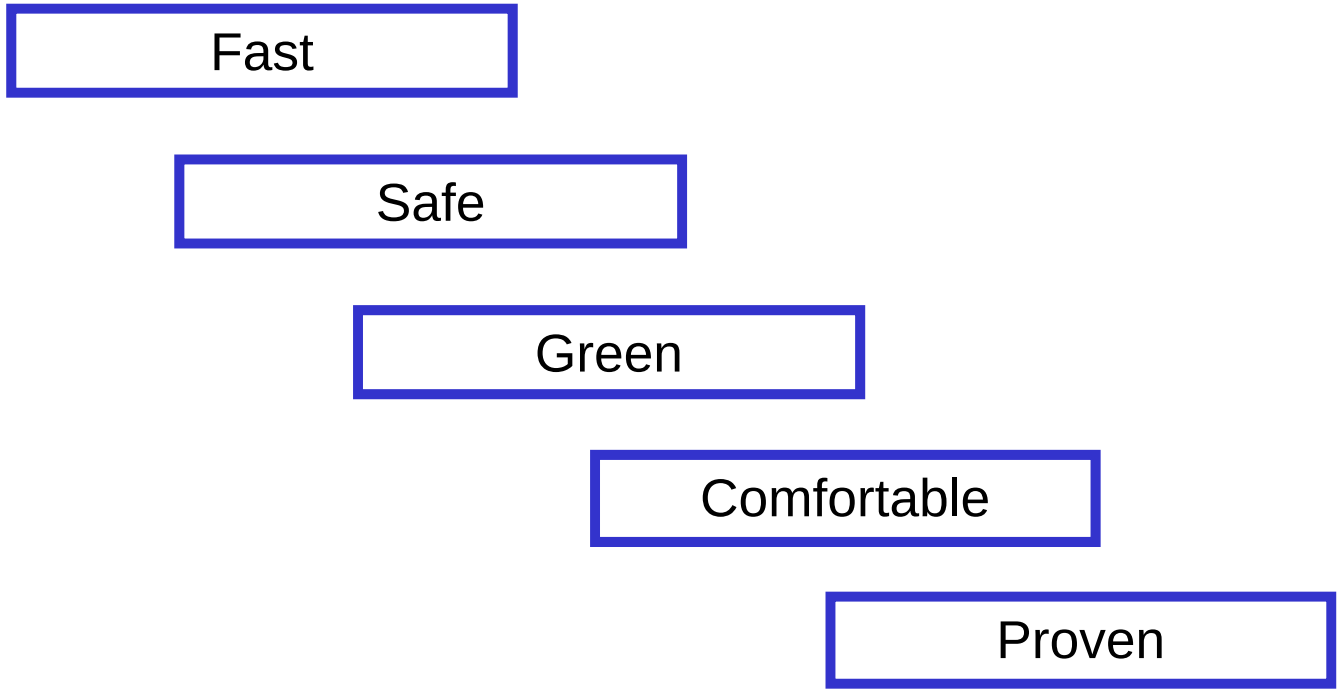
- Cruising Speed 330 km/h -

The “N700-I Bullet”



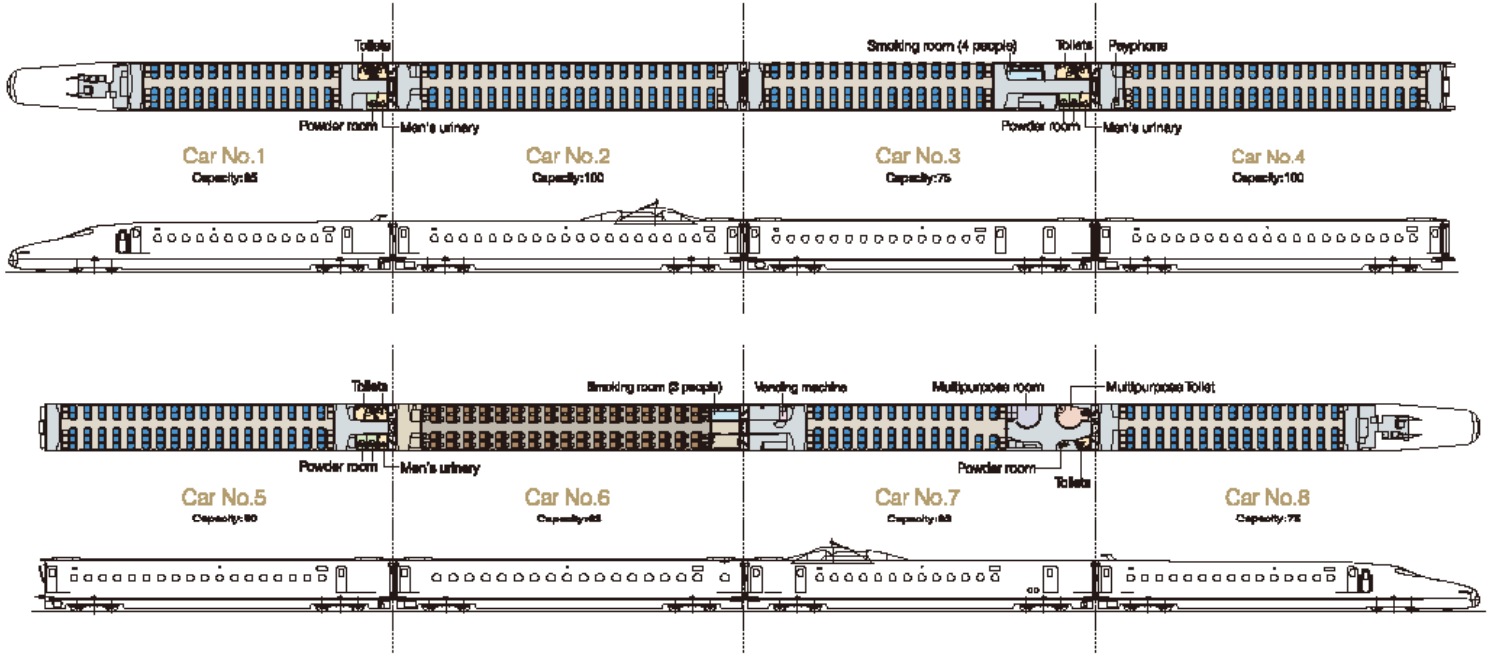
What is the “N700-I Bullet”?

- A total “High-Speed Rail System”
- Comprises the N700-I rolling stock, a derived model of the N700 optimized for overseas operations and the entirety of the Tokaido Shinkansen system
- The system has provided safe and stable operations in Japan for over 47 years.



Specifications of Rolling Stock

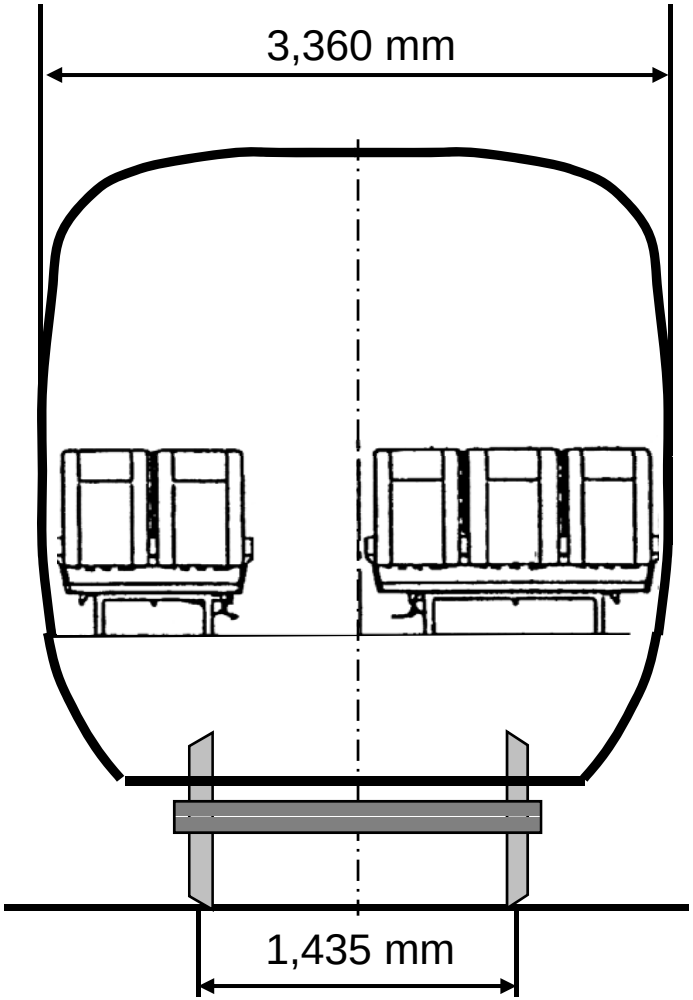
【Specifications】 N700-I (eight-car configuration, or reference design)



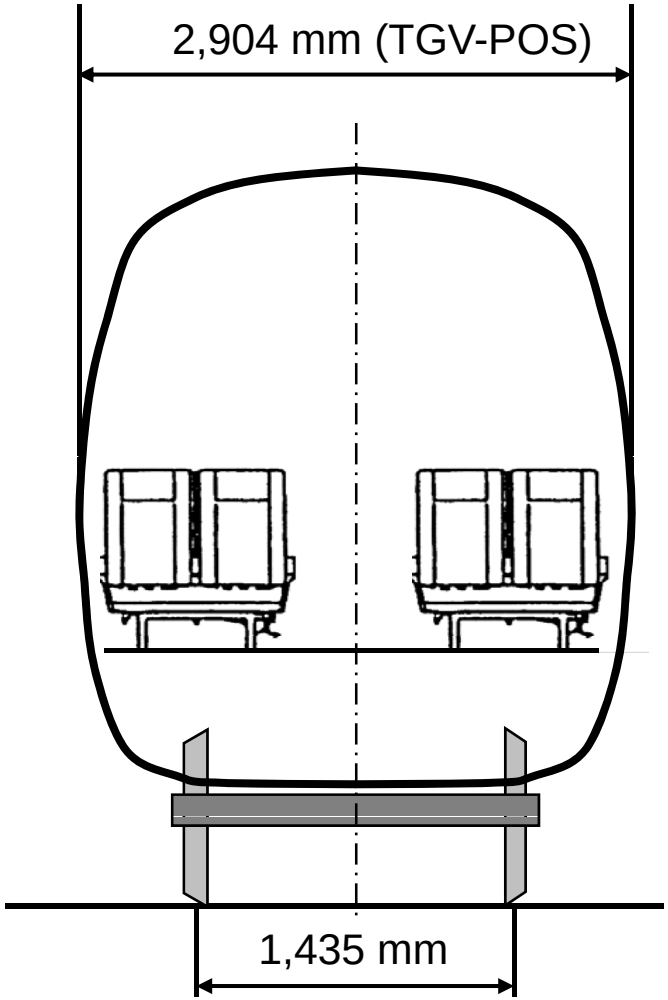
Basic formation	8-car trainset (each car individually motorized,100% regenerative brake)
Seating Capacity	636
Maximum Cruising Speed	330 km/h
Train Set Length	204.7m
Train Set Weight (Full passenger capacity)	365 t

N700-I has a large cross section, enabling maximization of seating capacity/train. This gives N700-I superiority in rolling stock cost/seat.

N700-I
(Large capacity)

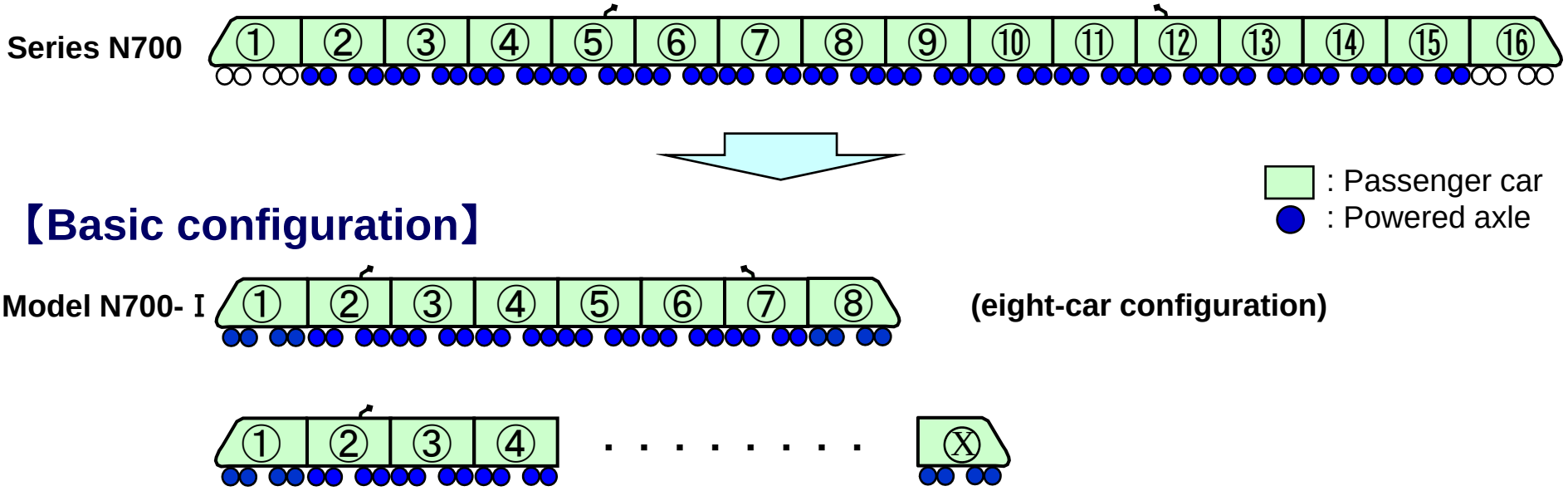


European high-speed railways
(Small capacity)



Optimum Seat Capacity

The N700-I basic configuration is scalable for a 6 to 16 cars configuration, enabling highly tailored corridor-specific transportation construction.



- Configuration length can be freely changed. Distributed traction system means configuration does not impact train performance.

- Moreover, configuration can be extended in response to increasing demand.

Conclusions

The “N700-I Bullet” is a proven technology based on the ***“Total System Approach”*** that builds on 47 years of experience and refinement.

- Safety and Punctuality
- High-speed, Efficient Transportation
- Low Energy Consumption
- Low Carbon Emissions