Mobility

Railway Systems

May 28, 2026

Mobility & Transport

1. Project for Ho Chi Minh City Metro Line 1 in Vietnam

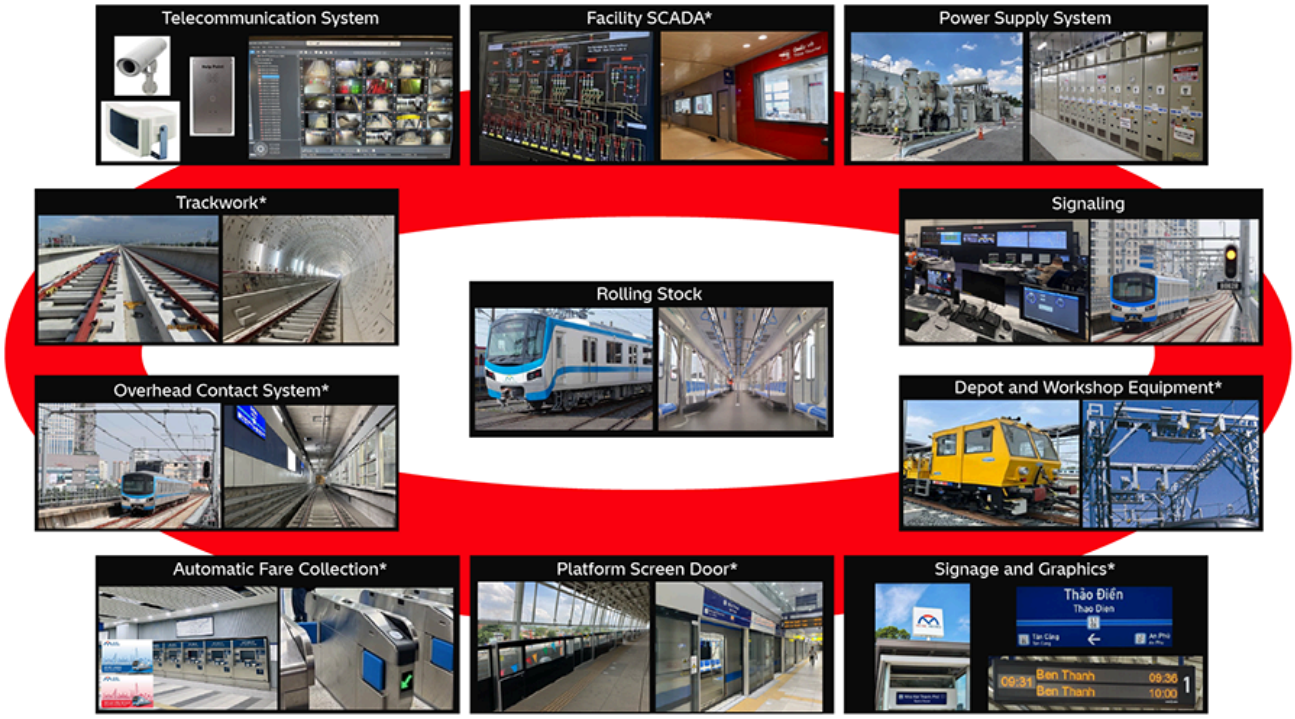
Hitachi supplied a total of 11 subsystems to the Ho Chi Minh City Metro Line 1 project in its role as an engineering, procurement, and construction (EPC) contractor. The line is the first electrified urban railway in southern Vietnam and the first in that country to include underground sections.

Following the successful completion of construction, which delivered 19.7 km of track from Ben Thanh in the city center to Suoi Tien in the north-east, the line commenced operation on December 22, 2024.

In addition to the rolling stock, signaling, telecommunications, and power supply systems, Hitachi also delivered a range of other systems as part of the overseas project. Implementation of these systems required coordination with civil engineering contractors and the local electricity company, as well as load-bearing capacity assessments, protection coordination, operational and electrical simulations, and track design activities that would typically be undertaken by the railway operator in Japan.

Hitachi was also responsible for the on-site testing and operational activities in addition to other tasks not related to equipment supply. During the project, Hitachi worked in partnership with Ansaldo STS S.p.A, a company it acquired in 2015, on the design of the control center and the integration of technologies across systems

Through compliance with Japanese railway standard STRASYA (STandard urban RAilway SYstem for Asia), Hitachi also contributed to the export of Japanese railway technology and the development of railway infrastructure across Asia, a region facing significant challenges related to traffic congestion and air pollution.



[1] Rolling Stock for Ho Chi Minh City Metro Line 1 and Supplied Systems

Note:
* New railway systems supplied as part of this project.

2. CBTC System for Tokyo Metro Marunouchi Line

Tokyo Metro Co., Ltd (hereinafter referred to as "Tokyo Metro") introduced a communications-based train control (CBTC) system as part of the renewal of the signaling and train protection systems for the Marunouchi Line. The CBTC system began operation in December 2024. Hitachi contributed to the project by delivering a new wayside automatic train protection (ATP) system and upgrading the automatic train supervision (ATS) system.

The CBTC system utilizes bidirectional radio communication between wayside equipment and onboard equipment to transmit train position date detected by each train to the wayside system. By continuously monitoring the positions of all trains on the line, the wayside system calculates movement authority for each train and transmits it to the onboard equipment. Train position detection accuracy has been significantly improved from conventional track-circuit block units, with a minimum length of approximately 50 meters, to a resolution of 0.1 meter. Together with enhanced route control functions of the ATS system, this advancement enables moving-block operation, allowing following trains to dynamically adjust their operation in accordance with the movement of preceding trains. In addition, the CBTC system supports safe reverse-direction operation, increasing operational flexibility and achieving an advanced signaling system that contributes to both safety and operational flexibility.

The CBTC system has contributed to improved delay recovery capability on the Marunouchi Line. Tokyo Metro and Hitachi are currently making preparations for the deployment of the CBTC system on additional lines within the Tokyo Metro network, further contributing to enhanced safety and stable railway transportation.

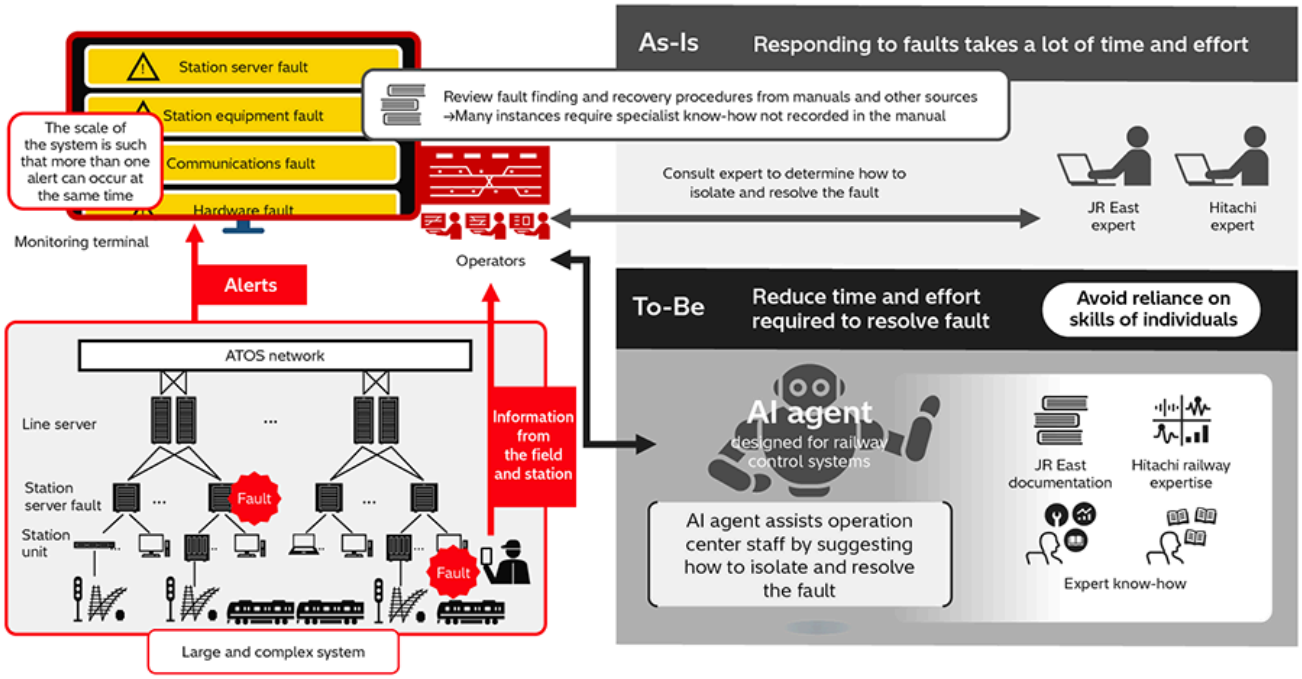
[2] Wayside Automatic Train Protection systems for the Marunouchi Line

3. Commencement of Joint Trial of AI Agent Use in Railway Traffic Control Systems

The Autonomous Decentralized Transport Operation Control System (ATOS) for urban commuter lines is a large system featuring a complex combination of many different items of equipment. Railway control center staff are responsible for analyzing any system problems that arise to identify the causes and to recovery to normal system

operation, work that calls for a very high level of specialist knowledge and expertise. To address the challenges posed by ever-worsening workforce shortages and issues with skills transfer, East Japan Railway Company (JR East) and Hitachi have completed a joint trial that uses artificial intelligence (AI) agents to assist decision making by these staff. This involves a large language model that has been tuned for railway traffic control by drawing on the intellectual property of the two companies and AI agents based on fault response scenarios that replicate the thought processes of experienced controllers. These are used together to advise control center staff on how to isolate and resolve faults.

The goal for the future is to achieve sustainable railway operations with a low risk of service interruptions by drawing on the outcomes of the trial to improve the accuracy of the AI agents and reduce the time and effort needed to respond to equipment faults.



[3] Overview of Joint Trial

4. E8 Shinkansen Rolling Stock for JR East

To improve service quality, JR East has developed E8 rolling stock that can travel on Shinkansen lines at speeds of up to 300 km/h. The new train also enables through services to be offered on the Yamagata Shinkansen.

To ensure reliable quality and reduce maintenance costs, the E8 shares parts with the E6 and is based on the same configuration. Hitachi was responsible for the design and

manufacture of electrical components as well as the car bodies.

The front end of the E8 features a long-nose design with a 9-m nose section that enables the 300-km/h top speed to be achieved without compromising seating capacity. The design of the passenger compartment considers the needs of a wide range of people, featuring a large luggage area, a power socket for each seat, and additional space for wheelchairs on both the green cars and standard cars. Ride comfort has been improved by using bolsterless bogies with active suspension on all cars (a feature shared with the E6). The main converter achieves highly efficient electrical conversion using the same traction system as the E5 to E7 series rolling stock.

The E8 entered service in March 2024 and 15 trainsets are currently in use for Tsubasa services on the Yamagata Shinkansen.

[4] E8 Shinkansen

5. TCMS for Tobu Railway 80000 Series Rolling Stock

Tobu Railway Co., Ltd. developed the 80000 series rolling stock for its Urban Park Line as next-generation trains intended to facilitate smarter railway operations. Commercial operation commenced in March 2025. Designed for safety, comfort, and harmony with the environment, the goal was to improve the comfort of inter-city rail travel.

The 80000 series rolling stock is equipped with a Hitachi train control and management system (TCMS) for real-time monitoring and more efficient maintenance. Moreover, Hitachi's online monitoring functions interoperate via the cloud with Tobu Railway's own online monitoring system for the 80000 series electric multiple units (EMUs) to enable the sharing of data during train operation. This dramatically improves safety and reliability by enabling the detection of potential faults and a rapid response to scheduling changes.

The trains are also ready for future uses of AI based on the analysis of data collected, such as predictive maintenance or service improvements. These initiatives deliver new value to the railway industry, serving as a model case study for accelerating the industry's adoption of smart technology.

[5] Series 80000 Rolling Stock (top) and Real-time Monitoring Screen Showing Status of all Cars in a Train (bottom)

Photographs courtesy of Tobu Railway Co., Ltd.

6. Collaboration with Tobu Railway on Using HMAX to Enhance Rolling Stock Maintenance

Tobu Railway and Hitachi have embarked on a collaboration aimed at ensuring the continuity of their railway businesses that utilizes a digital asset management platform from HMAX by Hitachi for the digital transformation (DX) of train maintenance. This is the first full commercial adoption of HMAX by a Japanese railway operator.

The project involves using AI and data analytics to achieve operational efficiency gains and workplace improvements, with a particular focus on automating rolling stock inspections, optimizing manual tasks, and strengthening workplace capabilities. The aim is to create a better working environment by upskilling Tobu Railway staff and boosting engagement. Hitachi is also using the collaboration as an opportunity to address the societal challenges that confront the railway industry, with its shrinking workforce, more diverse customer needs, and aging infrastructure.

One such example of how Hitachi is accelerating action on achieving sustainable railway operations is the development of equipment condition monitoring that uses vibration sensors on the bogies to detect problems with the rolling stock or track, and an integrated dashboard that improves efficiency by showing information on railway operation and maintenance all in one place.

[6] The Future Envisaged by Tobu Railway and Hitachi

7. Expo Transportation Information System for Safe and Trouble-free Travel

Hitachi partnered with the Japan Association for the 2025 World Exposition on the development of a transportation information system and transportation website for Expo 2025 Osaka, Kansai* that commenced operation at the same time as the event itself.

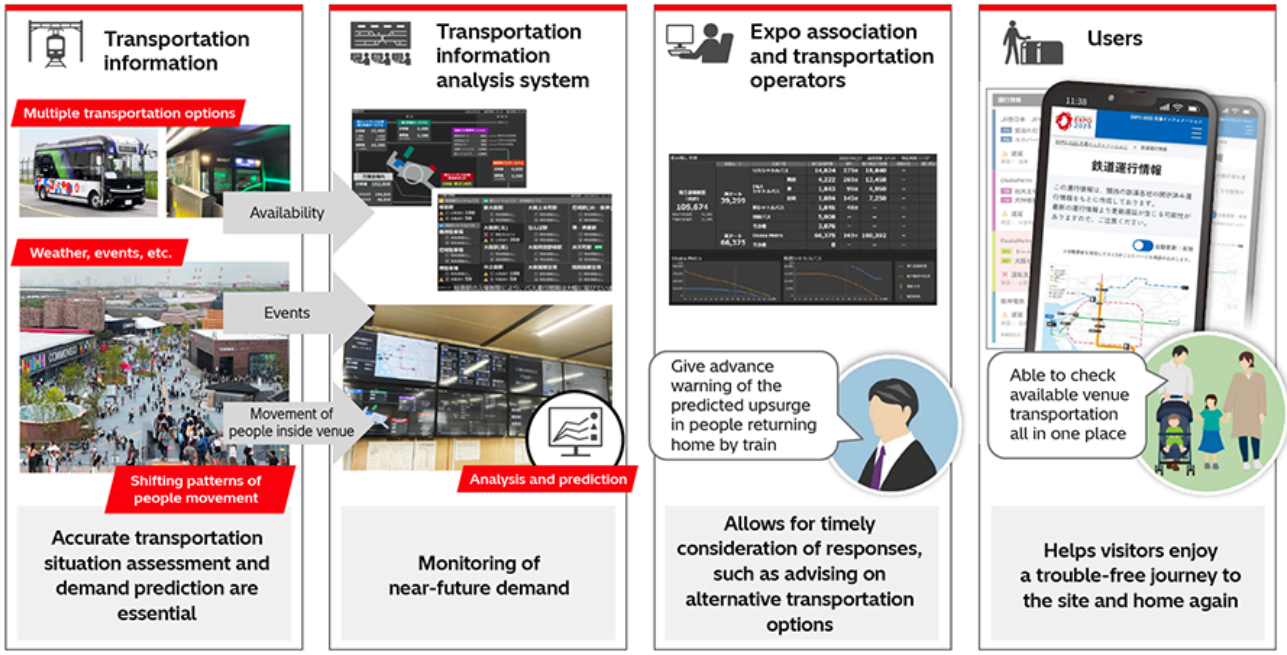
A variety of different transportation options were available for getting to the expo site on Yumeshima Island, including buses and trains. Moreover, the movement of people inside

the venue was also continually changing depending on a wide variety of factors, such as the weather or what events were taking place. To ensure that people could travel safely under these conditions, accurate situation assessment and demand prediction were essential.

Accordingly, the system acted as a centralized source of information on transportation options and availability for people wanting to get to and from the expo venue, helping them enjoy a trouble-free journey to the site and back home again.

The system monitored near-future transportation demand by collating and analyzing information on railway and bus services in the vicinity of the expo site, the level of crowding, and the movement of people inside the venue. By doing so, it was able to provide the expo association and transportation operators with advance warning of crowding and enabled them to take timely action, such as providing information on alternative transportation options or increasing crowd control staff.

* See the list of “Trademarks.”



[7] Transportation Information System and Transportation Website for Expo 2025