

The future being created by the JR-West Group Technology Vision

The JR-West Group Technology Vision, an organization-wide initiative

When formulating the JR-West Group Medium-Term Management Plan 2022, the idea of transforming the value we provide through technological innovation was discussed, and in 2018, we drew up the JR-West Group Technology Vision as to represent how we see ourselves in approximately 20 years' time, from a technological perspective. We have been promoting innovation to realize this vision. Furthermore, in order to achieve our ideals, since formulating our Technology Vision we have been reviewing our internal

organization and developing our corporate culture, including establishing the Open Innovation Office in 2018, in order to systematically engage in open innovation. In particular, in the light of the coronavirus pandemic and looking to the future of business operations in the post-corona era, we believe major reforms and innovations are needed, and therefore we are stepping up our innovation initiatives, including the launch of the Digital Solution Headquarters in November 2020.

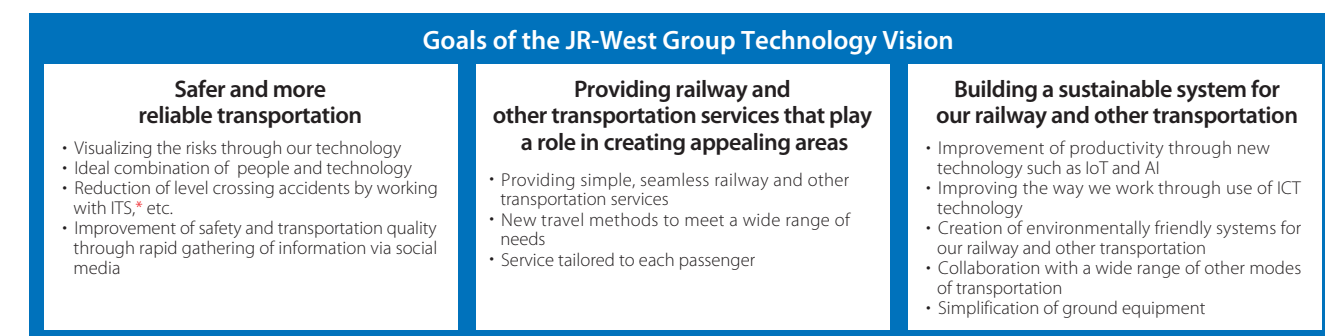


Our three goals and utilizing innovation

Based on the pursuit of safe and stable transportation, we will create technologies to improve customer experience and customer value, and to realize a sustainable society and transportation system. In addition, by utilizing the new mechanism of open innovation, we will collaborate with a variety of partners to rapidly

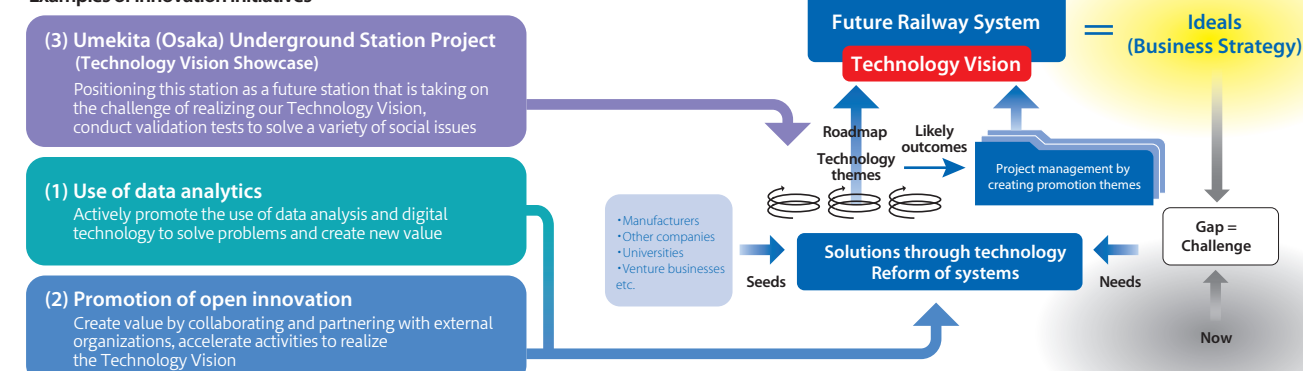
develop completely new elemental technologies.

We plan to make the Umekita (Osaka) Underground Station, which will open in 2023, a place where we can realize our vision of the future.



*ITS: Intelligent Transport Systems

Examples of innovation initiatives



Initiatives to realize the Technology Vision

(1) Use of data analytics

Actively promote the use of data analysis and digital technology.

Change maintenance system to CBM (Condition Based Maintenance)

Constantly monitoring the status of facilities and railway lines using sensors and other equipment makes it possible to identify abnormalities remotely, without workers having to visit the site in person. In addition to solving the issue of future labor shortages, accumulating and analyzing data will enable us to predict equipment deterioration and make preventive repairs. For example,

in the case of automatic ticket gates, we have created an in-house solution that combines operational maintenance data and AI to achieve CBM,* and we expect this to play a role in driving maintenance system change.

*CBM: Condition Based Maintenance
Preventive maintenance to achieve both quality and efficiency through constant monitoring of the status of facilities



(2) Promotion of open innovation

By actively incorporating knowledge from outside the company and engaging in co-development, we are working to create new value together with a variety of partners.



The world's first full-screen platform door with a flexible opening



AI station guidance robot for seamless mobility



Wheelchair step elimination mechanism for eliminating the level difference when getting on and off the railcar



Navigation system "shikAI" for the visually impaired

(3) Umekita (Osaka) Underground Station Project (Technology Vision Showcase)

We have positioned this station as a future station that is taking on the challenge of realizing our Technology Vision, and we are currently conducting validation tests.

The station is positioned as a future station and showcase for taking on the challenge of realizing our Technology Vision. We also expect it to play a role as a source of new customer and social value through the creation of safety systems and new lifestyle services that meet changing social needs. In this way, we aim for it to

become a "station of the future" that integrates the "real-world" and "digital" aspects. To realize this goal, we will employ the open innovation approach, to rapidly and flexibly incorporate technologies from a wide range of partners, and conduct a series of validation tests at actual stations.

External Commendation

Received the Minister of Economy, Trade and Industry's Intellectual Property Achievement Award (Open Innovation Promotion Company)



As a company that actively employs the intellectual property rights system, in fiscal 2021 we received the Minister of Economy, Trade and Industry's Intellectual Property Achievement Award (Open Innovation Promotion Company). We were particularly commended for "strengthening the innovation creation system based on the Technology Vision," "active promotion of open innovation," and "strategic acquisition of intellectual property with an awareness of the protective (i.e., technologies related to safety and stability) and the proactive (i.e., technologies to improve profitability)." We will continue to accelerate the creation of innovation and strive to realize our vision.

Key Points in Presentation of Award

- The company has set out the "JR-West Group Technology Vision" as its vision, has clearly declared its policy on open innovation, and is promoting initiatives. With regard to organizations, in 2018 the company established the Open Innovation Office, and in 2020 it launched the Innovation Department within the Railway Operations Headquarters to strengthen the structure and promote innovation creation.
- In collaborating with small and medium-sized venture firms, the company experienced numerous difficulties at the beginning, due to a number of invisible gaps such as differences in decision-making processes. Learning from this experience, the company introduced a system for sharing the goals of collaboration at the planning stage, which has accelerated progress with open innovation. The company is fostering and creating innovations together with its business partners, such as the world's first full-screen platform door (Nabtesco) and a wheelchair step elimination mechanism (Komatsu Ltd.), thereby enhancing the corporate value of both parties.
- The company purposely and strategically acquires intellectual property: as "protective" technologies on the one hand, which contribute to the safe, stable, and sustainable operation of railways (e.g. platform doors); and as "proactive" technologies on the other hand, which improve profitability (e.g. technology to determine when to perform maintenance, automated operation, etc.). In addition, the company is enhancing its organizational structure for utilizing intellectual property and supporting this utilization, such as coordination with CVC (corporate venture capital) activities at Group companies.