# Sustainability development strategy of China's high speed rail

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# Advantage of high speed rail

Traditional rail
The shortage of railway transport capability has restricted the development of China's economy

Modern high speed rail:
**Huge transport capacity**
**Safety**
**Comfort and fast**
**All-day operation**
**Environmentally-friendly operation**
**Sustainability**

# Innovation achievements of China's high speed rail technology

## Basic theory study of the high speed train

- A high speed train system dynamics theory
- Wheel-rail interaction
- Bow net
- Fluid-structure interaction
- Train vibration and modal analysis

## Design and manufacturing technologies of the high speed train

- High speed bogie digital design platform, the experimental and digital processing platform
- Aerodynamic performance evaluation of 20 design schemes of train head
- The 1:8 model of the CRH380AL/BL series high speed train and aerodynamic noise evaluation
- New vibration reduction structures and materials
- The multi-component high-frequency large-amplitude alternating aerodynamic load
- The design, simulation, and experimental platform of the traction drive and brake system

# Engineering application of domestic high speed train

**Opening and operation of the Wuhan-Guangzhou high speed train**

Created the record of passing speed of 350 km/h in tunnels, 350 km/h double train in connection, and a double pantograph receiving current. **Dec. 26, 2009**

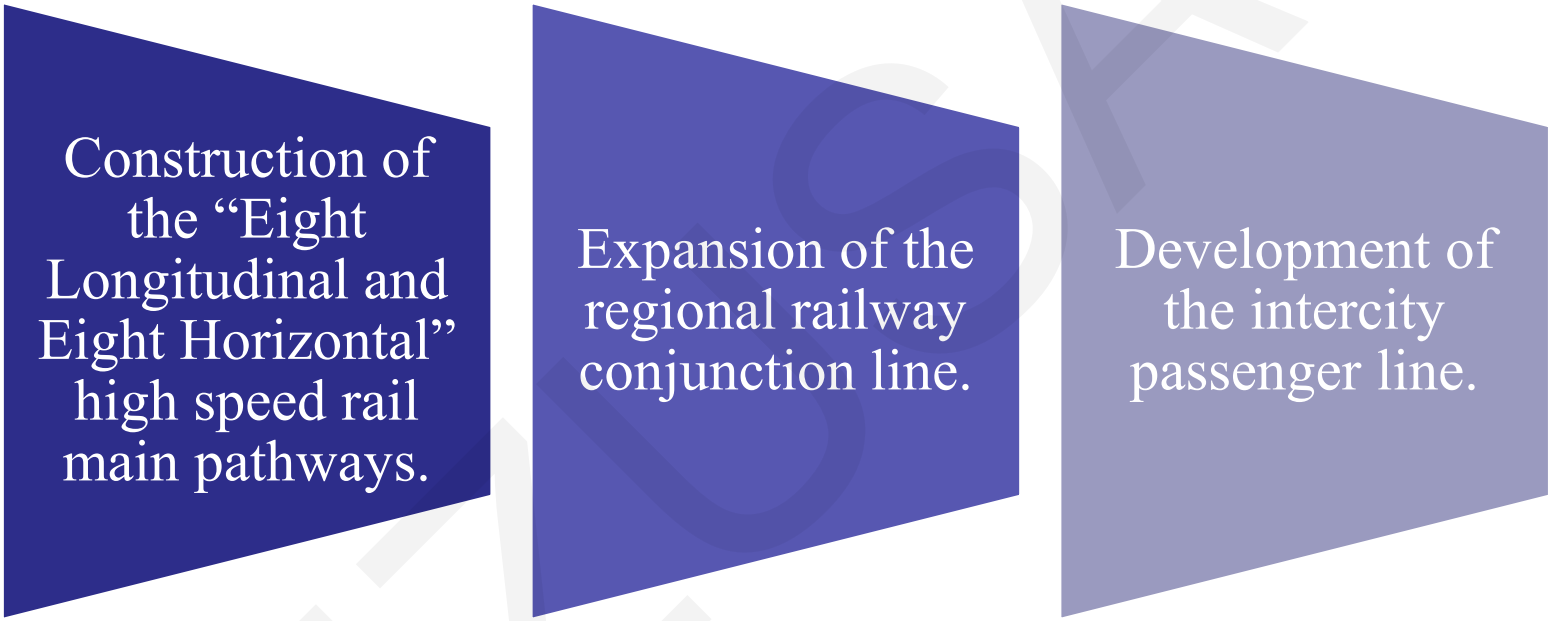
**Opening of the Beijing-Shanghai high speed line**

Adopts a low resistance streamline head profile, high air tightness, and air-tight car body. **Apr. 27, 2010**

**Domestic comprehensive inspection car came off the assembly line**

Designed maximum test speed is 500 km/h, the synchronous detection speed reaches 350 km/h, and the maximum test speed reaches 400 km/h. **March 2011**

# Development prospect of China's high speed rail technology




Up to 2020, high speed rail will reach 3000 km in length, covering over 80% of big cities. By 2025, the railway network will reach 175 thousand kilometers, in which the high speed railway will account for 38 thousand kilometers.

# Mid-long term railway network planning in China

# Further research

Research can be further carried out in the following areas:

1. Long term service regression study of slab track;
2. High speed rail freight transport technology;
3. High speed rail driverless technology;
4. High speed rail failure monitoring, diagnosis and smart operation technology;
5. High speed rail optimized operation;
6. Study and development of new generation high speed rail equipment.

Obviously, to further study the high speed rail technology is not only necessary in itself, but also promotes the development of corresponding technology and industry.