

## Shinkansen System: Japan's Experience Available for the World

Shinkansen, Japan's own "bullet train," pioneered high-speed rail transportation with revenue operations beginning in October 1964. Operations are based on the "Crash Avoidance" principle, adopting a design that prevents the possibility of a collision. "Crash-proofing" is achieved through tracks dedicated exclusively for high-speed passenger trains with no grade crossings at all, and an Automatic Train Control (ATC) system to control speed.

This makes Shinkansen safe, reliable and punctual, while also permitting high-frequency services. For comparison purposes, in Europe the concept behind high-speed rail favors crash worthiness – freight trains share conventional track with passenger trains, increasing the importance of crashworthy rolling stock.

During more than 50 years of operations, Shinkansen has continued to improve through technological innovations. Its distributed traction system employs the world most advanced technologies throughout. Its advanced, highly dependable operations, permit a maximum operating speed of 320 km/h, the fastest in the world. Since 1964, Shinkansen trains have carried over 10 billion passengers without a single passenger fatality accident. A truly impressive record.

The Tokaido Shinkansen Line became a significant part of the nation's transportation infrastructure, stimulating the nation's economic growth and triggering GDP expansion. Shinkansen network has grown, dramatically increasing the distance feasible for a one-day return journey.

The network's construction and operations have spurred employment and created a major economic ripple effect for station stop cities and their surrounding areas.

A high-speed railway requires a comprehensive system involving engineering works, track, rolling stock, a signaling system, a train operation control system, and more.

The highly successful Shinkansen has given Japan a wealth of experience in these areas, enabling Japanese companies to cooperate fully during all stages, from planning and criteria preparation to construction, human resource training, operations and maintenance.



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