

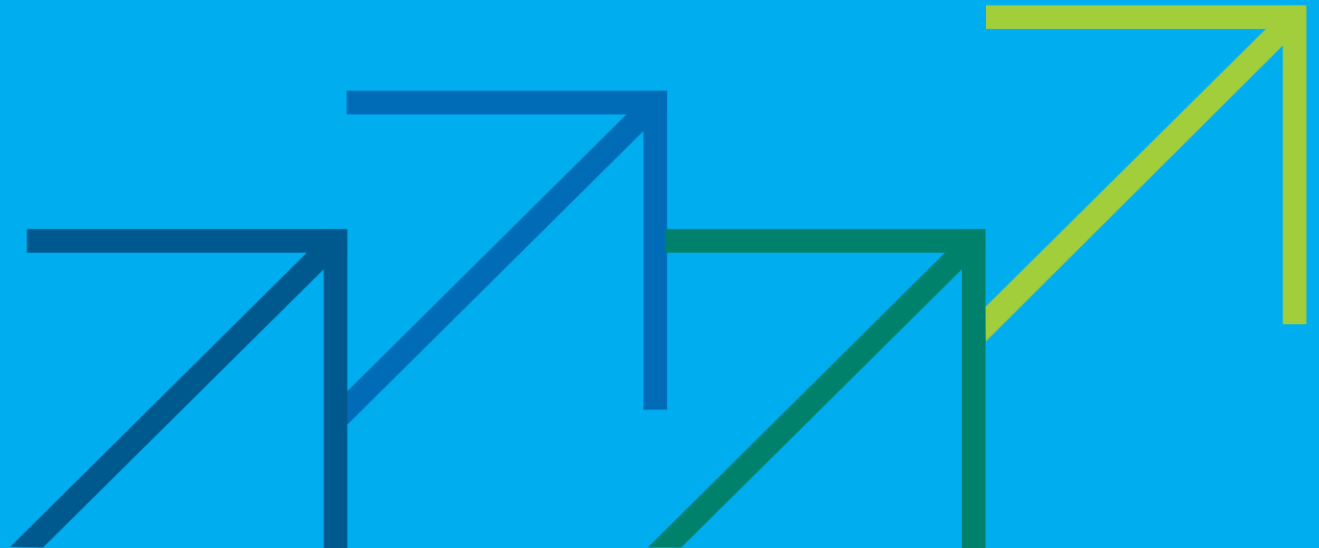


**KGID
2025**

**Green Growth:
The Path to
Sustainable Jobs**

IT-Driven Railway Innovation for Sustainable Growth

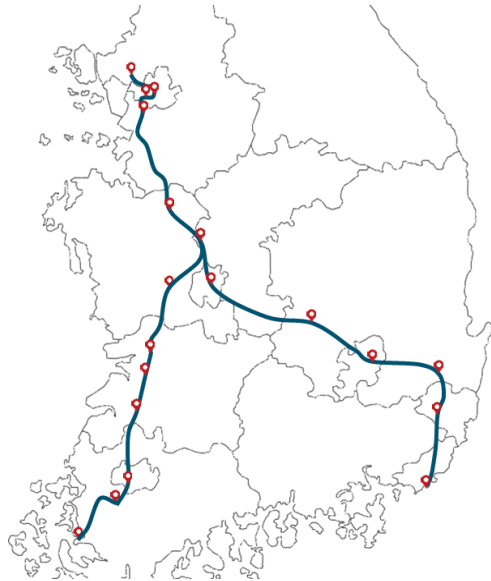
CHO, Hyun Ah
Senior Manager
Overseas Business Dept., KORAIL



1. High Speed Railway Business

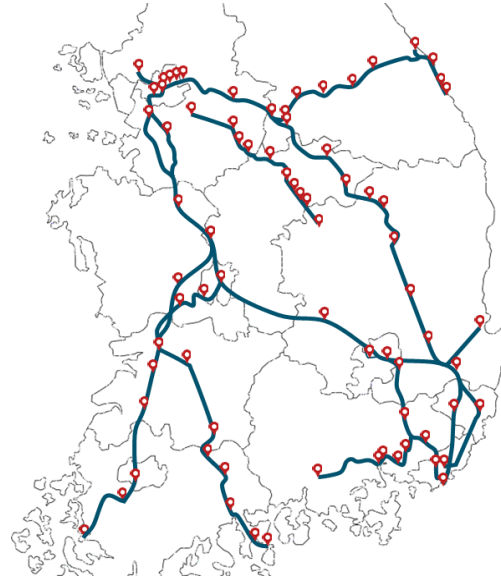
2004

only 2 lines & 20 stations



2025

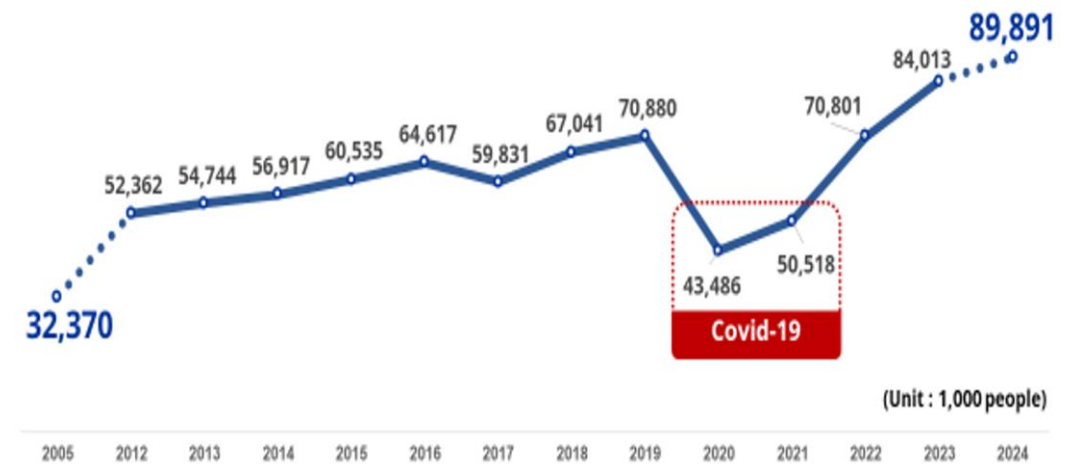
8 lines & 77 stations



Key Achievements

❖ Passenger Growth & Revenue Composition in 2024

- **5%** annual increase in passenger numbers
- **57 %** of the passenger service revenue of 2.89 billion USD



2. Service Innovation : Customers

- Real-time train delay prediction and transmission of delay via KORAIL Talk & TIDS
- Real-time 3D seat views before boarding
- Free automatic Wi-Fi available on KTX train



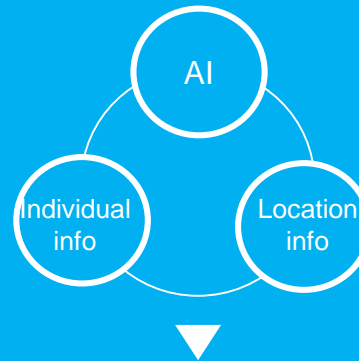
Real-time Travel Information Services

Expanding Unmanned Services for the Transportation Disadvantaged

- Ticket vending kiosk integrated with simultaneous interpretation
- Video support functions for disadvantaged people



Real-time customized SERVICE INNOVATION



Real-time train info

Station information

Personalized service



- Expanding open APIs and improving accessibility to railroad information through various private platforms (e.g., Kakao, Naver)



Opening Public Data and Expanding the Ticket Sales Network

Providing Personalized Services by Combining AI and Spatial Information

- Provision of **value-added CRM** information (e.g., taxi, bus, hotels, restaurants) using AI and GIS
- Provision of **customer services** (e.g., rental car and public bicycle reservations, station conference room reservations, and parking fee payments) via **KORAIL Talk**

3. Safety Innovation : Operation & Maintenance

- **Smart & Safe Station:** automated detection of passenger collapse, unauthorized access to restricted platform areas
- **Real-time CCTV monitoring** with alerts for overcrowding in waiting areas and platforms
- **Screen door safety management** system to prevent PSD accidents on station platforms

Digital transformation INTEGRATED SAFETY MANAGEMENT SYSTEM

Individual data

Data collection & integration

Real-time risk analysis

Risk data training

AI risk detection & prediction

DATA

DATA

DATA

DATA

Integrated monitoring

Passenger /metropolitan/
logistics / driving

Rolling stock /
electricity / facilities

API

Weather advisory API
(Korea Metrological Admin,)

Landslide forecast API
(Korea Forest Service)

- **Real-time detection & analysis** of abnormal codes indicating train malfunctions during operation
- **Warehousing monitoring** system
- **Real-time fire detection** and alarm system



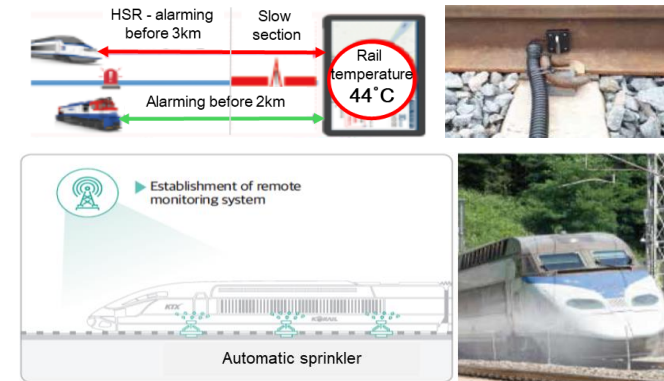
Customer Safety

Rolling Stock Operation & Maintenance Safety

Occupational Safety

Measurement & Prediction of Tack Temperature

- **Safety app** that integrates the train driver's GPS and the track worker's GPS, and notifies both of approaching trains
- **Track work risk prediction system** that alerts workers to risk situations (e.g., lightning, landslides, train shunting, train collisions, and track occupancy)



3. Safety Innovation : Operation & Maintenance

❖ Safety & Reliable Railway Operation



Safety Devices in Tracks and Rolling Stock

Facility monitoring
by drone



Impediment
Detector

Heat
Detector

Rail
Temperature
Detector

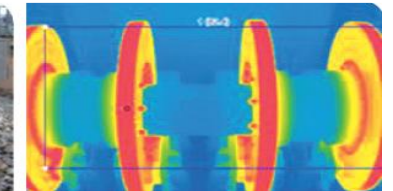
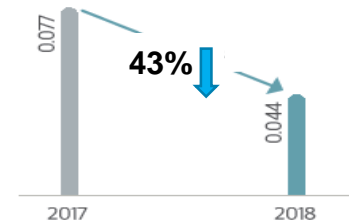
Dragging
Detector

❖ Weather Information System & Scientific Data Collection

- ✓ Route information and maps
- ✓ Earthquake impact zones on routes and structures
- ✓ Train control based on rainfall
- ✓ Four color : normal (●), caution (●), slow speed (●), stop (●)

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❖ High Speed Train Scanning System

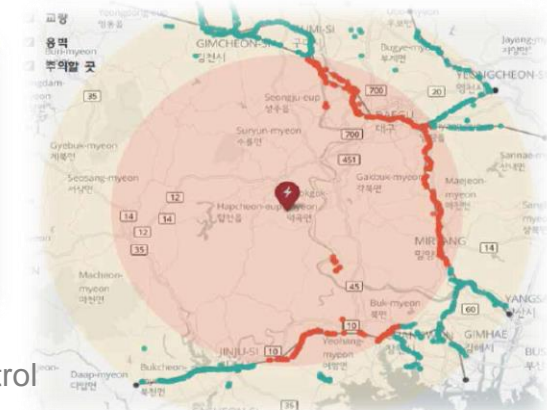


Monitoring deformation status through image pattern analysis

❖ Driver's Train Operation Guidance System(GKOVI)



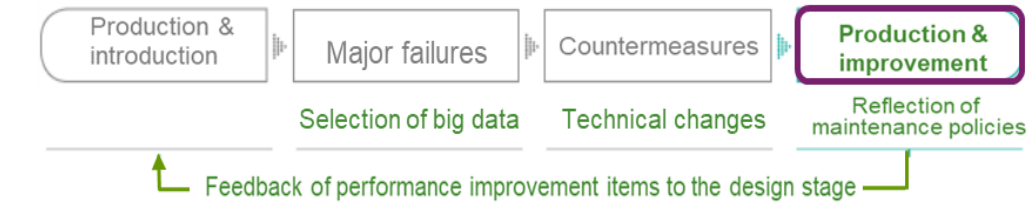
Visualization of train control



Earthquake impact zone inquiry

4. People Innovation : Sustainability

❖ Data-Driven Workplace and the Gender Shift in Advantage



CBM

- Real-time fault inspection
- Transitioning maintenance (TBM → Condition Based Management)



Data-driven Maintenance

- Analyzing sensor-collected information
- Periodic inspection → real-time management
- Advanced maintenance equipment



SMART Factory

- Real-time inspection of the drive system using thermal cameras etc.
- SMART Factory construction projects

❖ KORAIL Workforce Trends (2010-2015)

Figure 2. Total Employment & Gender Balance

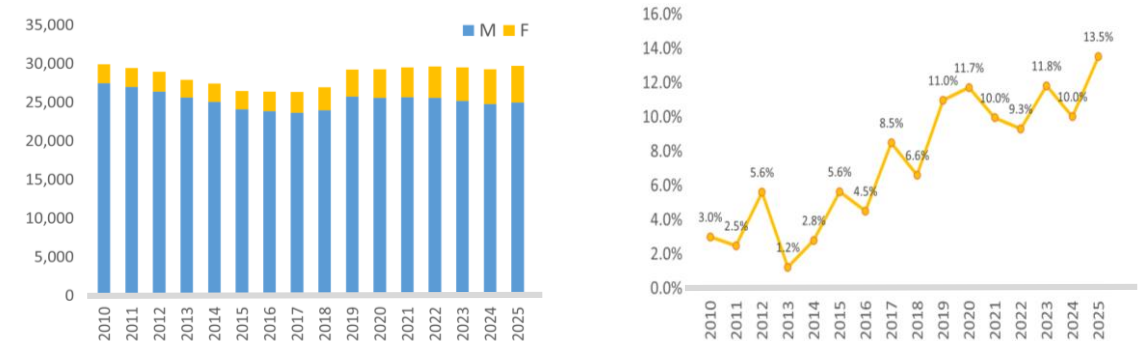
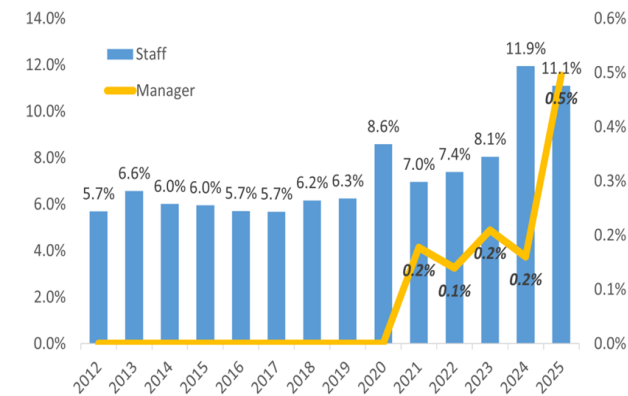


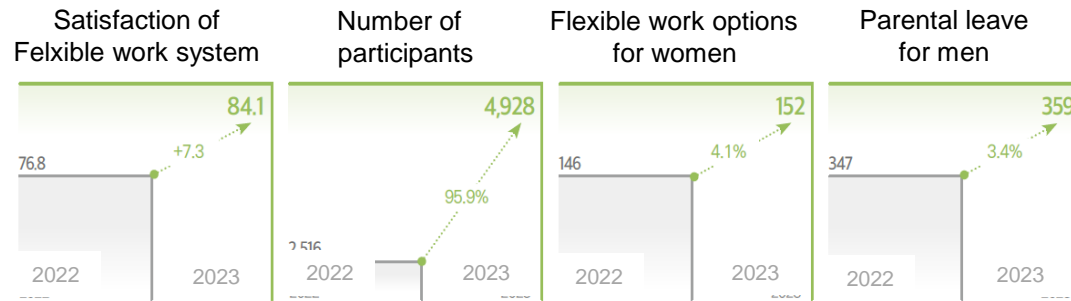
Figure 4. Female Employees in HSR Maintenance Depot



4. People Innovation : Sustainability

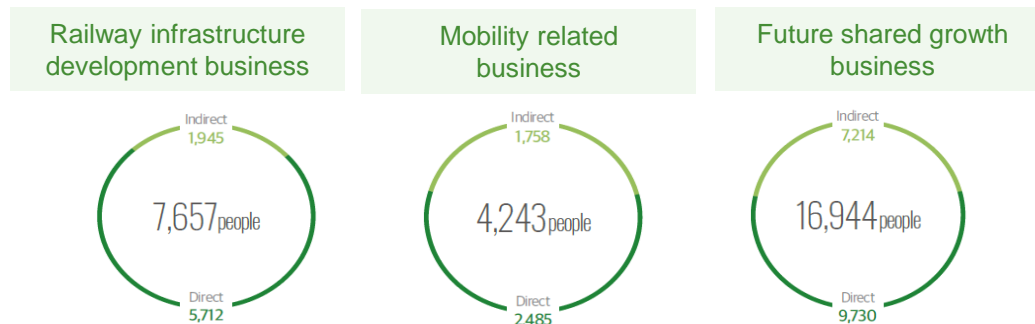
❖ Expansion of Flexible Work Systems (FWS)

- An increase in participation in and satisfaction with FWS



❖ Railway infrastructure development with the private sector

- An increase in employment in relevant private businesses, including manufacturing, mobility, and SMEs.



❖ Shared Growth with SMEs and Local Economy

- Expanding cooperative initiatives with local SMEs, including those in the agricultural and fisheries sectors

initiatives for Shared Growth with SMEs, Small Businesses and Social Enterprises



Strengthening support for partners to overcome economic crises

Domestic market support utilizing KORAIL's infrastructure

Proactive measure for domestic production & new tech development

Promotion of a fair-trading culture

Support for sales and market development

Support for partners to secure tech development

Technical Support



Sales Channel Support



Financial Assistance

