



2023 TAIWAN RAILWAYS ANNUAL REPORT

112年 臺灣鐵路年鑑

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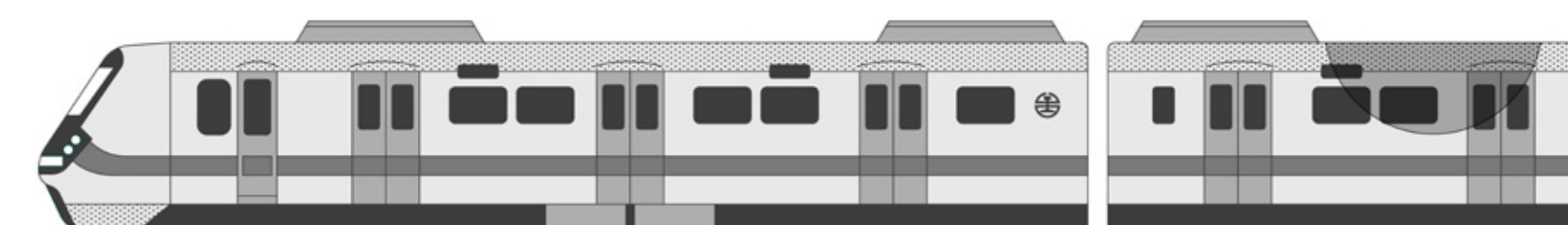
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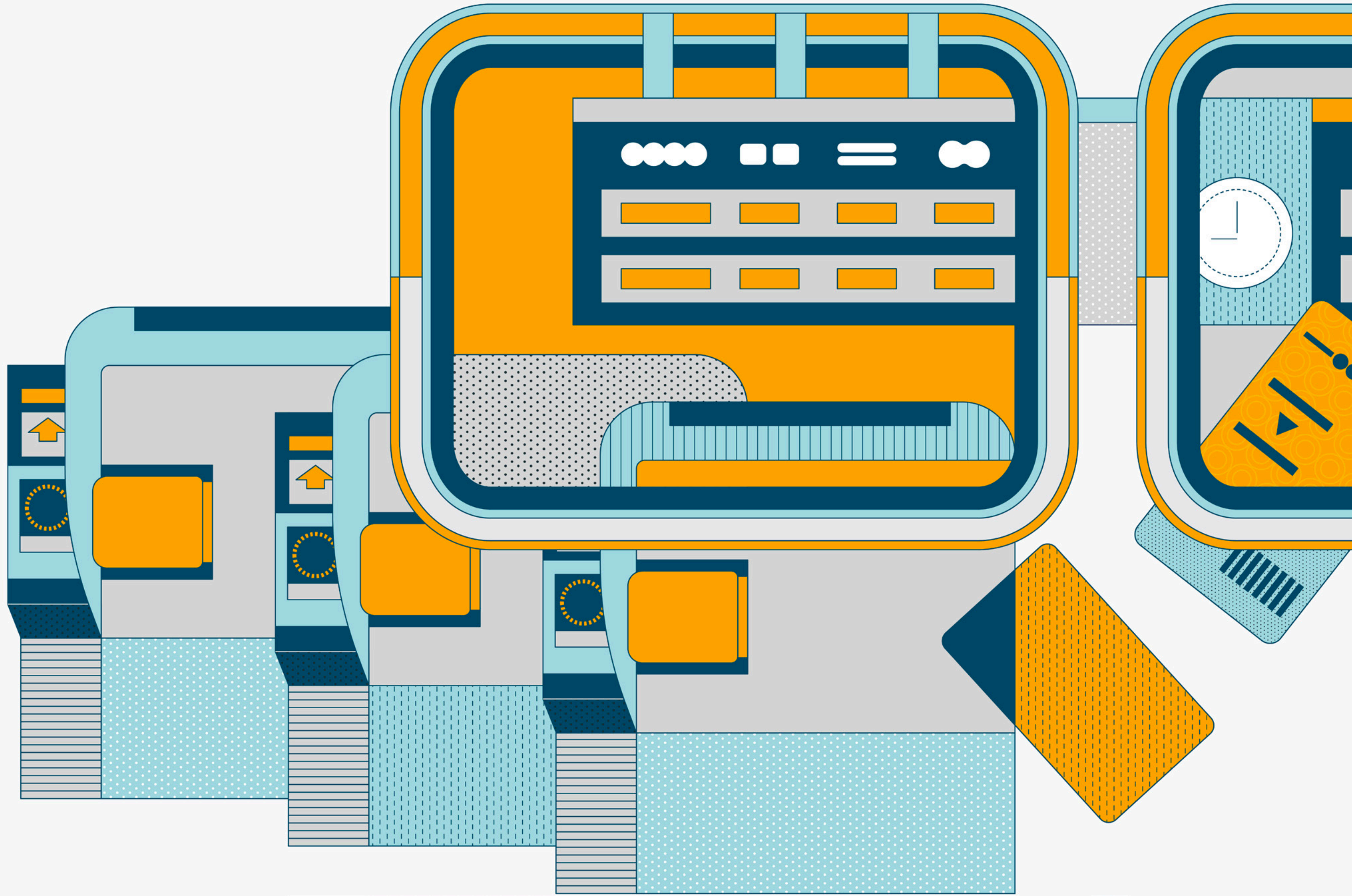
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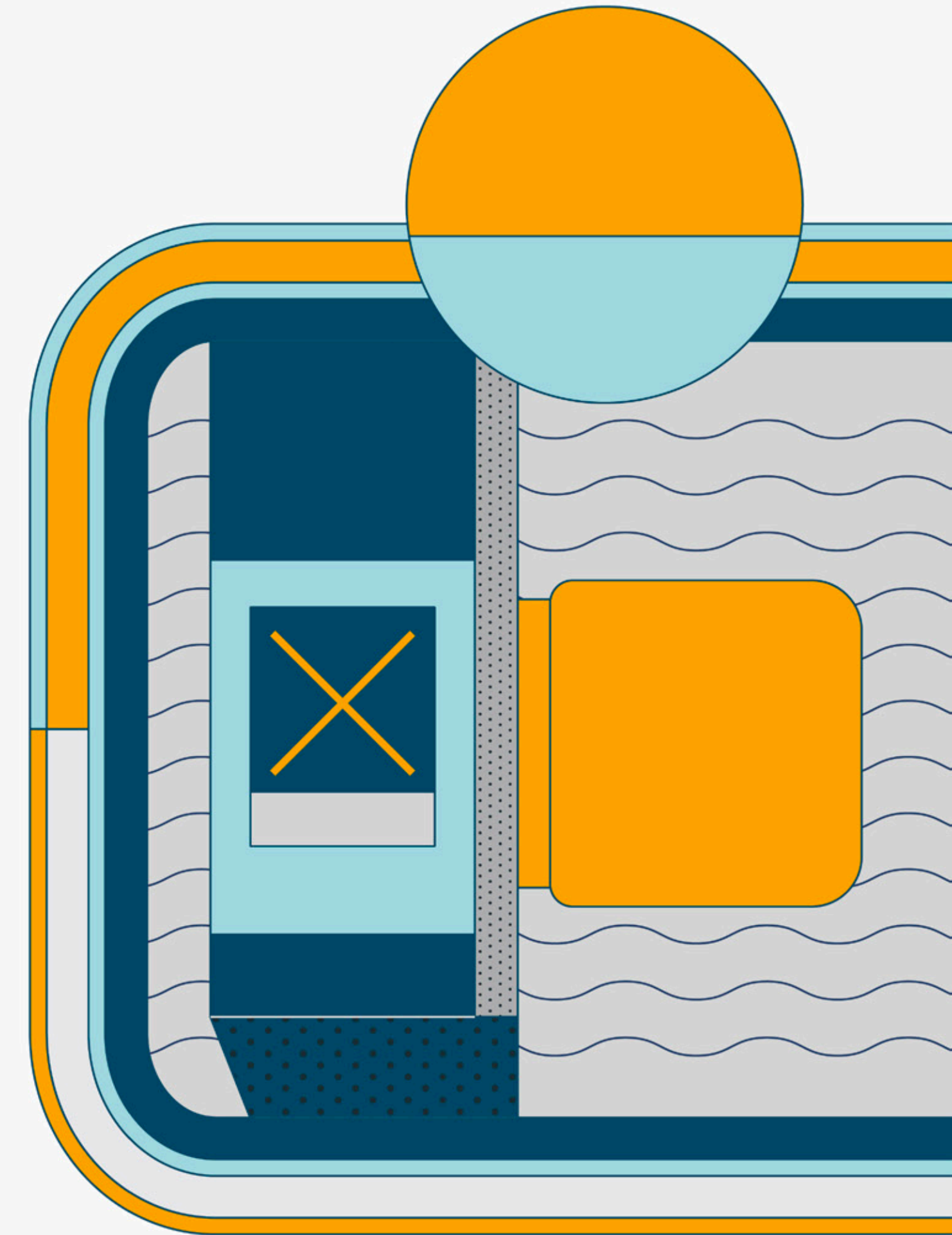
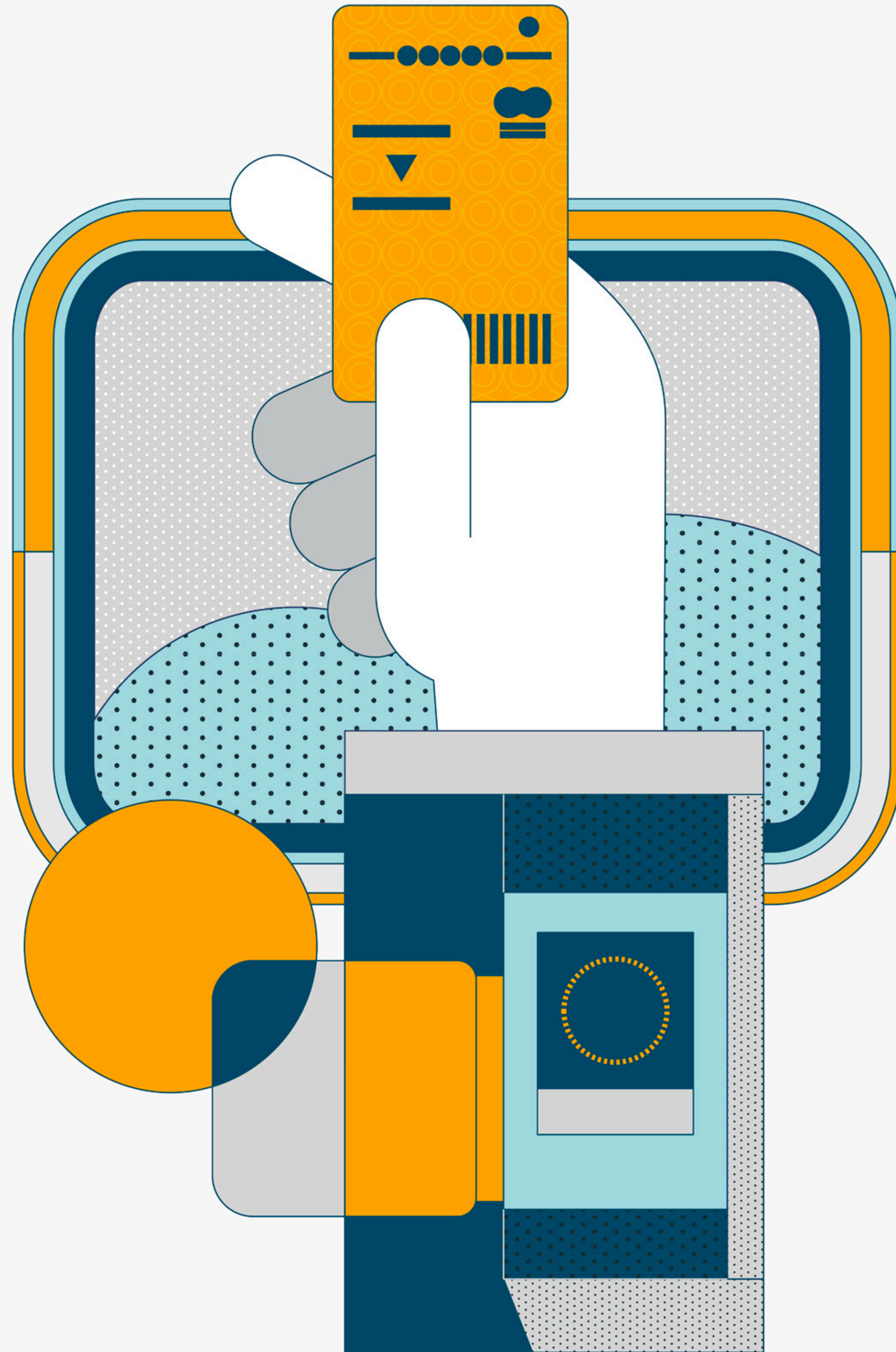
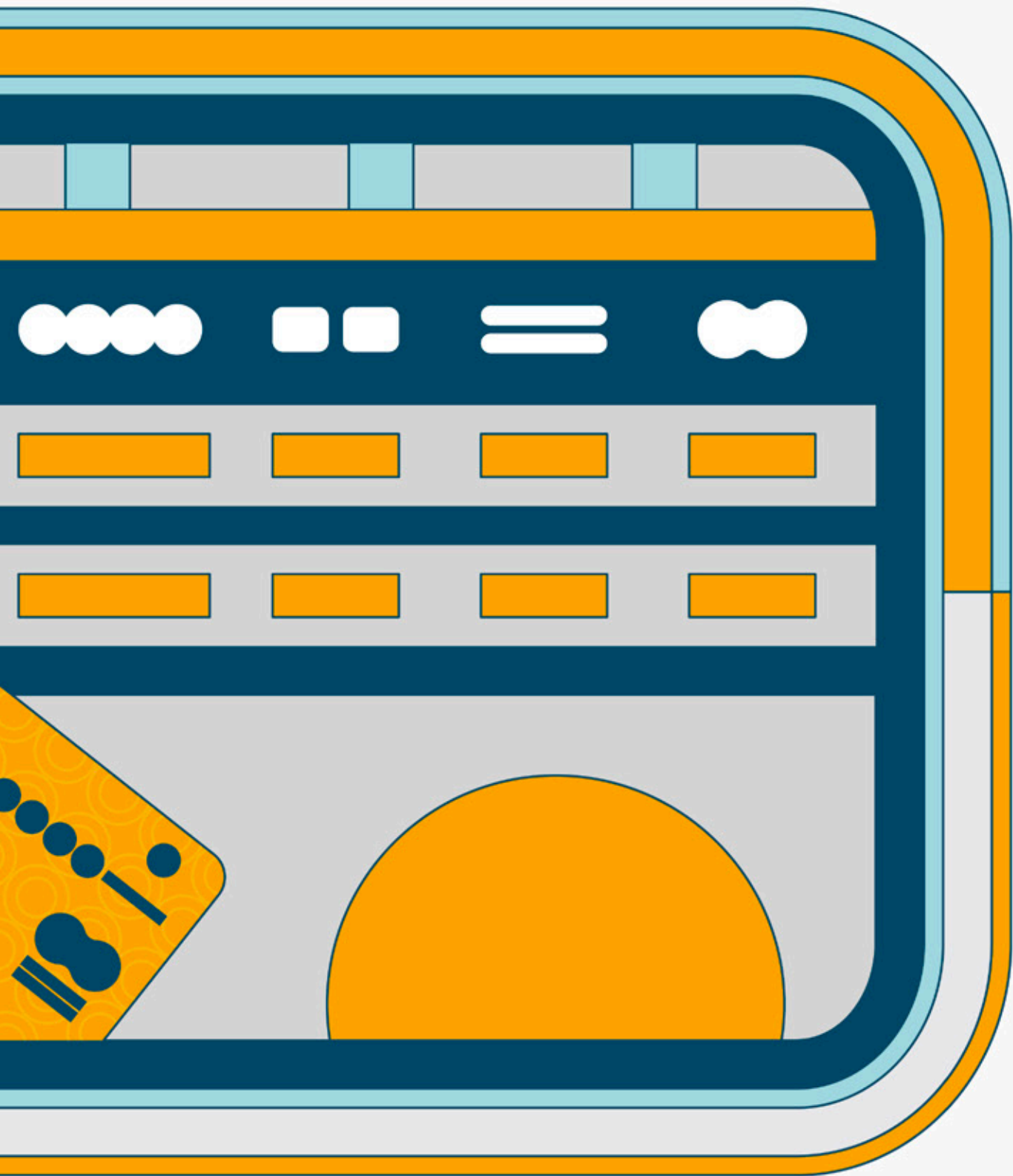


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CHAPTER

Preamble





0-1 Foreword

In retrospect, 2023 has been a year filled with opportunities and challenges for Taiwan Railway Corporation. In light of the growing demand for transportation as the world recovers from the COVID-19 pandemic, we at Taiwan Railway Corporation have capitalized on the advantage of our island-wide railway networks and upgraded trains to provide comprehensive commuter transportation, intercity passenger transportation, bulk freight, railroad sightseeing, and tourism services, which have also accelerated the pace of post-COVID recovery and revitalization in Taiwan. Furthermore, 2023 was the last mile in our journey towards corporatization as we encountered numerous difficult challenges along the way. We have successfully completed this arduous mission step by step, thanks to the concerted efforts of all our employees.

Taiwan Railway Corporation has achieved a significant milestone, reaffirming our dedication to improving railway safety by deploying professional service teams and instituting risk management mechanisms together with performance-driven management systems. These measures are aimed to effectively support departments at all levels in fulfilling their safety management system (SMS) responsibilities and in establishing a comprehensive railway SMS. Moreover, the level crossing monitoring via the Fiber-optic Transmission and Automatic Obstacle Detection Project has been launched to enhance safety at level crossings. In the electrical engineering domain, the Round-Island Fiber-optic Transmission Network System Upgrade Project has been completed to meet future needs for high-speed, reliable, and scalable communication and transmission. In terms of machinery, all 520 EMU900 train sets are now operational. Furthermore, the initial batches of R200 diesel-electric locomotives and E500 electric locomotives were delivered in 2023. This establishes a full-service multifaceted operational fleet, significantly increasing passenger capacity and service quality.

With regard to our primary business in the transportation industry, not only our newly purchased multifunctional ticket vending machines are now fully operational, but ticket refunds can also be made at post offices and convenience stores where tickets are bought initially, thereby providing enhanced convenience to passengers in terms of ticket purchase and refund. Additionally, we have launched the Executive Yuan TPASS commuter monthly pass in line with the public transportation policies set forth by the Executive Yuan and county and municipal governments with the intention of encouraging the public to utilize public transportation. On the other hand, we have introduced the use of social welfare card points for public transportation rides in collaboration with county and municipal governments to make public transportation diverse and friendly for senior citizens and people with disabilities. Meanwhile, new barrier-free elevators and platform upgrading works are currently in progress at all our stations in an effort to cope with the aging society and create a friendly travel service environment.



Sincerely,

Chairman of Taiwan Railway Corporation, Ltd.

0-2 Message from the President

In 2023, the Taiwan Railways Administration of Ministry of Transportation and Communications marked a significant milestone with its transition to the state-owned Taiwan Railway Corporation, Ltd. With the determination and steadfast support of the government, public, and all employees, we have pragmatically completed the corporatization reform work and overcome numerous challenges while fostering a unified consensus on reform. Our goal is to drive the corporatization of Taiwan Railway towards three major reform directions: safety, stability, and transformation.

In response to feedback and expectations across society, Taiwan Railway Corporation has initiated adjustments to its organizational structure and begun implementing operational safety management at the grassroots level. We are actively advancing measures to enhance railway operation safety and service capacity, prioritizing the acquisition and replacement of essential railway infrastructure, operational vehicles, and maintenance equipment. With the relaxation of laws such as the Railway Act, we are poised to proactively develop our dual-core business model. This includes diversifying our ancillary operations to seize new opportunities in the tourism sector. Relaxing restrictions on property development promises broader urban development benefits and revitalizing older station areas.

Amidst global shifts in natural, economic, and social landscapes, heightened awareness of energy conservation, carbon reduction, and corporate social responsibility, alongside evolving demographic trends, the railway transportation industry faces formidable challenges in its transition efforts. In Taiwan, transportation ranks as the third-largest carbon emitter, with over 90% originating from road traffic. Railway transport, meanwhile, generates the lowest energy intensity. Aligned with Taiwan's commitment to achieving net-zero carbon emissions, together with its compact geography, dense urbanization and multi-core urban agglomeration framework, Taiwan is poised to evolve into a rail-centric society. Taiwan Railway, with its extensive island-wide network and substantial land holdings around major station areas, is well-poised to optimize railway services continuously. Embracing Transit-Oriented Development (TOD) strategies will foster urban growth around stations, driving shared prosperity for Taiwan Railway and regional development, and accelerate the multi-core development and interconnectivity of Taiwan, promoting balanced urban-rural dynamics.

Furthermore, in alignment with the government's active promotion of high-speed rail networks and urban metro construction, Taiwan's island-wide railway system, anchored by Taiwan Railway and Taiwan High Speed Rail, has steadily taken shape. Urban metro systems and regional rail networks are also expanding continuously. By seamlessly integrating these networks, we aim to offer the public low-carbon, eco-friendly, and convenient rail transport services that support sustainable national development. Drawing from the transport development experiences of rail-centric societies like Japan and Germany, Taiwan is committed to building a well-integrated rail network and developing station areas in line with TOD strategies. This integrated approach is expected to significantly boost the overall share of public transportation. The dual

engines of Taiwan Railway's core operations and auxiliary businesses will gain robust momentum.

With the full support of the government's "Three Commitments and Two Guarantees," along with the inherent advantages of Taiwan Railway's island-wide network, superior station locations, and the introduction of new locomotives, Taiwan Railway will base its operations on deeply ingrained employee safety values. By fully leveraging the opportunities and strengths of both internal and external environments, and operating more flexibly and efficiently through corporatization, we aim to become a happy enterprise that prioritizes the precious lives of passengers and provides safer, punctual, and enhanced life services to the public and employees. Together, all members of Taiwan Railway are fully committed to delivering high-quality transportation services, advancing towards sustainable operations and embarking on Taiwan Railway's promising golden decade ahead.



Sincerely,

General Manager of Taiwan Railway Corporation, Ltd.

Regarding the development of our ancillary businesses, we have not only improved our food and beverage offerings for our Tengyun business class cabins on a rolling basis to meet the needs of different customer groups, but also introduced the Hualien Concierge Lounge, Taiwan Railway's first ever concierge lounge that incorporates an aesthetic design showcasing the special features of the local area, aimed at offering passengers a premium experience. Moreover, we continue to promote the use of local Taiwan ingredients in our meal offerings through TR Bento while launching co-branded specialty bentos following the signing of a Memorandum of Understanding with Awajiya Co., Ltd. from Japan. As far as asset development is concerned, we continue to facilitate mutual benefit and co-prosperity between railway transportation and local business districts to advance the development of the railway economy by various means, such as investing in land around train stations, urban renewal, and private participation in public construction.

On the employee welfare front, we have strived for the continuation of welfare improvement measures till February 14, 2025 to boost employee morale following

the recent organizational change. In view of our commitment to talent retention, we have not only planned to increase the amount of bonuses for three major festivals to be distributed to employees, but also sought an allocation of NT\$ 1.2 billion to the employee welfare fund during the incorporation of Taiwan Railway Corporation for the purpose of handling employee welfare-related matters.

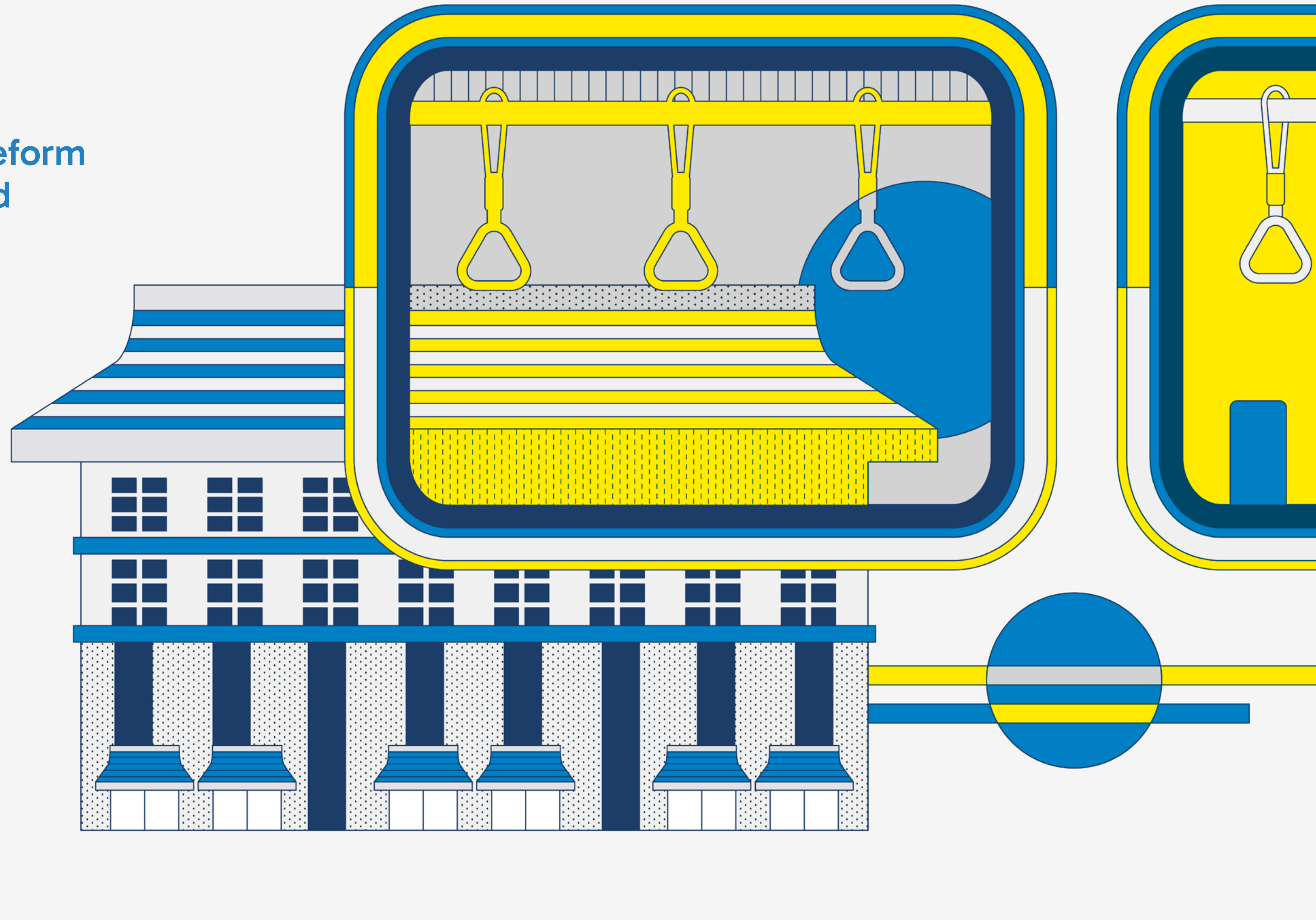
To ensure a smooth transition to Taiwan Railway Corporation as the Taiwan Railways Administration drew to a close in 2023, we implemented multiple measures focusing on our corporatization plan, including actively promoting corporatization-related sub-laws, holding employee conferences to explain our corporatization plan, and signing a collective bargaining agreement with the Taiwan Railway Labor Union, so that everyone at Taiwan Railway Corporation can work together towards harmonious labor relationships and better employee rights. Moving forward, Taiwan Railway Corporation will gradually reform its organizational culture, improve its finances, and bolster its corporate advantage in pursuit of magnificent transformation, thereby realizing the vision to become a sustainable and happy enterprise.

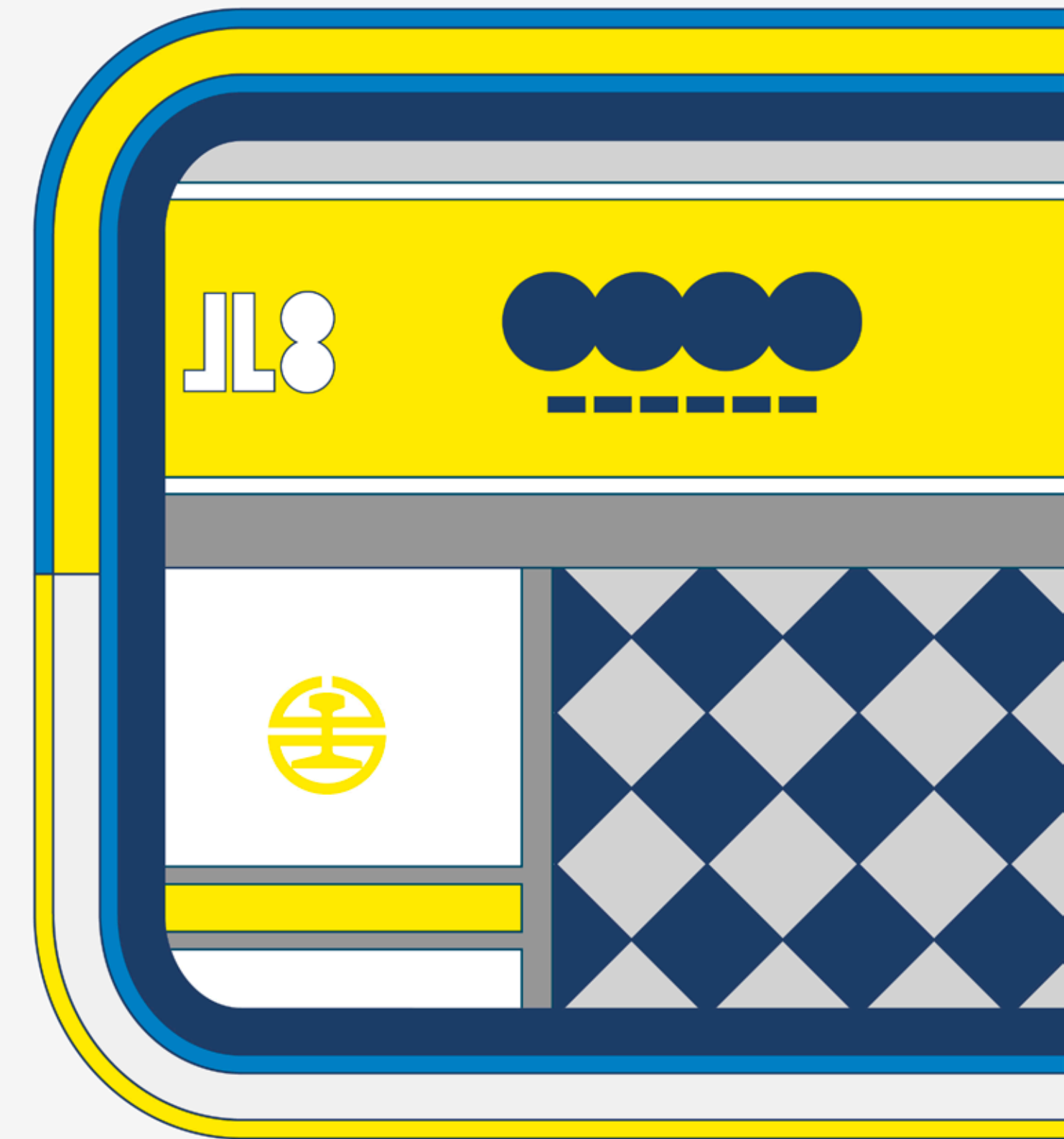
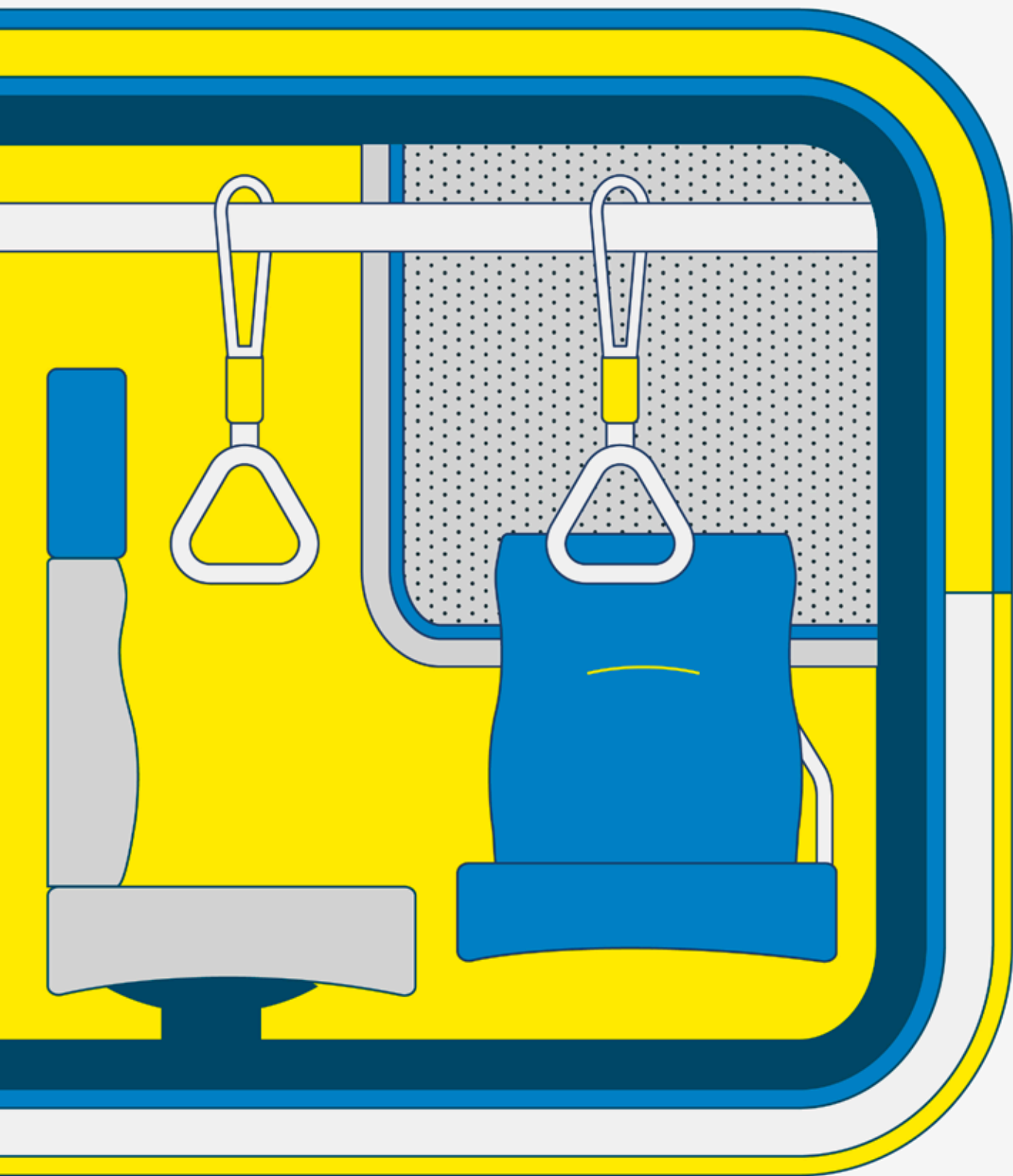


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CHAPTER

Transformation and Reform of Taiwan Railways and it's Prospects





- 1-1 Introduction
- 1-2 Transformation and Reform of Taiwan Railways
- 1-3 Corporatization Prospects
- 1-4 Building a Golden Decade for Taiwan Railways

1-1 Introduction

Taiwan Railways has been operational for 136 years, serving numerous passengers and freight across this picturesque island. Throughout its history, it has observed the dynamic growth of Taiwan's economy and reflects the island's unique local traditions and practices. At precisely 00:00 on December 31, 2023, Commissioner Du Wei and Deputy Commissioner Feng Hui-sheng ceremoniously removed the “Taiwan Railways Administration, Ministry of Transportation and Communications” signboard at the East 2 gate of Taipei Main Station. This act symbolized the conclusion of the Taiwan Railways Administration under the Ministry of Transportation and Communications.

On January 1, 2023, a significant ceremony was held with President Tsai Ing-wen, Secretary General Lin Chia-lung of the Presidential Office, President Chen Chien-Jen of the Executive Yuan, Vice President Cheng Wen-tsan, former President Su Tseng-chang, and Minister Wang Kwo-t sai of the Ministry of Transportation and Communications in attendance. This event marked the formal transition of the “Taiwan Railways Administration” to the newly established “State-Owned Taiwan Railway Corporation.”



Unloading of signboard of Taiwan Railways Administration and hanging of signboard of Taiwan Railway Corporation

1-2 Transformation and Reform of Taiwan Railways

The Taiwan Railways Administration, affiliated with the Ministry of Transportation and Communications, functions as both a government agency and a public utility, as well as an administrative department. Its operations are strictly regulated by administrative rules, which curtails its autonomy and complicates the adoption of market mechanisms to achieve entrepreneurial efficiency. For many years, Taiwan Railways has been incurring losses, making it difficult to alter its operational

strategies. Consequently, there is a public expectation for Taiwan Railways to revamp its operating system and to enhance its efficiency and competitiveness through institutional reforms.

On April 7, 2021, President Tsai Ing-wen proposed three major reform directions: “Thoroughly resolving the organizational culture (horizontal integration of transportation, engineering, mechanical, and electrical sectors, and construction safety management), resolving long-term financial losses, and exploring the optimal sustainable business model.”

On April 29 of the same year, Premier Su Tseng-chang of the Executive Yuan directed the Taiwan Railways Administration to concentrate on three key reforms: “safety,” “stability,” and “transformation.” Initially, “safety” pertains to traffic, construction site, and operational safety, which includes aspects such as engineering construction and operational management. The government has committed full support for these reforms, which are to be implemented immediately where possible. Secondly, “stability” refers to the well-being of the organization’s personnel (employees) and its financial health. Thirdly, the “transformation” focuses on making organizational adjustments that ensure the rights and interests of employees are protected, thereby securing their jobs and taking into account the future prospects of the organization. Furthermore, he stipulated that Taiwan Railways must guarantee “Tickets available, seats available, and safe and punctual arrival” for passengers.”

Under the banner “Reform of Taiwan Railways, Starting from Safety,” Minister Wang Kwo-t sai of the Ministry of Transportation and Communications reported these initiatives to the Premier on September 16th of the same year, demonstrating the government's determination to overhaul Taiwan Railways.

In response to the advice and expectations from all sectors, and with the goal of significantly enhancing safety and operational performance, Taiwan Railways has implemented three major reforms as proposed by President Tsai Ing-wen. These reforms aim to overhaul the organizational culture, alleviate financial difficulties, and guide Taiwan Railways towards sustainable operations. Additionally, in accordance with the principles of safety, stability, and transformation set forth by the Executive Yuan, and to actively promote these reforms, the President announced the “Establishment Act of the State-Owned Taiwan Railway Corporation” on June 22, 2022. This act restructured the “Taiwan Railways Administration, Ministry of Transportation and Communications” into the “State-Owned Taiwan Railway Corporation.” The company began its operations on January 1, 2024, and it is anticipated to provide entirely new services and operations through its corporatization.

1-3 Corporatization Prospects

1 Safety assurance

1. To enhance safety management

The Taiwan Railway Corporation board of directors established a Safety Management Committee and raised the profile of departments dedicated to operational safety. The Operation Safety Office and the Occupational Safety and Health Office now report directly to the General Manager. Additionally, safety sections have been instituted within the operation offices of the northern, central, southern, and eastern regions to bolster primary-level governance of operational safety and optimize the overall strength of these initiatives.

2. Upgrading equipment and constructing systems

The Taiwan Railway Corporation is set to continue implementing various safety enhancement measures. These include the retirement and acquisition of new trains, improvements to potentially hazardous lines, reinforcement of track structures, and the advancement of electrical utility systems' intelligence. Furthermore, the establishment of slope warning systems, the promotion of intelligent train utilization, and the construction of crew scheduling systems are underway. The Ministry of Transportation and Communications will support these initiatives financially, ensuring that the Taiwan Railway Corporation can proceed without fiscal concerns, thereby improving traffic safety and service quality.

3. Establishment of a safety system and safety culture

Taiwan Railway Corporation has adopted a safety management system (SMS) and engaged third-party evaluations to foster a safety-first culture and proactive operational habits. This paradigm shift reimagines railway safety from a traditionally passive response to a proactive, preventative, and risk-based approach. The implementation of SMS guidelines at the primary level has led to a 60% reduction in major traffic accidents in 2022 compared to 2021, with no passenger fatalities or serious injuries. All six safety performance indicators were achieved, marking the initial success of these safety reforms. Moving forward, Taiwan Railway Corporation will develop various incentives to further safety reforms, enhance the efficacy of the SMS, and cultivate a robust safety culture within the train services and corporate framework, aiming for zero industrial injuries and accidents.

2 Enhancement of services

1. Further enhancement of transportation services

implementing a systematic train purchase and replacement program, with new intercity and commuter trains already in service. In the future, Taiwan Railways will strive to enhance the quality of its transportation services. Additionally, it will continue to introduce new operating practices in the intercity transportation sector to attract travelers for business meetings, sightseeing, and group tours to experience Taiwan Railways' brand-new intercity transportation services. Moreover, Taiwan Railway Corporation will continue to comply with the government's policies to protect the basic travel rights of the people of Taiwan, ensuring that, with the government's ongoing subsidies and support for service lines and small stations, the quality of transportation service will not be compromised and will be strengthened depending on the development of the area where each station is located.



2. Further expansion of subsidiary businesses

Railway Tourism | With the relaxation of the Railway Act and other regulations, any or all of the lines operated by Taiwan Railway Corporation can now connect to tourism areas along the lines, offering tourist services and charging fees based on the content provided. Beyond the current business model of collaborating with travel agencies, Taiwan Railway Corporation will develop diversified and refined services in the tourism sector. Through a self-operated tourism business model and collaboration with external organizations to leverage their resources, a new dimension will be added to the tourism business.

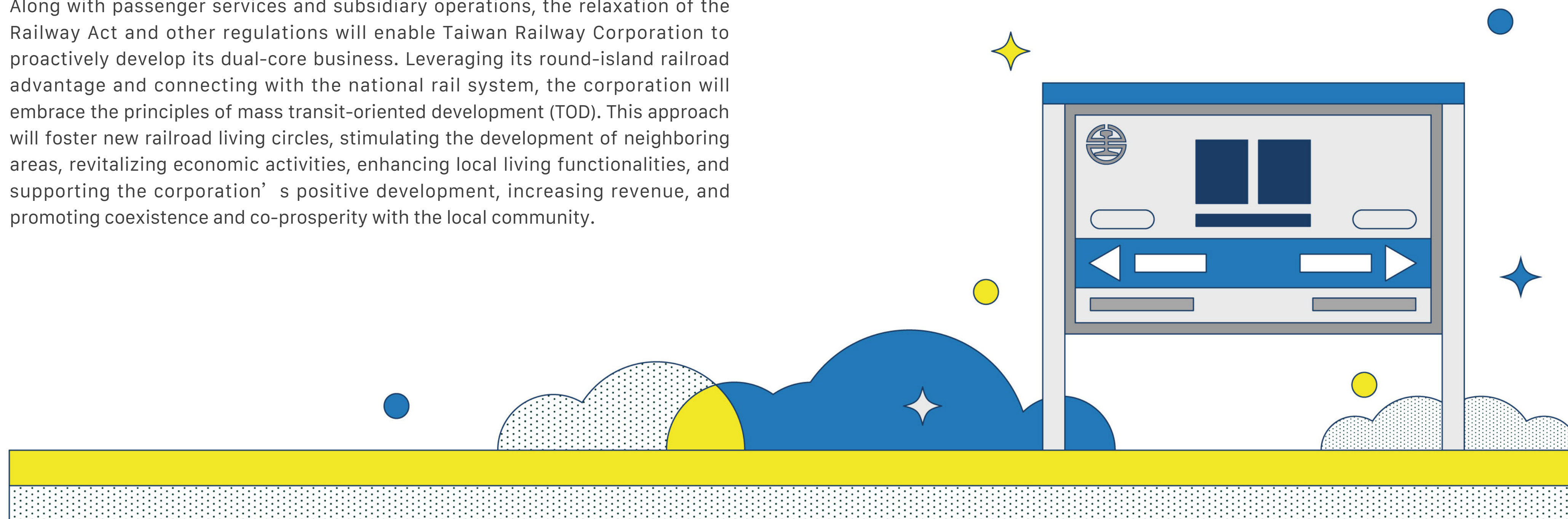
Taiwan Railway Bento | The Taiwan Railway Bento, celebrated for its delicious offerings and compliance with the Environmental, Social, and Governance (ESG) sustainability principles, meets the Hazard Analysis and Critical Control Points (HACCP) food safety standards among other relevant regulations. Looking forward, the Taiwan Railway Corporation plans to establish large-scale centralized lunchbox kitchens to improve the quality and quantity of meals offered. By expanding its market reach across the comprehensive round-island railway network, the corporation aims to significantly boost its revenue.

3. Further breakthroughs in asset development

Along with passenger services and subsidiary operations, the relaxation of the Railway Act and other regulations will enable Taiwan Railway Corporation to proactively develop its dual-core business. Leveraging its round-island railroad advantage and connecting with the national rail system, the corporation will embrace the principles of mass transit-oriented development (TOD). This approach will foster new railroad living circles, stimulating the development of neighboring areas, revitalizing economic activities, enhancing local living functionalities, and supporting the corporation's positive development, increasing revenue, and promoting coexistence and co-prosperity with the local community.

4. Integrated urban and rural development around stations

Corporation flexibility following its corporatization, the Corporation is set to broaden its subsidiary business ventures. This expansion involves integrating station-centric commercial activities with traditional railway operations, shifting focus towards urban development in the vicinities of these stations. By exploiting station space for commercial rentals, the corporation plans to introduce diverse businesses, including restaurants, department stores, hotels, and commercial buildings. Furthermore, it will engage in land development projects around these stations to enhance revenue streams. The strategically located Taiwan Railways stations are set to harness these developments to meld urban service demands with a variety of service offerings such as commercial, office, long-term care, and recreational spaces. This integrative approach aims to not only foster overall urban development advantages but also facilitate the rejuvenation of aging urban districts surrounding the stations.



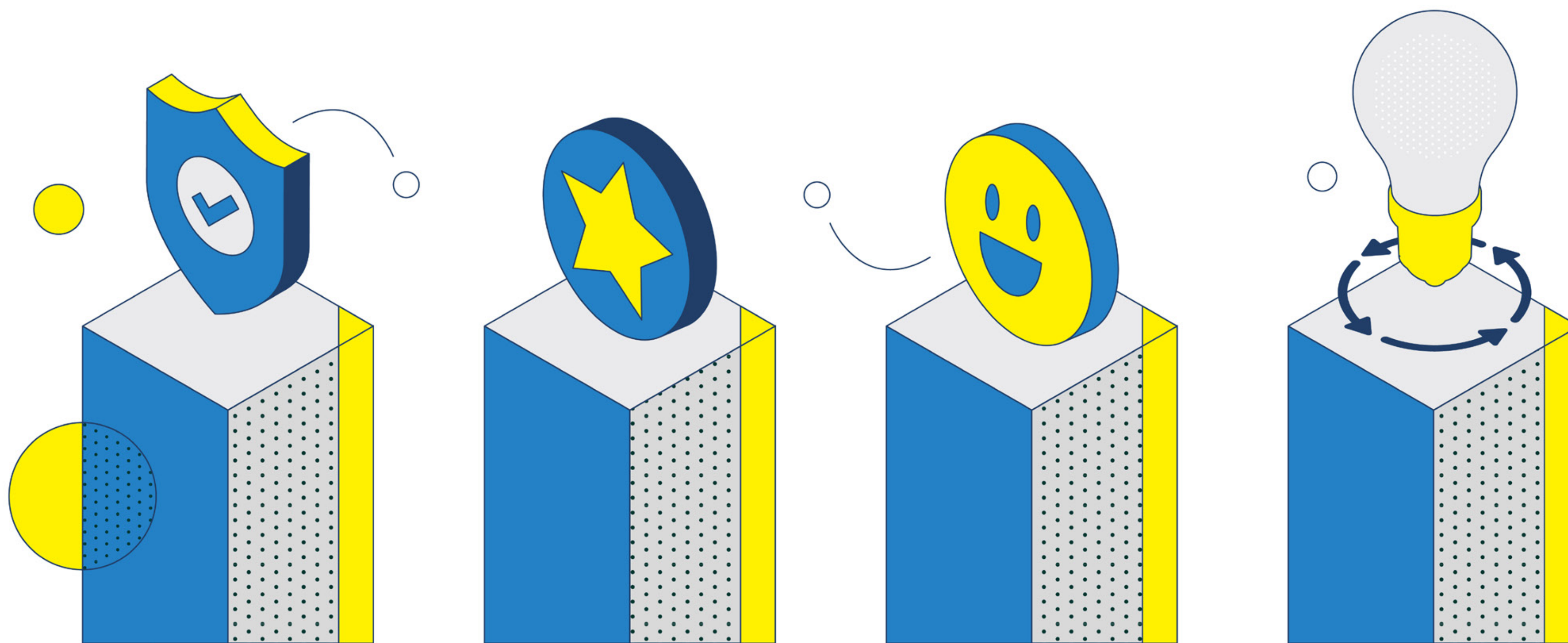
3 Sustainable operation

To ensure the financial competitiveness of the Taiwan Railway Corporation, specific assets will be allocated to the sinking fund, and portions of the land managed by the local government will be granted to the corporation for future use at no cost. The remaining assets will be fully invested in the corporation, thus enabling effective utilization of financial leverage to boost profitability. In addition to passenger services such as train transportation and subsidiary operations, the Taiwan Railway Corporation will be poised to more actively develop its dual-core businesses following the relaxation of the Railway Act and other regulatory constraints. By integrating new trains into the fleet, creating marketing highlights, diversifying subsidiary business operations, launching tourist trains, and offering a broad range of pricing structures, the corporation aims to attract a diverse customer base. These strategies are expected to ease restrictions on asset development and generate revitalization benefits, consequently enhancing the revenue streams from subsidiary businesses.

Taiwan Railways boasts a comprehensive round-island railroad network and holds the distinction of being the sole railroad transportation system in eastern Taiwan. In

the future, it plans to enhance the overall utilization rate of public transport through careful planning. It will also actively promote railroad tourism, integrate regional revitalization strategies, and tap into the tourism market to boost overall revenue. With the transportation sector moving towards Net Zero Emissions, Taiwan Railways is well-positioned to develop green transportation solutions. By adopting low-carbon green transportation practices, it is projected to transition from financial losses to profits by 2028, thereby increasing revenue.

The Taiwan Railway Corporation is committed to leveraging its comprehensive corporate governance to create business values that are adaptable to environmental and social needs while strengthening its management team. By integrating its transportation services with subsidiary operations, and in alignment with government public transportation policies, the corporation strives to promote green transportation initiatives. These efforts aim to contribute to building a low-carbon society and achieving sustainable operational practices along with environmental sustainability for Taiwan Railways.



4 Happy enterprise

Employees are the valuable assets of an enterprise. Therefore, it is important to enhance the sense of happiness of the employees through the improvement of labor standards, the improvement of the workplace environment, the long-term cultivation of talent, and a good promotion system. This will help to build a sustainable and happy workplace and lay the foundation for traffic safety.

Through recruitment, training, and career development, the Corporation will establish a function-focused manpower training system, introduce an employee incentive policy, and implement continuous welfare enhancement measures. These initiatives aim to upgrade employees' fair welfare and treatment, increase their awareness of work safety, and establish a diversified and inclusive corporate culture. By encouraging employees from different backgrounds and perspectives to realize their potential, the Corporation will build a diverse team. Through continuous feedback, employee satisfaction surveys, and open channels for communication, the Corporation seeks to understand the needs and concerns of its employees. This encourages them to share their thoughts and concerns, aiming to improve the work environment, enhance the employee experience, and build robust employee care mechanisms.

Taiwan Railway Corporation is committed to building a competitive, diverse, and inclusive work environment to retain highly qualified employees. Through training, incentives, social responsibility, and feedback, the company is dedicated to the functional development and overall well-being of its employees to achieve its strategic goals and business mission. In the future, Taiwan Railway Corporation will provide punctual, comfortable, and reliable travel services, and expand and link up service businesses to meet the daily needs of the public. Through the revenue generated from the transportation business and life service subsidiaries, Taiwan Railway Corporation aims to achieve sustainable finances, satisfy the public, and become a happy enterprise recognized by society as a place where its employees can live in peace and contentment.

1-4 Building a Golden Decade for Taiwan Railways

To evolve into a "happy enterprise" that prioritizes the well-being of travelers and provides the public and employees with safer, more punctual, and superior services. Through corporate governance and modern enterprise management, safety management has been implemented, service efficiency and punctuality improved, and high-quality mass transportation services provided. Furthermore, operating profits have been realized, thus resulting in a sustainable and happy enterprise. Taiwan Railway Corporation has set forth the following goals:

- **Safety:** Aim for zero major traffic accidents and increase the train punctuality rate to over 99%.
- **Services:** Increase the number of daily trips to more than 750,000 and boost the share of revenue from subsidiary businesses to over 40%.
- **Happiness:** Elevate passenger satisfaction to over 85 points and reduce the annual staff turnover rate to below 3%.
- **Sustainability:** Ensure financial sustainability, transition from losses, implement ESG practices, and reap benefits from sustainable operations.

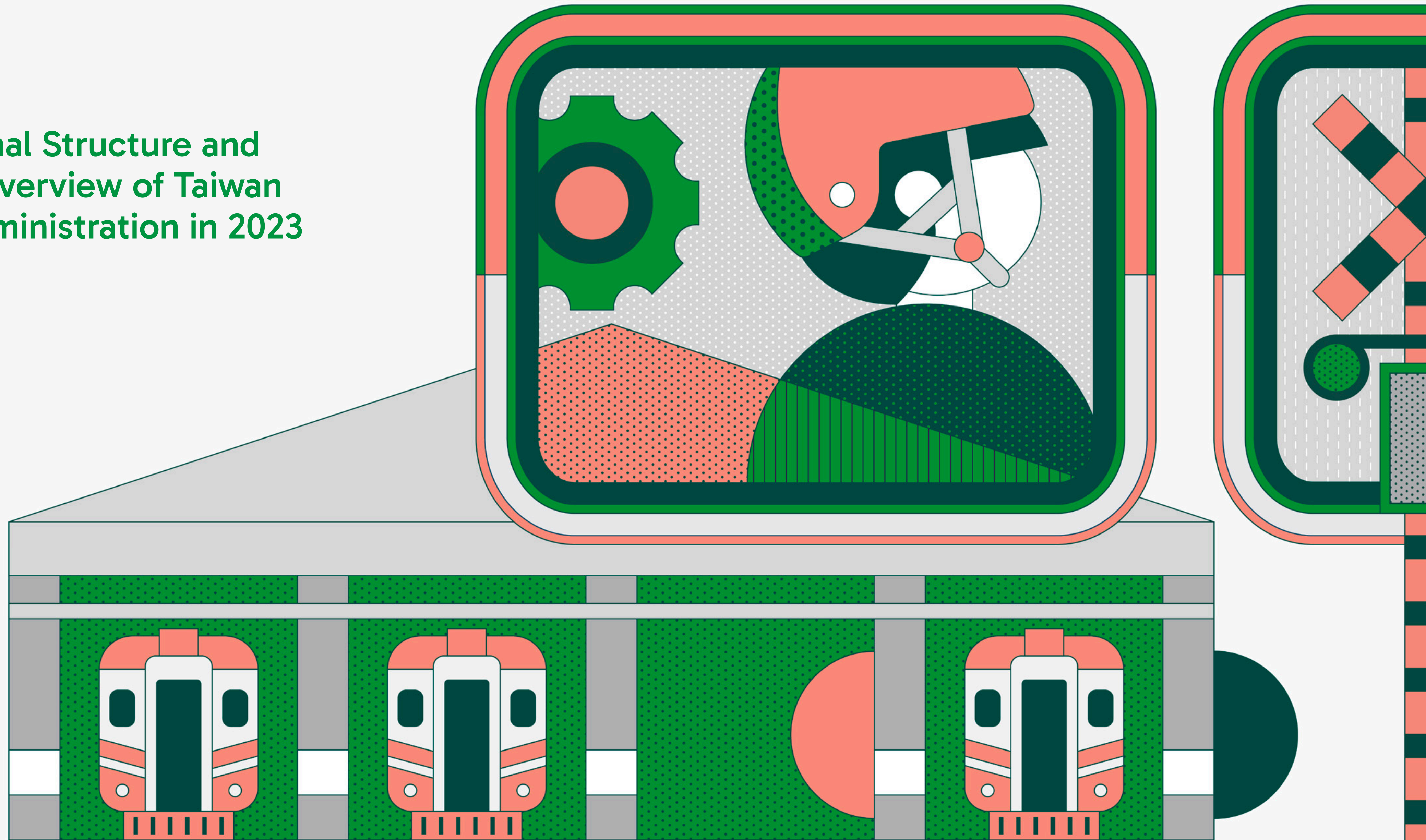
Taiwan Railway Corporation's Golden Decade

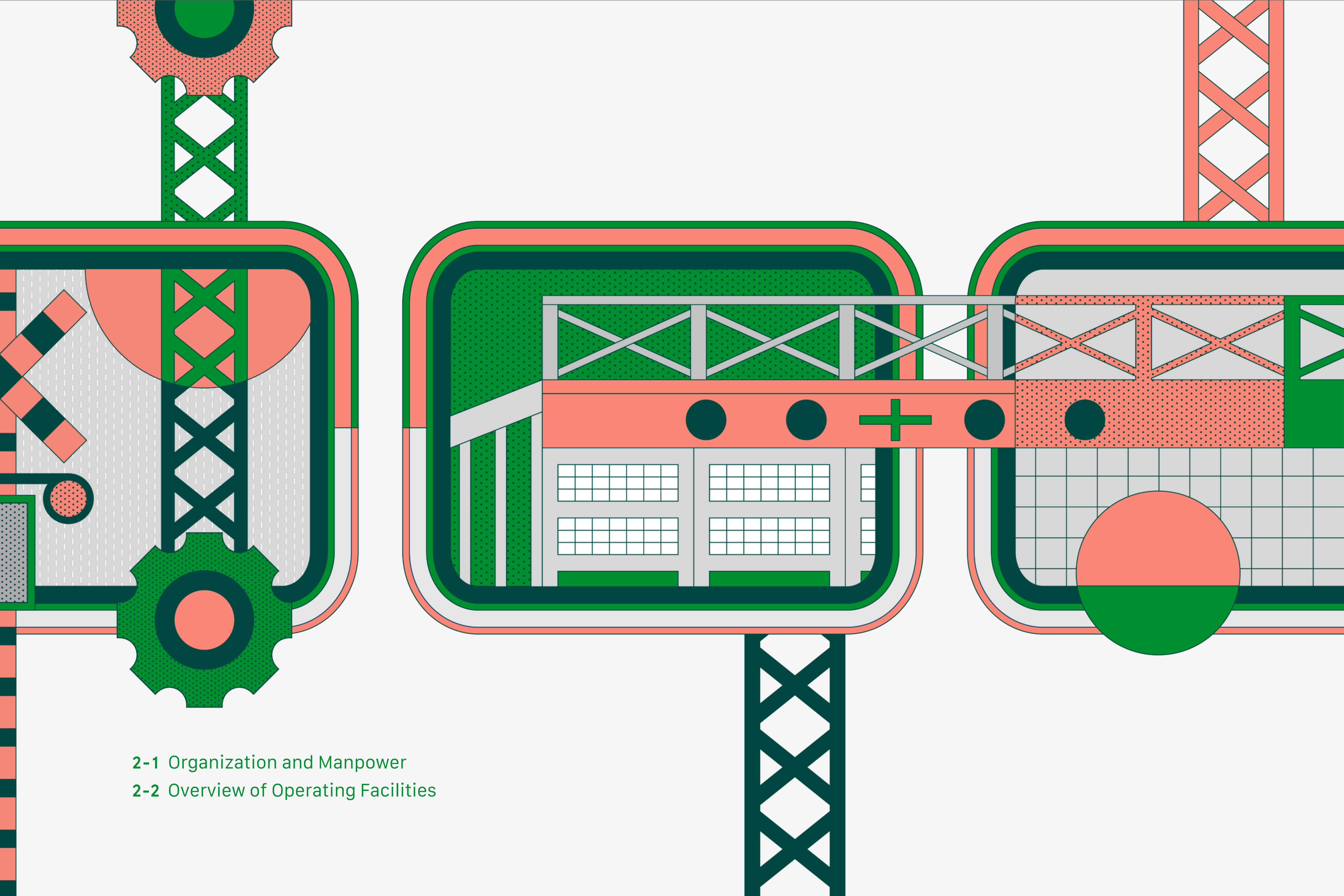


2

CHAPTER

Organizational Structure and Operation Overview of Taiwan Railways Administration in 2023





2-1 Organization and Manpower

2-2 Overview of Operating Facilities

2-1 Organization and Manpower

In the early stages of Taiwan's restoration, the operation and management of Taiwan Railways were entrusted to the Taiwan Provincial Government by the Central Government. In 1945, the Taiwan Railways Management Committee was established, followed by the establishment of the Taiwan Railways Administration in 1948. Since July 1, 1999, it has been affiliated with the Ministry of Transportation and Communications. The Taiwan Railway Administration has 13 departments under the Commissioner, Deputy Commissioner, Chief Engineer, and Chief Secretary, including the Planning Department, Transportation Department, Public Works Department, Mechanical Department, Electrical Department, Material Department, Administration Department, Secretariat Office, Labor Safety and Health Office, Accounting Office, Personnel Office, Government Ethics Office, and Staff Training Center. Additionally, there are 17 task forces, including the Operation Safety Office, Secretariat, General Planning Office, Project Engineering Office, Asset Development Center, Subsidiary

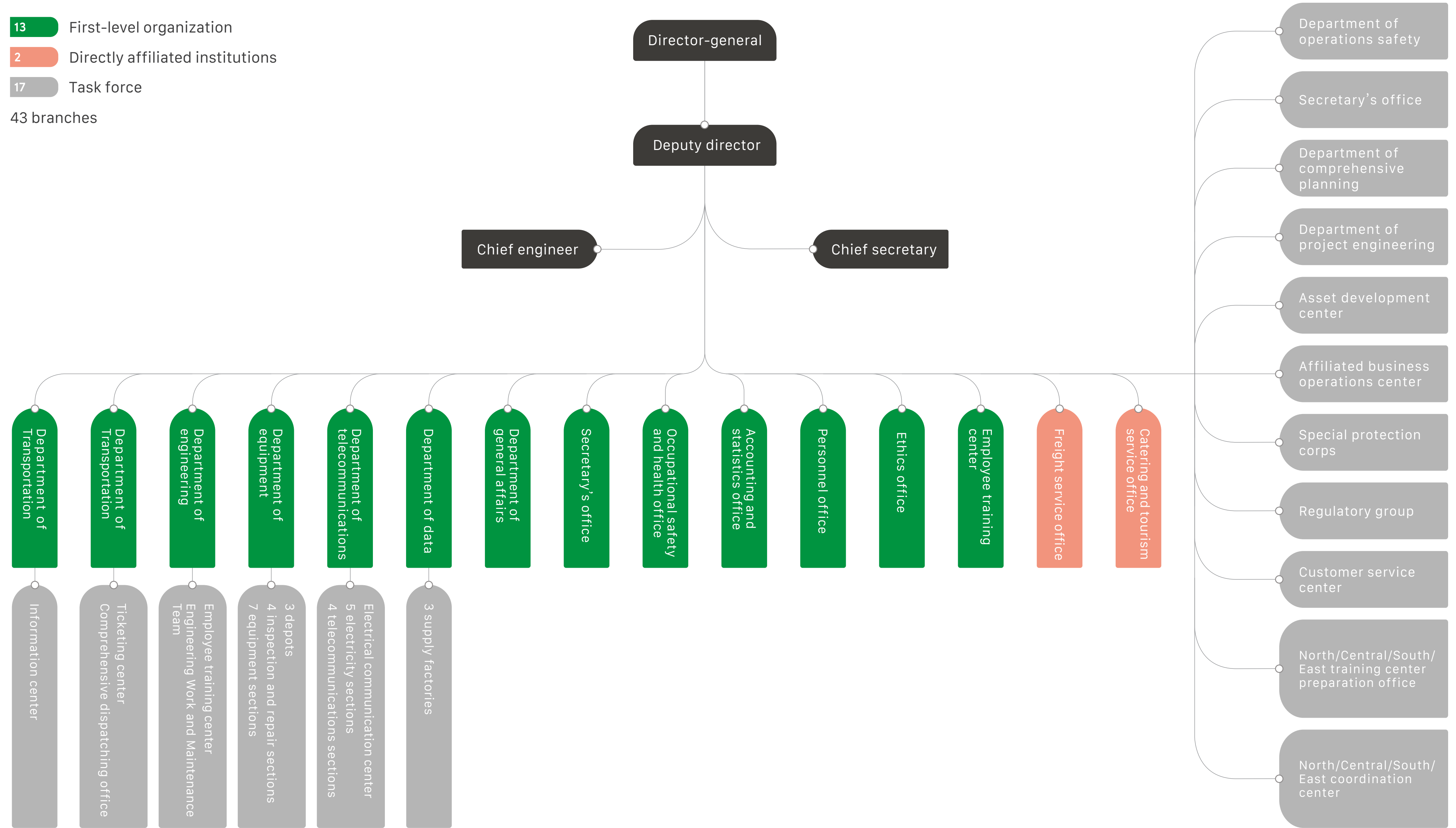
Operation Center, Special Protection Corps, Compliance Group, Customer Service Center, Preparatory Office for the North, Central, South, and East Regional Training Centers, and the North, Central, South, and East Regional Coordination Centers. There are also two direct organizations, namely, the General Cargo Service Office and the General Hotel and Restaurant Service Office, along with 43 branch organizations such as factories, sections, centers, offices, and teams established outside the administration.

The budgeted number of employees for the Taiwan Railways Administration in 2023 was 17,360, and the actual number of employees at the end of December 2023 was 15,924. The number of unoccupied training vacancies in the Railway Special Examination was 671, and the number of employees who took leave without pay was 124.



Organization Chart of Taiwan Railways Administration

- 13 First-level organization
 - 2 Directly affiliated institutions
 - 17 Task force
- 43 branches

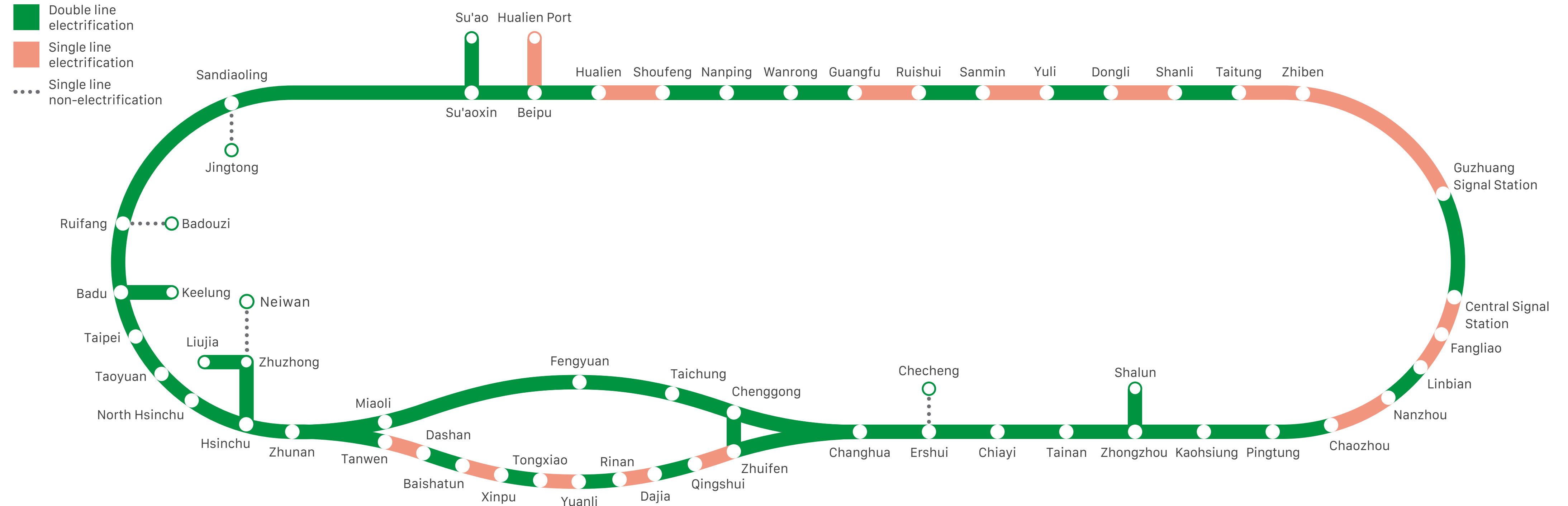


2-2 Overview of Operating Facilities

1 Operating mileage

- 1. The total operating mileage is 1,065 km, consisting of 751.1 km of double-track electrified, 246.6 km of single-track electrified, and 67.3 km of single-track non-electrified.
- 2. Stations: There are 241 stations in total on the network, including four Premium Stations, 28 First Class Stations, 25 Second Class Stations, 72 Third Class Stations, 66 Simple Stations, and 46 Staffless Stations.
- 3. Level crossings: There are 418 in total; three of the first type, 18 of the second type, and 397 of the third type.
- 4. There are 1,628 bridges and 125 tunnels.

Western Trunk Line		Taichung Line									
Keelung ← 125.4 → Zhunan		Zhunan ← 85.5 → Changhua (Mountain)									
Zhunan ← 90.2 → Changhua (Coast)											
Changhua ← 188.9 → Kaohsiung		Chenggong ← 2.2 → Zhuifen									
Pingtung Line		Pingxi Line		North-Link Line		Taitung Line		Liuja Line		Jiji line	
Kaohsiung ← 61.3 → Fangliao		Sandiaoling ← 12.9 → Jingtong		Su'aoxin ← 79.2 → Hualien		Hualien ← 150.9 → Taitung		Zhuzhong ← 3.1 → Liuja		Ershui ← 29.7 → Checheng	
Shen'ao Line		Yilan Line		Hualien Port Line		South-Link Line		Shalun Line		Neiwan Line	
Ruifang ← 4.7 → Badouzi		Badu ← 93.6 → Su'ao		Beipu ← 7.4 → Hualien Port		Fangliao ← 98.2 → Taitung		Zhongzhou ← 5.3 → Shalun		North Hsinchu ← 6.5 → Zhuzhong	
										Zhuzhong ← 20.0 → Neiwan	



2 Number of trains and utilization efficiency

Number of locomotives, passenger trains and goods trains

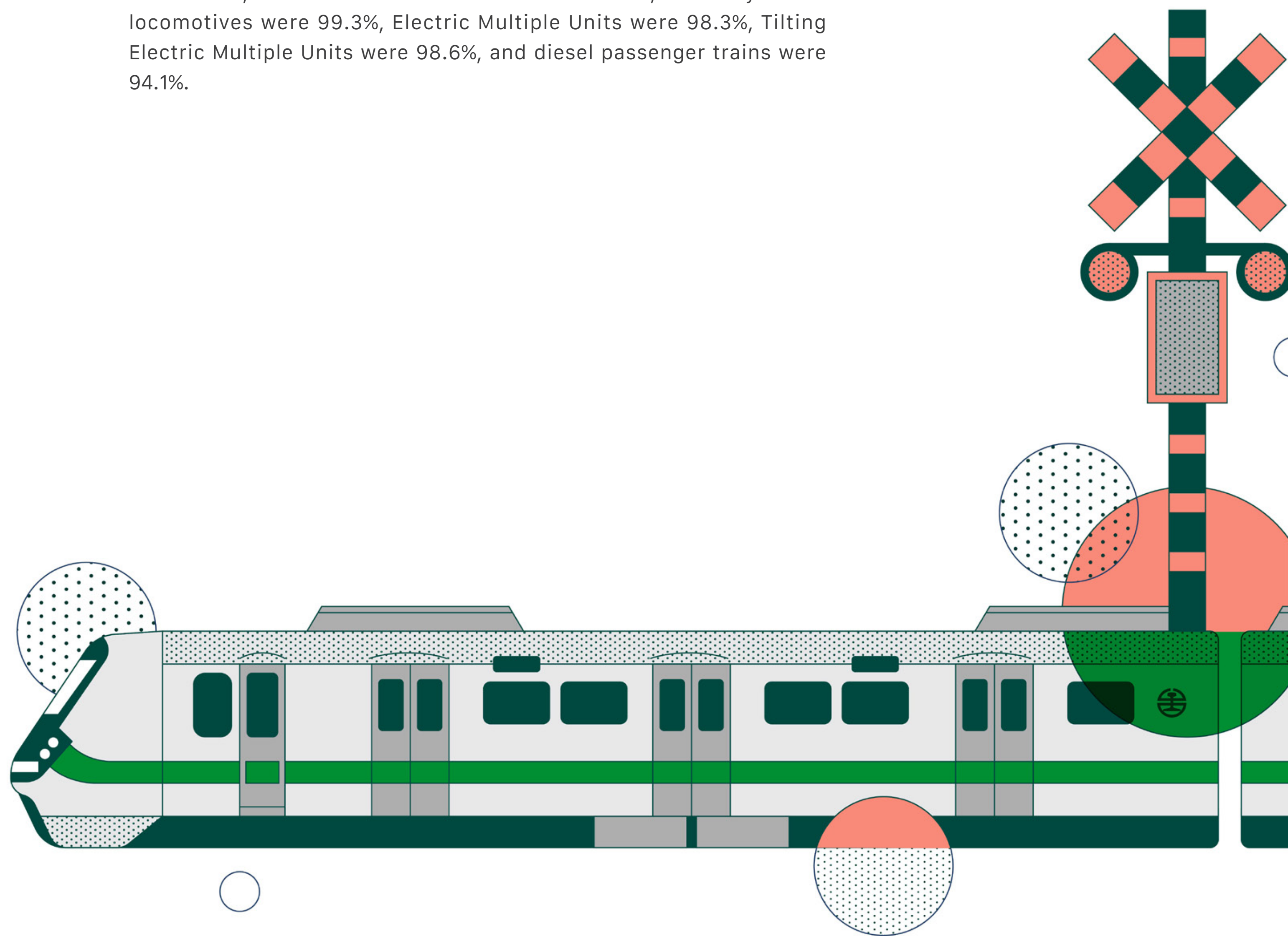
Power trains (locomotives)	Amount
Electric locomotives	81
Push-pull electric locomotives	62
Diesel-electric locomotives	76
Diesel-hydraulic locomotives	16
All	235 Vehicle

Passenger trains	Amount
Tze-Chiang Electric Multiple Units	696
Tze-Chiang push-pull passenger trains	381
Commuter electric multiple units	1,470
Tze-Chiang Diesel Multiple Units	128
Diesel passenger trains	40
Air-conditioned passenger trains	188
Ordinary passenger trains	19
Other trains	29
All	2,951 Vehicle

Goods trains	Amount
All	1,498 Vehicle

Utilization Efficiency

The availability rate of power trains reached 96.7% in 2023. Among them, electric locomotives were 97.6% available, push-pull electric locomotives were 97.4%, diesel-electric locomotives were 92.7%, diesel-hydraulic locomotives were 99.3%, Electric Multiple Units were 98.3%, Tilting Electric Multiple Units were 98.6%, and diesel passenger trains were 94.1%.

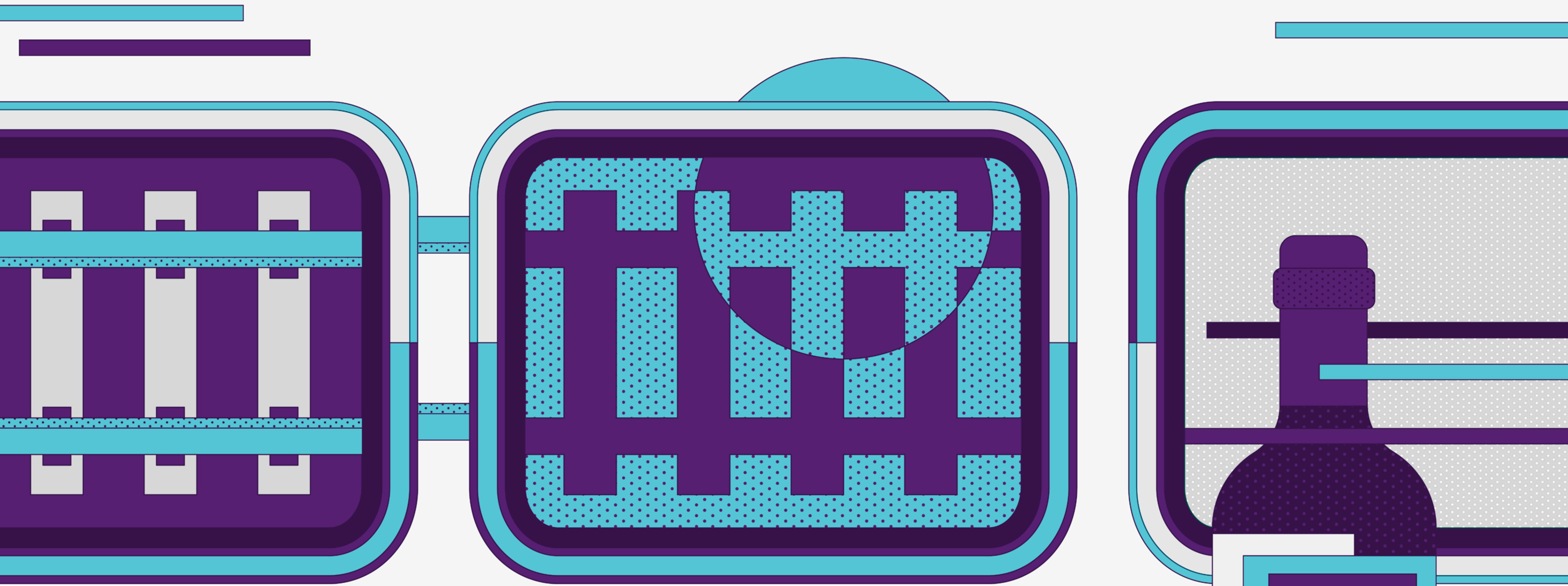


3

CHAPTER

Highlights and Business Innovation





3-1 Highlights

3-2 Business Innovation



3-1 Highlights

1 New trains were put into operation and won international design awards

1. “Stronger Backing” - R200 new diesel-electric locomotives

The Taiwan Railways Administration officially unveiled the new R200 diesel-electric locomotives at the Changhua Roundhouse on July 10, 2023. These locomotives represent a significant advancement in terms of power and environmental sustainability. Capable of speeds up to 120 km/h and equipped with 4G signals, they are designed primarily for freight transportation, military transport, and railroad rescue operations.

The R200 models are the first European high-performance locomotives procured by the Taiwan Railway Administration and were manufactured by STADLER SAU of Switzerland. The introduction of these new locomotives is part of a broader initiative to replace older models that have exceeded their service life, aiming to enhance the safety and efficiency of train operations significantly.



R200 new diesel-electric locomotive



R200 New Train Meet & Greet



R200 Unveiled at Changhua Roundhouse

2. Delivery of all 520 EMU900 Commuter Electric Multiple Units

EMU900 commuter electric multiple units were delivered from October 2020 to September 2023, totaling 520 EMUs in 52 groups, with the 52nd group launched on November 18th.



EMU900 Commuter Electric Multiple Unit

3. E500 new electric locomotive won Good Design Best 100 and Good Focus Award at Good Design Award 2023 in Japan

Taiwan Railways Administration commissioned TOSHIBA of Japan to produce E500 electric locomotives. The first one arrived at Hualien Port on September 17, 2023, and was delivered on September 23. On October 28, together with EMU900, EMU3000, and R200, a meet and greet session was held at the Chaozhou Depot Yard, where officials and citizens were invited to participate. Winner of two awards from Japan's Good Design Award 2023, the E500 electric locomotive represents the latest significant achievement in the aesthetics of the Taiwan Railways Administration. It will serve as the tractor for push-pull Tze-Chiang trains, Chu-Kuang trains, and sightseeing trains, forming a comprehensive and versatile operating fleet for the Taiwan Railways Administration, along with the new commuter electric multiple units (EMU900), Intercity Electric Multiple Units (EMU3000), and diesel-electric locomotives (R200). This will significantly improve safety and service quality.



E500 won the New Focus Award at Good Design Award 2023 in Japan

2 Formosa Express-Disney Dream theme train

The “Formosa Express,” a renowned sightseeing train operated by the Taiwan Railways Administration, traverses the island in both clockwise and counterclockwise directions, beginning and concluding its journey at Taipei Main Station. This train, which stops at 22 stations across the island, requires a minimum of just two passengers to operate, making it an exceedingly popular option for families and travelers of all ages, both domestically and internationally. In 2023, to celebrate Disney's Centennial, the Formosa Express partnered with Disney to transform the train into a “Mobile Railroad Park,” infusing the journey with elements of joy, happiness, and dreams. This newly themed train was unveiled at a press conference on January 17, 2023, providing passengers with a unique and refreshing experience. By December of the same year, it had attracted over 150,000 passengers.



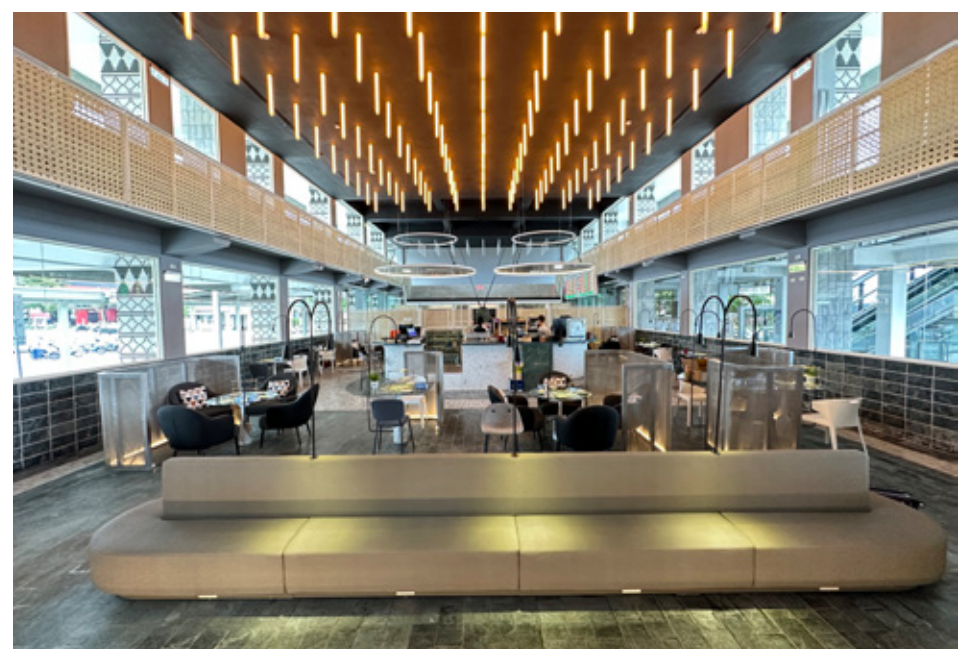
New look at the press conference



Disney-themed train

3 Opening of Hualien Premium Lounge

On August 2, 2023, Taiwan Railways unveiled its first Premium Lounge at Hualien Station. This lounge blends aesthetic elements and local characteristics of Taiwan to offer a comfortable and elegant waiting area. Available to Taiwan Railways members, Tengyun Cabin passengers, and special customers, the lounge provides various amenities, including meals and drinks, for a fee.



Hualien Premium Lounge



Ribbon-cutting and opening ceremony

4 Ticket service

1. Continuing to promote multi-card e-ticket travel service.

The e-ticket service has been fully implemented at all 239 stations across the round-island railway network, greatly enhancing the efficiency of station entry and exit processes and reducing the time passengers spend purchasing tickets. This service, in collaboration with the Highway Bureau, also offers transfer discounts or bus discounts at 32 stops along the East and West lines, contributing to energy conservation and emissions reduction efforts. In 2023, the total e-ticket ridership reached 153,865,284, with a daily average of 421,549 riders, generating revenue of NT\$5,022,137,618 from e-tickets.

2. Convenient ticket ordering service

(1) Ticket booking (collection) service at convenient stores

In 2023, the daily utilization of the ticket pickup service at convenience stores was 11,435, with distribution as follows: 0.34% at post offices, 69.66% at 7-11, 26.16% at FamilyMart, 2.83% at Hi-Life, and 1.01% at OK.

(2) 24-h online and voice booking service

The number of post-booking ticket pickups in 2023 was approximately 17.55 million.

3. Member services

In 2023, the total membership reached 2,187,132, which included 2,165,809 natural persons and 21,323 juridical persons. There were 241,945 successful matchmaking transactions, achieving a success rate of 42.86%.

4. Ticketing automation equipment setup

To improve service quality and ticketing management, the Corporation continued to automate and upgrade its ticketing equipment.

	Computerized Ticketing Terminals (Unit)	Reserved seat ticket vending machine (Unit)	Automatic ticket gate (Unit)	Ticket checker lever (Unit)	On-board pocket ticket vending machine (Unit)
Number of stops	191	156	68	239	8 (Crew groups)
Number	436	432	384	770	800

5 Railway sightseeing business

1. 2023 Summer Formosa

The Taiwan Railways Administration annually operates the “Summer Formosa,” a special train that runs exclusively during the summer months. This year, the “Queen of Steamers,” CT273 steam locomotive, pulled six Chu-Kuang cabins on a scenic journey between Yuli and Taitung. The train made three trips, specifically on July 15, August 5, and August 19, 2023, with stops at various stations including Yuli, Fuli, Chishang, Guanshan, Ruiyuan, and Taitung. As it traveled through the Huadong Valley, the SL Summer Formosa steam train aimed to contribute to the regional revitalization of Huadong and offered travelers a unique and refreshing experience of railway sightseeing.



Commissioner Tu Wei was present to encourage the staff at the launching of Summer Formosa.

2. 2023 Taiwan science popularization round-island train

The National Science and Technology Commission (NSTC), in collaboration with Taiwan Railways, organized the “2023 Taiwan Science Popularization Round-Island Train” event. The event commenced with an opening and launching ceremony at Taipei Main Station on October 30, 2023. This five-day journey around the island served as a conduit between science and transportation, a role it has fulfilled over the past eight years. Supported extensively by the NSTC, the event has grown to include an increasing number of stops and has consistently seen a rise in participant numbers, reaching new records each year.



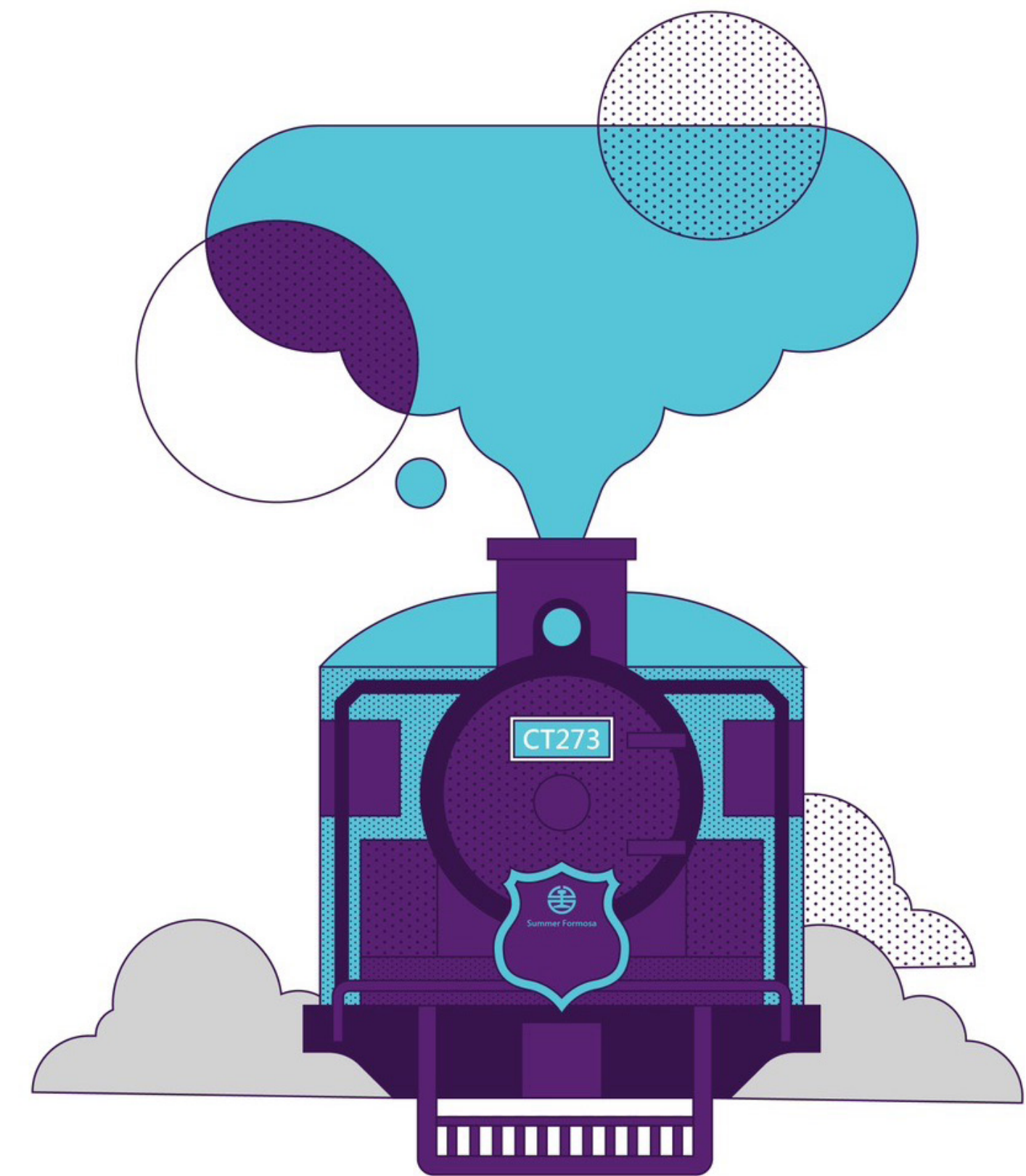
2023 Taipei Main Station press conference for the Taiwan science popularization round-island train

3. Launching of environmentally friendly bicycle trains

In line with the energy-saving and emissions-reduction policy and the promotion of proper public leisure activities, Taiwan Railways Administration has introduced environmentally friendly transportation schedules and special trains, encouraging passengers to take advantage of the “Railway + Iron Horse” railway journey. Additionally, in line with national policy, from 2021 to 2023, the number of bicycle train stations increased from 112 to 130. Bicycle guidance signs, lanes, and other related facilities were installed at these stations to facilitate the public in bringing their bicycles on board.

4. Continued operation of group tours

The Corporation has been promoting railway tourism, providing domestic and foreign tourists with comfortable and convenient transportation services. In 2023, the Corporation handled 365 tours with 124,532 passengers, achieving a revenue of NT\$45,119,232.



5. Continued issuance of TR-PASS

To attract domestic and foreign travelers to travel by railway, the Corporation has issued TR-PASS general and student editions. The revenue information for 2023 is as follows:

	General edition	Student edition
Number	10,962	3,246
Revenue (NT\$)	16,488,560	2,102,079

6. Joint issuance of JOINT-PASS with Taiwan High-Speed Rail

To facilitate foreign travelers coming to Taiwan for business activities or sightseeing trips, the corporation has continued to cooperate with Taiwan high-speed rail to issue JOINT-PASSes. In 2023, a total of 2,067 JOINT-PASSes were issued, generating a revenue of NT\$1,674,271.

7. One-day pass for branch lines

The corporation has been promoting tourism on branch lines, and the revenue information for the one-day pass for each branch line in 2023 is as follows:

	Northeast corner	Pingxi-Shenao	Neiwan	Jiji
Number	545	40,623	1,931	Discontinued
Revenue (NT\$)	60,920	2,979,760	162,475	Discontinued

8. Combination of Pingxi-Shenao double-branch one-day pass and Taipei fun pass

To promote railway sightseeing, Taiwan Railways Administration cooperated with the Department of Information and Tourism of Taipei City Government to combine the “Pingxi-Shenao double-branch one-day pass” with the “Taipei fun pass” e-ticket service. By utilizing the marketing resources of the “Taipei fun pass,” it aims to increase the purchase and use rate of the passes among overseas tourists in Taiwan, thereby promoting railway sightseeing and increasing passenger traffic on the branch lines.

6 International railway connections

1. 10th anniversary of tie-up between Matsuyama Station and Songshan Station

On October 13, 2013, a friendship and exchange agreement was signed between Songshan Station of the Taiwan Railways Administration and Matsuyama Station of JR Shikoku Railway Company, Ltd. of Japan. To celebrate this 10-year friendship, the 10th anniversary ceremony was held at Matsuyama Station in Japan on October 6, 2023, and at Songshan Station in Taiwan on October 13, 2023. In addition to exchanging paintings, blessing horse paintings were also exchanged at the station area, which showcased the deep friendship between the two sister stations.

2. 5th anniversary of the tie-up with Shinano Railway

In 2018, the Taiwan Railways Administration and Japan's Shinano Railway signed a friendship railway agreement. The EMU100 Tze-Chiang trains of Taiwan and Shinano Railway's 115 series trains exchanged paintings, and Tianzhong Station, sharing a common name, became a sister station to both the Taiwan Railways Administration and Shinano Railway. This year marks the 5th anniversary of the tie-up. To celebrate the friendship between the two parties, the Taiwan Railways Administration specially launched two EMU100 Tze-Chiang express trains and restored one of them to its original British livery. On November 12, the two express trains departed from Changhua station and arrived at Tianzhong Station for a static display. In addition, the Taiwan Railways Administration carefully planned six activities and invited representatives from stations in Nagano Prefecture, Japan, and the President of Shinano Railway Company to celebrate the anniversary.



Tianzhong Elementary School flute team participated in the ceremony Photo of Shinano Railway President and Taiwan Railways Administration Commissioner

3. Rinan Station joined with JR Kyushu Nichinan Station as sister stations

On November 1, 2023, Rinan Station of Taiwan Railways Administration and Nichinan Station of JR Kyushu were designated as sister stations. This marks the fifth station with the common name of Taiwan Railways Administration to join with Japan Railways, which not only promotes the exchange of railway culture between Taiwan and Japan but also aims to enhance regional development through the promotion of railway sightseeing for both parties.



Rinan Station of Taiwan Railways Administration and JR Kyushu Nichinan Station of Japan established a reciprocal relationship

7 Far-famed TR Bento

1. Taiwan-Japan co-branded bento

(1) Taiwan Railways Administration and Shinano Railway jointly introduced “Shinano miso ribs lunchbox”

Taiwan Railways Administration, together with Shinano Railway, introduced a “Value Pack” consisting of a limited-edition “Shinano miso ribs lunchbox” and an “EMU100 Tze-Chiang Express Souvenir Ticket,” which was sold at Tianzhong Station on November 12, 2023, for a special price of NT\$299, limited to 300 packs.



Co-branded “Shinano miso ribs lunchbox”

(2) To celebrate establishment of Taiwan-Japan railway lunchbox friendship agreement, “Taste of the Sea” co-branded special lunchbox was introduced

To enhance the innovative strategic layout of its subsidiary business, Taiwan Railways Administration signed a “Memorandum of Friendship and Cooperation” with Awajiya Corporation, which has been operating for more than a century and is a well-known and long-established railway lunchbox store in Japan. The Memorandum was signed by Deputy Commissioner Ju Laishun of Taiwan Railways Administration and Mr. Yuki Yanagimoto, Vice-President and representative director of Awajiya Corporation.

To celebrate the establishment of a good, long-term platform for mutual exchange and cooperation in cross-border business operations, from December 8th to 14th, 2023, co-branded “Taste of the Sea” lunchboxes were offered at noon every day, which were jointly planned by Taiwan Railway and Awajiya Corporation.



Signing of “Memorandum of Friendship and Cooperation” with Awajiya Corporation.



“Taste of the Sea” co-branded special lunchbox

2. Co-branded lunchboxes for cooperating with activities of Railway Administration, local governments, and other organizations in Taiwan

(1) Co-branded “Restaurant Lunchbox” by Taiwan Railway and Xinbeitou Station of Tamsui Line

To celebrate the birthday of Xinbeitou Station in 2023, the Taipei Railway Restaurant offered the “Restaurant Lunchbox,” featuring old-fashioned restaurant dishes delicately cooked by the chef and transformed into the side dishes of the lunchbox. This allowed the public to experience the precious culture of Beitou through taste. The campaign ran from April 1 to April 9, 2023, with the lunchboxes sold at the “Taiwan Railway Lunchbox Pop-up Store” at Xinbeitou Station and the No. 1 store of Taiwan Railway lunchboxes at Taipei Main Station.



Restaurant lunchbox

(2) Celebration of honorable retirement of DR2800/2900/3000 Tze-Chiang Diesel Multiple Unit

On April 26, 2023, during the honorable retirement event of the Tze-Chiang Diesel Multiple Unit, Taiwan Railways Administration offered a special one-day pop-up sale of the “Tengyun Cabin Limited-Edition Taiwan Railway Lunchbox,” allowing the public to experience the unique and delicious meal associated with traveling in the Tengyun Cabin.



Tengyun Cabin limited-edition Taiwan Railway lunchbox

(3) Taiwan Railways Administration and Miaoli County government introduce co-branded limited-flavor “Taiwan Railways lunchbox.”

To celebrate Miaoli county's centennial Hakka cultural celebration, the “2023 First April 8th · Beautiful Lantern & Hospitable Guests Festival,” Taichung Railway Diner of Taiwan Railway specially prepared a co-branded limited-edition “Taiwan Railway Beautiful Guests Lunchbox.” This lunchbox incorporated the cultural characteristics of the classic eight Hakka dishes “Four Braised and Four Stir-fried Dishes” as well as the Hakka rice food “Rice Cakes.” The lunchboxes were sold at the lunchbox shops of Taiwan Railway's Xinzhu, Taichung, Changhua, and Taiwan high-speed rail's Taichung stations during the campaign period from May 8th to May 31st, 2023.



Taiwan Railway Beautiful Guests Lunchbox

(4) Taiwan Railways Administration and Tourism Administration of the Ministry of Transportation and Communications jointly introduced the “Taiwan Railways Summer Lunchbox”

To promote the “2023 Taiwan Summer Tourism Festival,” the “Taiwan Railway Summer Lunchbox” was specially designed. Reflecting Taiwan's geographic diversity of mountains and sea and the corresponding railroad lines, Taiwan Railway Lunchbox introduced two different types of lunchboxes, one with a “sea flavor” and the other with a “land flavor.” These bentos were sold at DreamWorks in Taipei, Songshan, and Nangang from June 22 onwards. The bentos of different flavors were sold separately in the first half of the month (6/22–7/6; “Taiwan Railway Summer Salty Pork Bento”) and the second half of the month (7/7–7/21; “Taiwan Railway Summer Flavorful Rolls Bento”) for NT\$150 each and will also be available at DreamWorks in Taipei, Songshan, and Nangang stations.



Taiwan Railway Summer Salty Pork lunchbox



Railway Summer Flavorful Rolls Lunchbox

(5) Taiwan Railways Administration, together with Fisheries Agency and Marine Fisheries Foundation, introduced “Taiwan Railway Small Rolls Lunchbox”

In response to the “2050 Net Zero Carbon Emissions Goal” and the “United Nations SDGs Goal,” Taiwan Railways Administration has contributed to environmental protection through sustainable cultivation and introduced the “Taiwan Railway Small Rolls Lunchbox,” which has been awarded the “Ocean Heart Ecolabel” certification. During the campaign period from August 17 to October 31, 2023, the bentos were sold at Taiwan Railway bento stores in Taipei and Banqiao stations and at DreamWorks in Taipei, Songshan, and Nangang stations, priced at NT\$150 per serving, generating a revenue of NT\$2,704,725.



Small Rolls Lunchbox DM

(6) Co-branded limited-edition “Taiwan Railway Lunchbox” sold at multiple exhibitions at “2023 Creative Expo Taiwan,” demonstrating diverse commercial sales model

In response to the “2023 Creative Expo Taiwan,” Taiwan Railways Administration prepared co-branded blue train-shaped double-course “Railway Expo Specialty Lunchboxes.” These were supplied on the special train journey of “Blue Train Cultural Expo - Cultural Walking and Exploring the Memory of the Blue Train,” and were sold at the Preparation Office of the National Railway Museum. Various co-branded special lunchboxes were offered at other venues. During the campaign period from September 17 to October 1, 2023, a revenue of nearly NT\$1.5 million was generated.



Railway Expo special bento

(7) In conjunction with the “2023 Taiwan Design Expo,” Taiwan Railways Administration introduced limited-edition Taiwan Railway “O” pink lunchboxes

The bento development team at Taipei Railway Restaurant of Taiwan Railways Administration creatively designed the Taiwan Railway “O” Pink Bento (pronounced: Quanfen Bento), inspired by the design concept of the primary vision “O up” at this year's design exhibition, aiming to attract a wide range of “iron” fans. During the 2023 Taiwan Design Exhibition (from October 6th to October 22nd), a meat bento and a vegetarian bento were sold at the “Taiwan Railway Bento Mobile Dining Car” at Yingge Railway Station, with each serving priced at NT\$130. The meat bento included braised pork with ginger sauce, and the vegetarian bento featured a monkey head mushroom drumstick (Lacto-Vegetarian).



“O” pink bento

(8) Taiwan Railways Administration and Xinbeitou Station jointly launched “Hakka style railway bento”

Taiwan Railways Administration celebrated the 2023 “Railway Life Festival” at Xinbeitou Station, paying tribute to the Hakka people who endured hardships while building the Taiwan Railways in the early days. They launched the “Hakka style railway bento,” which was sold in limited quantities at the Hakka Cultural Theme Park in Taipei City from November 18th to 19th and at the “Taiwan Railway Bento Pop-up Store” at Xinbeitou Station from November 25th to 26th. On the above special sale dates, the Hakka style railway bento was also sold simultaneously at the “Taiwan Railway Bento Mobile Car” on the 1st floor of Taipei Station. Each bento was priced at NT\$150, inviting the public to taste the beauty of Hakka culture during the railway journey.



Hakka style railway bento

8 The 8th Railway Bento Festival won the Silver Award of the 10th Taiwan Activity Excellence Award

The Taiwan Railways Administration held the 8th Railway Bento Festival from June 9th to 12th, 2023 at the lobby on the 1st floor of Taipei Station, themed “Departure, Food Enjoyment, and Sustainability.” The festival integrated diverse markets and interactive devices, setting a new record with a total of 42 domestic and foreign businesses participating. The festival created a variety of delicacies to foster “food enjoyment.” Land connections across different regions, food, and tourism experiences, and railway cultures were linked, developing a “sustainable” railway food and tourism memory. Chen Chien-Jen, Premier of Executive Yuan, and Wang Kwo-tsai, Minister of Transportation, attended this event, affirming the use of domestically produced ingredients certified with ecological labels during the bento festival, aligning with the United Nations Sustainable Development Goals (SDGs).

The 4-day Railway Bento Festival showcased a variety of railway bento and limited peripheral products from various exhibitors. Additionally, 6 bento shops of Taiwan Railways strictly selected various specialty bentos made with local ingredients, such as sustainable seafood certified by the “Ocean Heart Ecological Label.” We also developed limited railway bento boxes, such as the eye-catching “A5 Motobu Beef” EMU3000 special edition ceramic bento box and the retro-style bento box. Beyond providing delicious food, Taiwan Railways DreamWorks also specially launched the “Taiwan Railways Classic Station Commemorative Wine,” R136 diesel-electric locomotive head-shaped commemorative wine, and 22 locomotive or carriage-shaped twisted eggs, which were sold in limited quantities at the venue. The Ethics Office also launched the “Sustainable Taiwan Railways, Welcome on Board” online game and the “Integrity and Fun” exhibition area, allowing everyone to experience eating, drinking, playing, and having fun in a one-stop manner.

The exhibition area activities included static displays, interactive experiences, and stage activities. The overall revenue of the exhibition hall was NT\$8,698,212, an increase of 33.03% compared to the previous event. The revenue from Taiwan Railways bento was NT\$2,893,367, an increase of 72.95% compared to the previous event.

The Taiwan Railways Administration hosted the 8th Railway Bento Festival in 2023, with a total of 42 domestic and foreign businesses participating. The Taiwan Railways Administration fully utilized innovative methods to establish and promote marketing brands through their online and offline activities, achieving outstanding results. The

Taiwan Railways Administration was awarded the Silver Award at the 10th Taiwan Event Excellence Award - Brand Marketing Event. The Taiwan Railways Administration will continue to organize the “Railway Bento Festival,” with bento as the main activity, connecting local governments and domestic and foreign cross-industry alliances to achieve brand proliferation benefits and co-create the railway economy.



The 8th Railway Bento Festival Opening Press Conference



The Railway Bento Festival was recognized by the Taiwan Activity Excellence Award

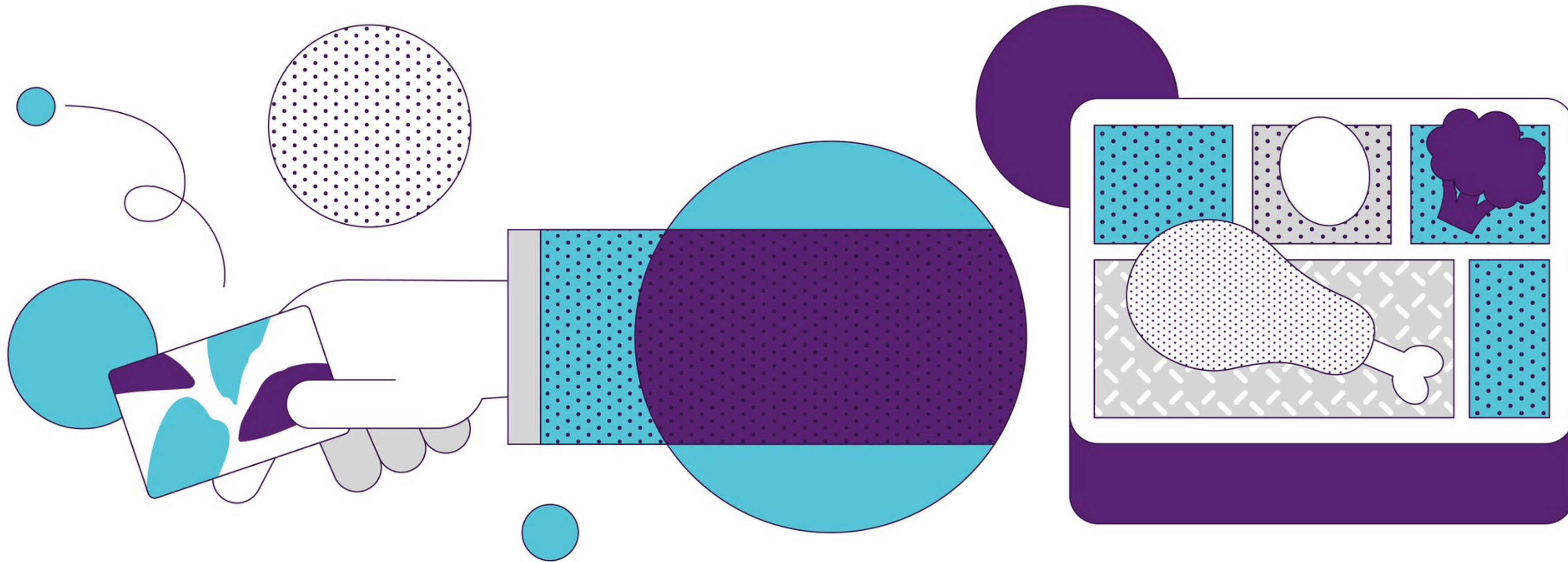
9 Diversified electronic payments and marketing activities

1. Enable “EasyCard” payment service

To enhance the convenience for passengers purchasing Taiwan Railways bento and railway products, the “EasyCard” payment service has been launched in 31 Taiwan Railways bento stores (including Taiwan Railways DreamWorks) since November 1st, 2023.

2. “Enjoy a 20% discount on Taiwan Railways bento priced at NT\$100 on Taiwan Pay”

To celebrate the establishment of the state-owned Taiwan Railway Co., Ltd. on New Year's Day next year (2024), the “Buy NT\$100 Taiwan Railways bento with Taiwan Pay and enjoy a 20% discount” campaign was launched. Starting from December 26, 2023, using “Taiwan Pay to purchase “Taiwan Railways bento” for NT\$100 or more will entitle you to a 20% discount on a single transaction amount.



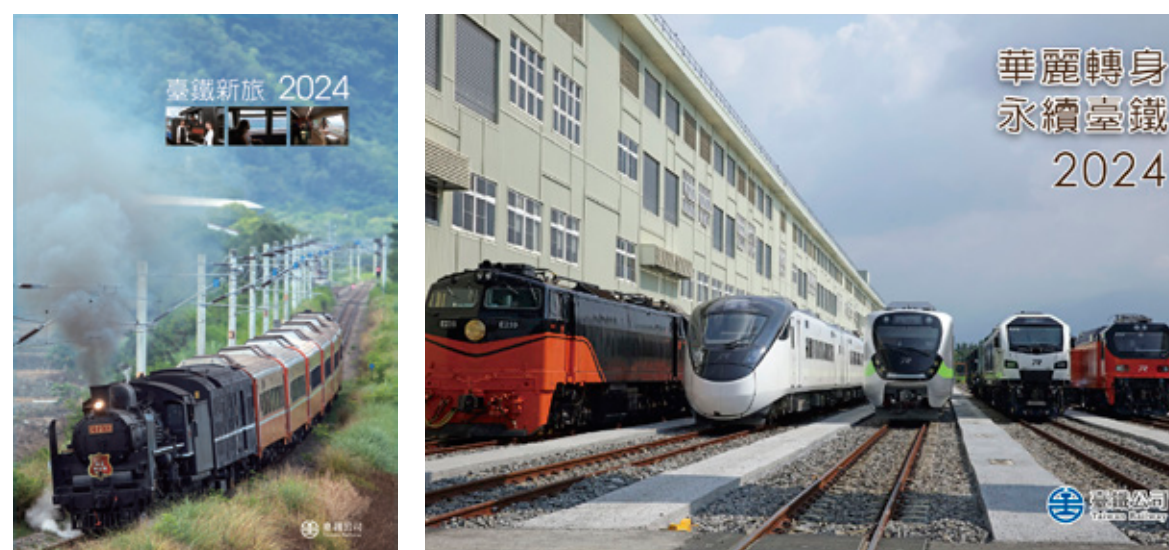
10 Highlights and performance of railway cultural and creative products

1. In May 2023, we collaborated with the Taiwan Tobacco and Liquor Company to launch the first “Taiwan Railways Classic Station Commemorative Wine.” The packaging design was primarily based on Kaohsiung Station, one of the seven classic stations of Taiwan Railways.



Taiwan Railway Classic Station Commemorative Wine

2. The “Taiwan Railways New Travel” monthly calendar focused on promoting railway tourism, with a limited quantity of 1,000 copies. The “Gorgeous Turning and Sustainable Taiwan Railways” desk calendar gathered various current main models of Taiwan Railways, with a limited quantity of 1,400 copies.



“Taiwan Railways New Travel” monthly calendar and “Gorgeous Turning and Sustainable Taiwan Railways” desk calendar

3. Collaborating with iPass Corporation, we developed the EMU3000 LED three-dimensional design iPass card, exclusively available for sale in Taiwan Railway Administration’s stores and Taiwan Railway DreamWorks online stores.



EMU3000 Style iPass card

4. The Railway Festival launched a new “Card Style Ticket: Forever Health” design iPass card, which was exclusively sold at the Railway Festival event venue and various Taiwan Railways Administration's stores.



“Card Style Ticket: Forever Health” design iPass card

5. In August 2023, we collaborated with the Taipei Tourism and Communication Bureau's “Bravo,” who was invited to dance and celebrate with Taiwan Railway Catering Bears - Tielu and Hannajiang. “Bravo” products were sold at Taiwan Railway DreamWorks and on trains, increasing product diversity, expanding the customer base, and diversifying operations.



Bravo and catering bears took a photo together

6. Continuing to develop cultural and creative products for various train models. In recent years, related peripheral products have been successively launched for the celebrity fleet (EMU3000 Tze-Chiang Train and Breezy Blue Train) as well as the new wave of R200 diesel-electric locomotives and E500 electric locomotives. Items such as designed extendable card holders, train-shaped commemorative wine, thermoses, mugs, leather storage box chairs, designed pillows, acrylic keyrings, and sports towels have received favorable reviews and are continuing to be produced to increase revenue.



Leather storage box chair

3-2 Business innovation

1 Post offices and supermarkets handle ticket refunds through original channels

Starting from December 1, 2023, the Taiwan Railway Administration added convenience stores such as Post Office, 7-11, FamilyMart, Hi-Life, and OK-Mart for collecting tickets after online payment. If a refund is requested, passengers can go to the original channel provider to handle the refund process, reducing the inconvenience of having to go to the station ticket window to apply for a refund as was required in the past.

2 TPASS Executive Yuan public monthly passes

To comply with the Special Regulations of the Executive Yuan on Strengthening Economic and Social Resilience and Sharing Economic Achievements for the People after the Pandemic (2023–2025), the Taiwan Railways Administration actively promoted monthly public transportation commuter tickets, providing discounts on various public transportation means within or across regions, including buses, highway passenger transportation, rapid transit, Taiwan Railways, and public bicycles. Discounted ticket prices were provided based on commutes among different regions.

The implementation of this plan can encourage the switch from private vehicles to public transportation, thereby achieving energy conservation, reducing carbon emissions, improving air quality, and alleviating road congestion during peak hours.

3 Riding Taiwan Railways with social welfare cards

To promote the friendliness and accessibility of public transportation for elderly individuals and those with physical and mental disabilities, the Taiwan Railway Administration started using the elderly care and love card points for transportation since July 1, 2023. Currently, a total of 13 counties and cities accept the card. This is applicable provided that the starting and ending stations of the public's travel interval are within the jurisdiction of the county or city (Nantou County is not limited by jurisdiction). The maximum number of points used for each ride shall be determined by the regulations of each county and city government, and any excess shall be deducted from the balance of the electronic wallet.



South Kaohsiung–Pingtung TPASS Executive Yuan commuter monthly pass launch press conference



Minister of Transportation Wang Kwo-tsai inspected the dedicated channel at Taipei Station

4 Self-developed PC switch sleeper for the 50 kg-N #8 articulated switch

The switch sleeper of 50 kg-N #8 articulated switch currently used by the Taiwan Railways Administration still employs wooden sleepers (as shown in image 1). Due to the wide variety of switches, this development project was designed for the widely used marker-type switches (including small-sized marker-type switches (as shown in image 2) and medium-sized marker-type switches (as shown in image 3)).

The design process involved using AutoCAD software to draw the computer-aided design (CAD) diagram on a computer based on the Taiwan Railways Administration's "50N #8 articulated PC sleeper switch diagram." The plate was then simulated and assembled onto the CAD diagram. The locking holes on the PC sleeper were determined. Finally, a PC sleeper diagram was designed and drawn for manufacturers to make the PC sleeper. The assembly can be simulated on a computer using the 3D drawing function of AutoCAD software (as shown in image 7). The finished product can be viewed before production, allowing for the identification of any undiscovered issues and avoiding design errors.

To address the issue of accommodating different types of switches, it is recommended to include an additional set of holes in the PC sleeper to make it suitable for two different types of switches simultaneously. The switches can be

categorized into right switches (as shown in image 4) and left switches (as shown in image 5). For these different types of switches, the metal plate can be locked onto the PC sleeper. By machining the fixing holes of the switch on the plate, different locking positions can be provided, allowing the PC sleeper to be shared. Regarding the issue of different hole positions caused by the installation of the switch on the left or right side (as shown in image 6), it was found through computer-simulated assembly that each PC sleeper requires only four additional fixing holes to accommodate both configurations.

The benefits of this development project have been evaluated to be approximately NT\$2.24 million, and the trial laying was completed (as shown in image 8). In addition to effectively saving public funds and reducing road maintenance costs, analysis and discussion were also conducted to understand the relationships and differences between different switches and marker-type switches. The spirit of creativity and a positive attitude toward discovering and solving problems within the development team can enhance the cohesion among colleagues and foster a positive work environment.

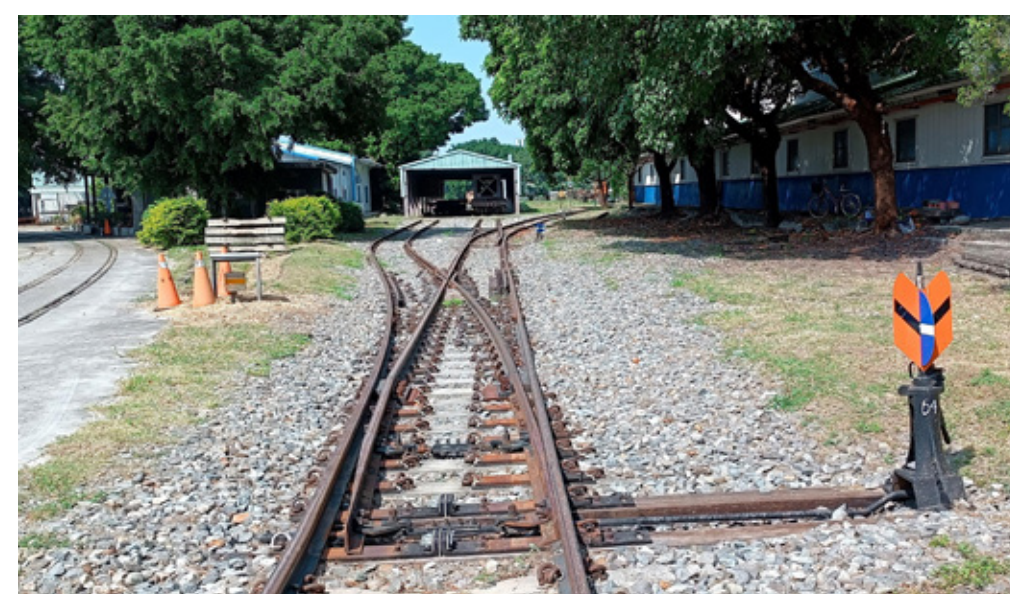


Image ① The switch sleeper is still a wooden sleeper
The sleeper of 50 kg-N #8 articulated switch currently in use is still a wooden sleeper

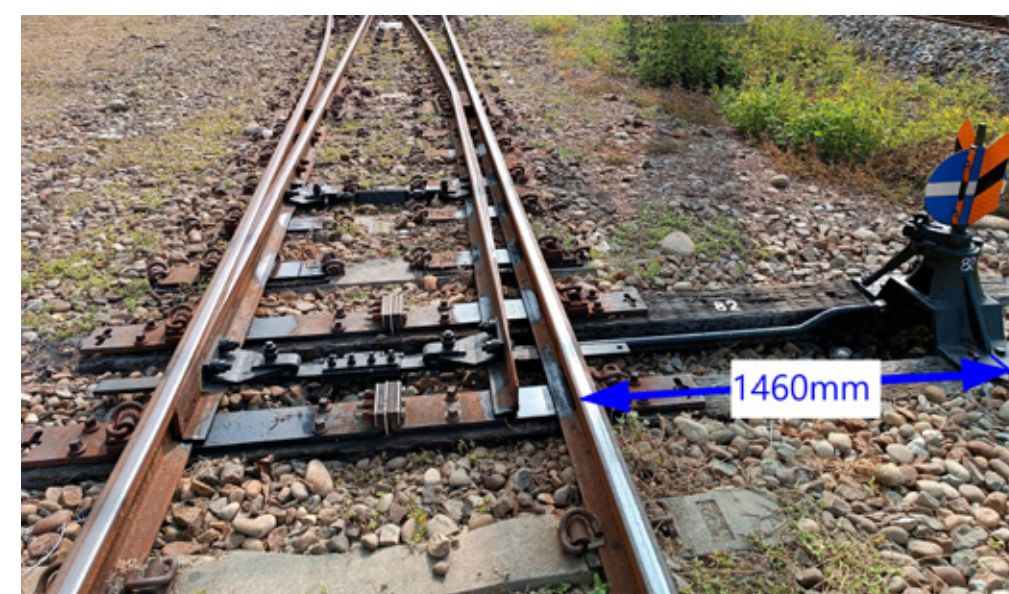


Image ② Small-sized marker-type switch
The distance between the small-sized marker-type switch and the gauge line is 1,460 mm



Image ③ Medium-sized marker-type switch
The distance between the medium-sized marker-type switch and the gauge line is 1,880 mm



Image ④ Articulated right switch
50 kg-N #8 articulated right switch, the distance between the medium-sized marker-type switch and the plate is 1,430 mm



Image ⑤ Articulated left switch
50 kg-N #8 articulated left switch, the distance between the medium-sized marker-type switch and the plate is 1,450 mm



Image ⑥ The switch is placed on the left side
Compared with image 5, the installation position of the switch is different for the 50 kg-N #8 articulated left switch

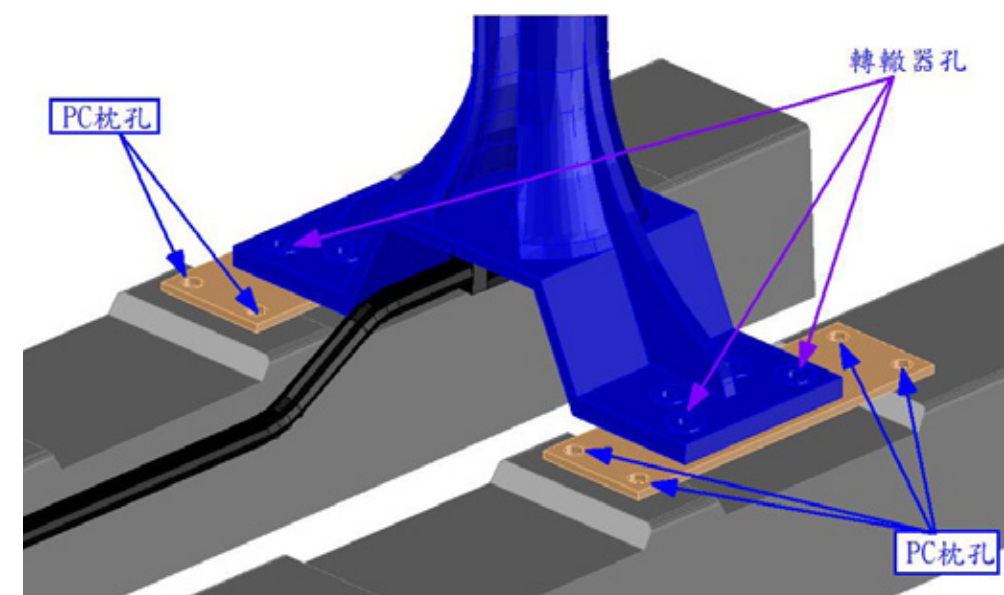


Image ⑦ 3D design
Design on a computer using the 3D drawing function of AutoCAD software and simulate assembly beforehand



Image ⑧ Actual laying
This case, from problem discovery, investigation and analysis, discussion and improvement to design drawings, was completed by colleagues from Taiwan Railway Administration. Related parts were produced with the cooperation of domestic manufacturers. They were laid on the track of the maintenance team in May 2023.

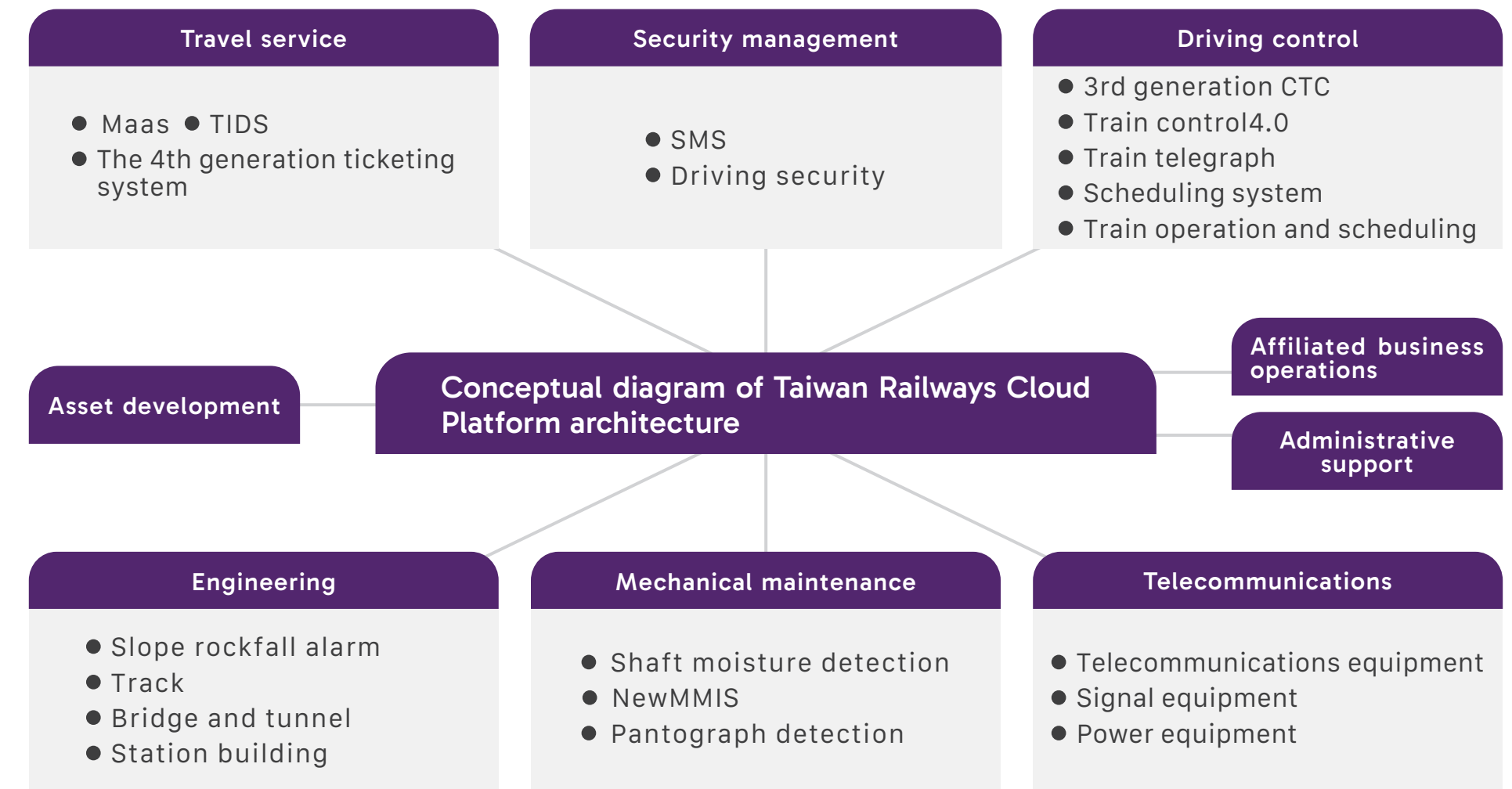
5 Establishing Taiwan Railways Smart Railway Information Integration Platform

1. According to the 2020 White Paper on Transportation Technology Industry Policy issued by the Ministry of Transportation, the policy development vision for the railway technology industry is to combine cutting-edge technologies such as the Internet of Things, big data, cloud computing, and artificial intelligence. This combination aims to strengthen real-time monitoring and information feedback applications in passenger services, as well as in train control, maintenance, and safety. Consequently, there is an urgent need to promote the development architecture and strategy for smart railways, and to construct an Internet of Things platform for smart railways. Through the formulation of end, network, and cloud development architecture specifications and interface standards, the goal is to connect the railway and information and communication industries to drive the development of the smart railway industry. By establishing consistent data interface specifications and the Taiwan Railways Smart Railway Information Integration Platform, it is expected to drive standardization, digitization, and intelligence among various units of Taiwan Railways, consolidate information from various systems, and enhance decision support.
2. On February 1, 2023, the second expert and scholar symposium on the "Smart Railway Information Integration Platform" was held. Experts and scholars in the fields of railway engineering, automation, and electromechanical integration, as well as representatives from related agencies and institutions, were invited to exchange opinions on the planning results of the Taiwan Railway Cloud Platform. Opinions and suggestions from all parties were collected and consolidated, which were incorporated into the short, medium, and long-term development direction of Taiwan Railway Administration's smart railways.



Smart Railway Advisory Committee Meeting

3. On March 23, 2023, the first PMO meeting of the "Smart Railway Information Integration Platform" was held, covering nine major aspects: "safety management," "travel services," "train control," "telecommunications," "engineering," "equipment," "affiliated operations," "asset development," and "administrative support." Personnel from relevant units such as "organizational adjustment," "education and training," "labor safety management," and "digital transformation" also joined the meeting to discuss the usage, responsible units, and subsequent cooperation matters of the Taiwan Railway Cloud Platform's functional modules. This discussion aimed to facilitate the smooth exchange of interface data between the Taiwan Railway Cloud Platform and various individual systems on schedule and ensure that all functions can meet usage needs.



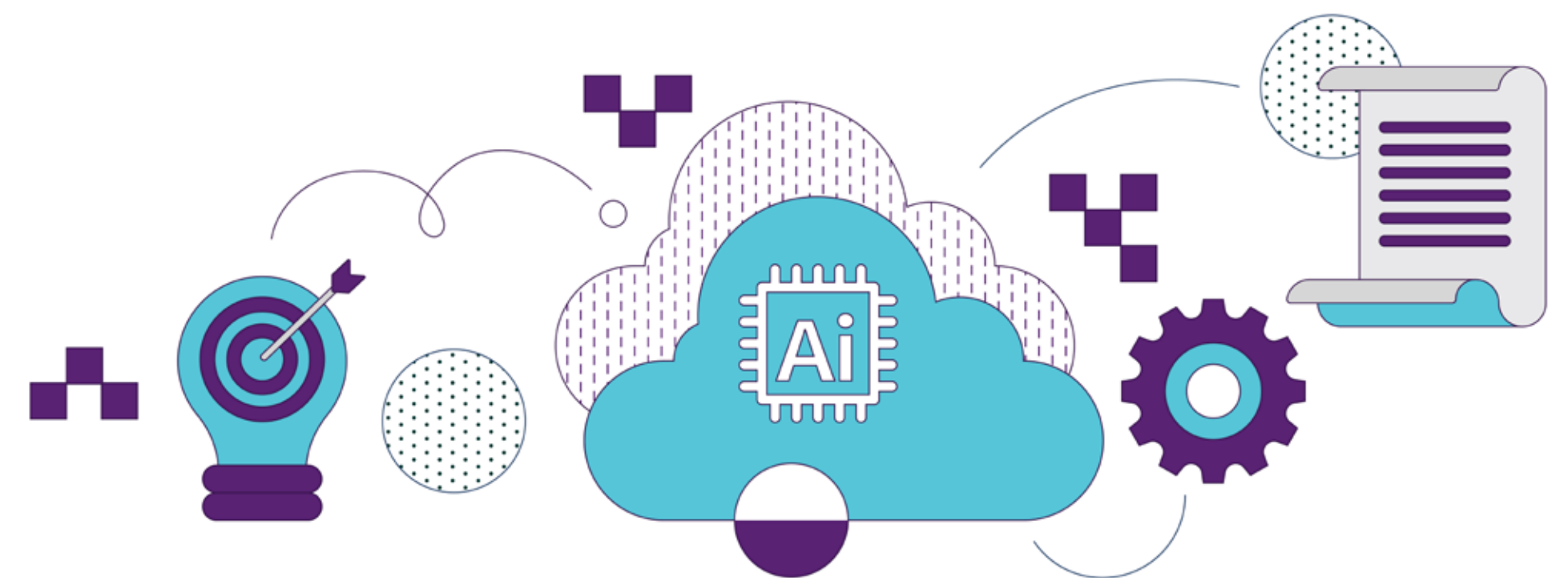
4. On May 2, 2023, a vendor briefing was held on the "Taiwan Railway Cloud Platform Construction Entrusted Information Service Case" to explain the planning results and construction work content of the Taiwan Railway Cloud Platform to the public. Potential bidding vendors were invited to participate. Relevant opinions were collected in advance, and the qualifications of vendors were investigated to improve the planning results and facilitate the bidding process of construction projects.

5. In August and September 2023, four “Digital Transformation General Education Training” courses were held, including “Ideal and Practice of Digital Transformation,” “AI Technology Assistance and Management Challenges under Digital Transformation,” “Strategic Thinking and Needs Analysis of Digital Transformation,” and “Development and Application Trends of Cloud Edge Computing Technology.” These courses provided personnel from various units with a range of insights—from a basic to a deep understanding—of the concepts, tools, applications, and trends of digital transformation, fostering further understanding and consensus on the architecture and layout of enterprise digital transformation.
6. From January to September 2023, we collaborated with the Railway Bureau to draft the “Information and Communication Technology Specification of Smart Railway System (Draft)” and the “Smart Railway Data Exchange Operation and Management Points (Draft).” We also participated in the preliminary review meeting and assisted in the review process. At the 6th preliminary review meeting on September 7, 2023, the preliminary review of the draft specifications was completed. After submission by the Railway Bureau to the Ministry of Transportation for review, it was expected to be issued by the Ministry of Transportation in early 2025. The Taiwan Railways Administration will also follow this standard to establish a consistent data interface standard and update it in a rolling manner for vertical connection and horizontal integration, so as to achieve the vision of promoting smart railways.

6 Promote information and communication security management system

1. In response to the future development of Taiwan Railways' smart railways and the necessity to protect modern railway infrastructure from cyber attacks, a seminar was held on April 14, 2023, titled “Information Security under the Trend of Smart Railway Development.” The seminar covered essential topics such as digital resilience, encapsulating “prevention, detection, and recovery” strategies in smart railway network security. Discussions also focused on reducing network security risks, implementing appropriate response measures, integrating cloud security, identifying industrial control assets, and combining information technology (IT) with operational technology (OT) in smart transportation. Additionally, the seminar addressed remote online security measures for engineers.

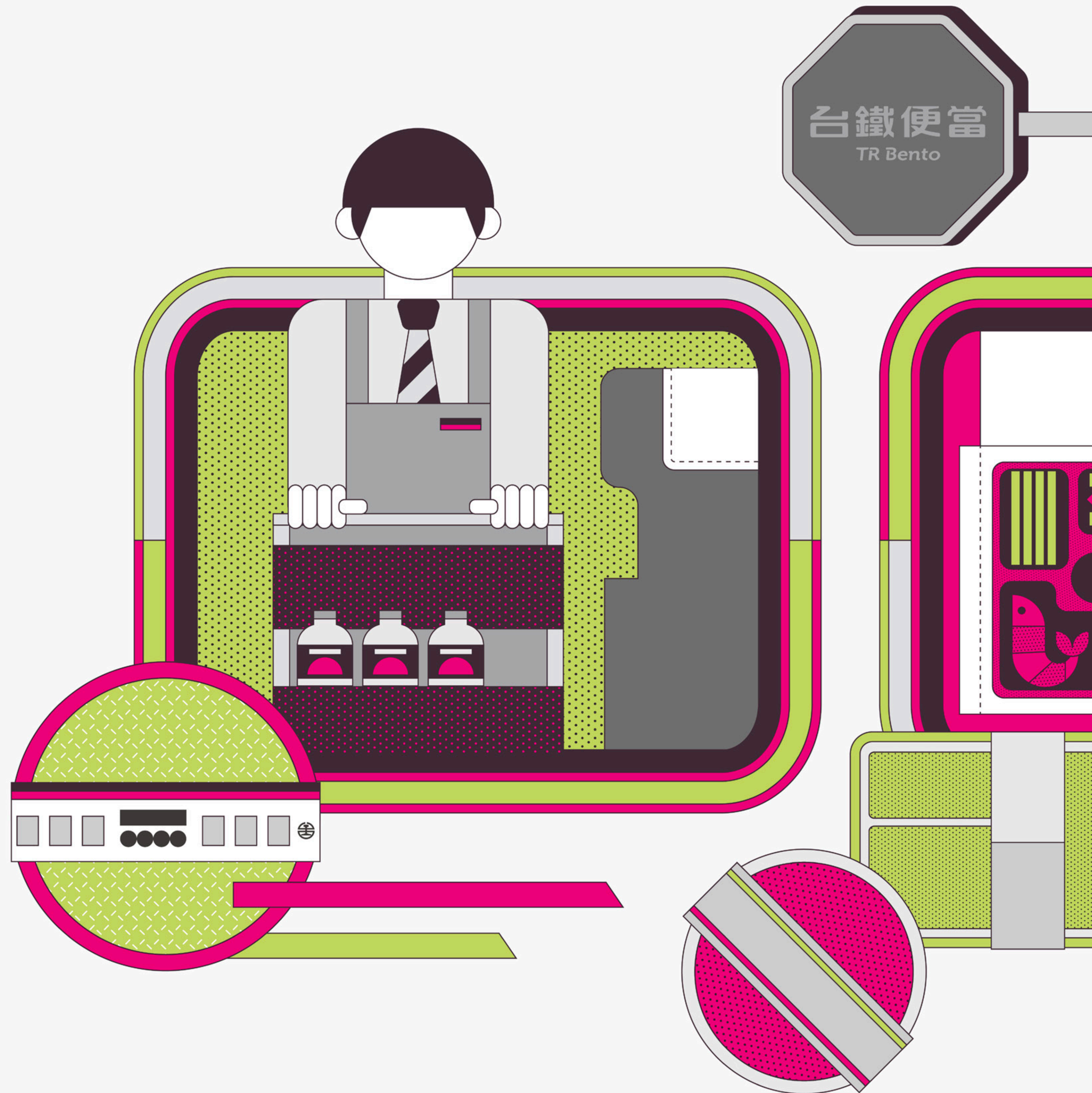
2. The Department of Digital Development of the Executive Yuan conducted a comprehensive live attack and defense exercise on the Taiwan Railways Administration's information and communication systems from September 10 to September 30, 2023. Throughout this period, the Taiwan Railways Administration enacted various measures aimed at preventing, reporting, and responding to information security incidents. Notably, no information security incidents were reported during the exercise, demonstrating the effectiveness of the implemented strategies.
3. The Taiwan Railways Administration has been actively promoting the Information and Communication Security Management System (ISMS). The verification scope of this initiative included the central traffic control system, information center, and ticketing system. On October 31, 2023, the ISO 27001 certificate was successfully renewed through the 4th round of reassessment verification. Going forward, the administration is committed to continual improvement in three key areas: strategy, management, and technology, to ensure the robust security of information and communication systems.

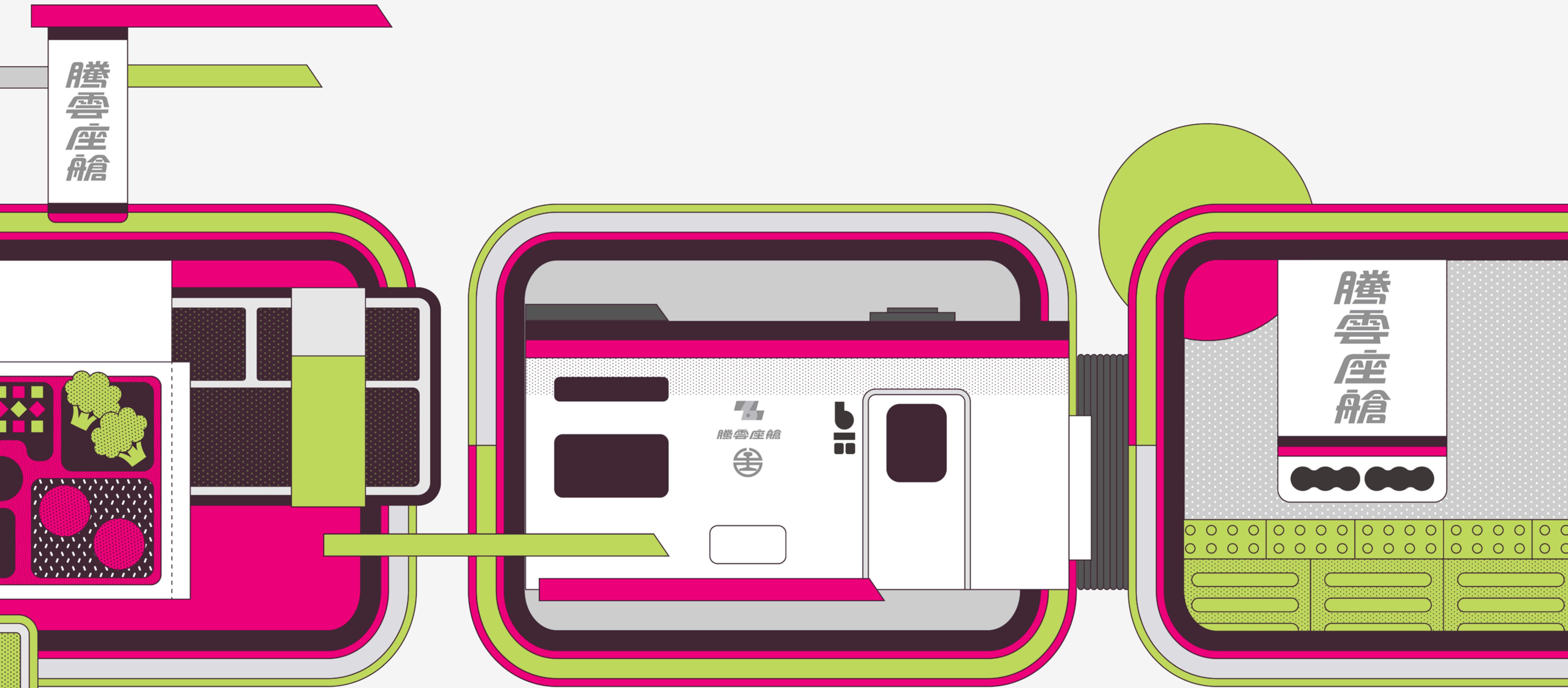


4

CHAPTER

Performance in 2023





4-1 Profit and loss analysis

4-2 Passenger and freight transport operating status

4-3 Affiliated business benefits

4-1 Profit and loss analysis

Comparison of Profit and Loss between 2023 and 2022

Unit: NT\$1,000

Item	2023	2022	Comparison with 2011 (%)
Total revenue	33,442,935	29,069,707	15.04
Passenger revenue	16,699,349	12,800,771	30.46
Freight revenue	567,476	558,413	1.62
Other operating revenue	14,660,227	13,108,868	11.83
Non-operating revenue	1,515,883	2,601,655	-41.73
Total expenditure	44,881,002	40,184,267	11.69
Operating cost	37,495,111	34,526,104	8.60
Operating expenses	1,727,257	1,525,471	13.23
Non-operating expenses	5,658,634	4,132,692	36.92
Profit and loss	-11,438,067	-11,114,560	2.91

Note: The 2022 data in this table is the certified final accounts, and the 2023 data is the preliminary final accounts.

Root cause analysis

- The total revenue of the Taiwan Railways Administration in 2023 was NT\$33.443 billion, marking an increase of NT\$4.373 billion (or +15.04%) compared to 2022. Among them, passenger transport revenue surged by NT\$3.899 billion. This can be attributed to the stabilization of the COVID-19 situation and the gradual recovery of the tourism market. In response to the severe pandemic period in 2022, the Administration halted the operation of some trains, leading to a surge in passenger numbers in 2023 compared to 2022. Additionally, other operating revenue increased by NT\$1.551 billion, with rental revenue rising by NT\$248 million, government subsidy by NT\$1.065 billion, and catering service revenue by NT\$260 million. However, non-operating revenue saw a decrease of NT\$1.086 billion, primarily due to a decrease in government donations by NT\$849 million.
- The total expenditure of the Taiwan Railways Administration in 2023 amounted to NT\$44.881 billion, up by NT\$4.697 billion (or +11.69%) compared to 2022. Among these expenditures, employment expenses increased by NT\$998 million, attributed to a rise in talent retention job allowances, retirement, severance pay, and the average number of employees in 2023 compared to 2022. Service charges surged by NT\$754 million due to electricity price increase by Taiwan Power from July 1,

2022, to April 1, 2023. Moreover, rent and interest rose by NT\$1.583 billion, driven by a higher actual average borrowing rate in 2023 compared to 2022, the debt interest was increased. Depreciation and amortization increased by NT\$1.444 billion. This was due to the transfer of elevated and underground projects and the South-link Line Taitung-Chaozhou electrification project by the Railway Bureau, the purchase of 140 EMU900 commuter electrical multiple units, the updates of the generator systems of 252 EMU500 commuter electrical multiple units by the Taiwan Railways Administration, and the vehicle maintenance and replacement.

4-2 Passenger and freight transport operating status

Passenger and freight operation of Taiwan Railways Administration in the past 5 years

Year	Passenger transport volume (1,000 people)	Passenger revenue (NT\$1,000)	Freight tonnage (Kiloton)	Freight revenue (NT\$1,000)
2019	236,151	17,770,071	7,313	638,062
2020	203,521	14,941,480	7,255	601,405
2021	154,927	11,181,025	6,609	534,158
2022	170,254	12,800,771	6,805	558,413
2023	219,308	16,699,349	6,915	567,476

4-3 Affiliated business benefits

1 Asset development and activation

In recent years, the Taiwan Railways Administration has actively pursued land development initiatives to expand related business performance, promoting private involvement in public construction, urban renewal, and superficies establishment. Additionally, it has engaged in asset activation businesses such as traditional businesses, real estate, land, base stations, shopping malls, parking lots, advertising, and filming to boost revenue and enhance financial conditions. The total business revenue of the Asset Development Center in 2023 amounted to approximately NT\$4.13753 billion.

Business revenue of the Asset Development Center in 2023

Unit: NT\$1,000

Item	Description	Income (before tax)
Traditional business	Cement, limestone, sand, and gravel	2,000
Investment property	Jiaojiu Plot	59,172
Royalty revenue	Promoting private participation, shopping malls, houses, and superficies	880,922
Rental business	Houses, land, base stations, shopping malls, travel service space, machinery, parking lot, advertising, filming, etc.	2,469,521
Disposal of property	Sales of property	707,535
Others	Interest and miscellaneous revenue	18,384
Total		4,137,534

2 Affiliated operations

1. Railway bento cross-industry cooperation plays a comprehensive role

Through a co-creation and co-benefit approach, alliances have been formed via special festival activities hosted by the Taiwan Railways Administration, events by the Japan Railway Company, and initiatives with local county and city governments, or the promotion of local ingredients. A total of 13 co-branded bento products were innovatively developed, and participation in 14 celebration and special sales events was facilitated to promote Taiwan Railway bento products, ultimately driving the sales of classic pork rib bento products.

The sales revenue of Taiwan Railway bento in 2023 reached NT\$712,439,774, marking a 50.62% increase compared to the same period last year (NT\$473,005,942). This revenue achievement reflects a resurgence to 90% of pre-epidemic levels seen in 2019.

2. Trademark authorization and image authorization fees, and railway commodity sales revenue of Taiwan Railways Administration

- (1) Process railway trademark authorization business. There are a total of 575 authorized products, with a total authorization fee of over NT\$4.19 million.
- (2) Royalties for the sale of goods in the tourism areas of “The Future” and “Breezy Blue” sightseeing trains. The total accumulated sales royalties from 2022 to 2023 were over NT\$610,000.
- (3) In 2023, the total revenue of railway commodity sales (including the train service department and various restaurants) exceeded NT\$48.76 million (as of the end of November).

3. Improvement of Tengyun Cabin service

Through high-standard personnel training, rolling adjustments to the meals and drinks provided by the Tengyun Cabin based on passenger feedback, and regular replacement of limited Taiwan Railways bento dishes, more items can be provided, meeting the needs of different customer groups. Tengyun Cabin passengers are also offered exclusive discounts such as point redemption and concierge waiting rooms to attract public experience, create word-of-mouth marketing and opportunities for returning passengers, and increase travel revenue.

In 2023, the total meal revenue was NT\$77,414,949 (before tax), an increase of 125% compared to the same period last year (NT\$34,381,260).

Unit: NT\$1,000

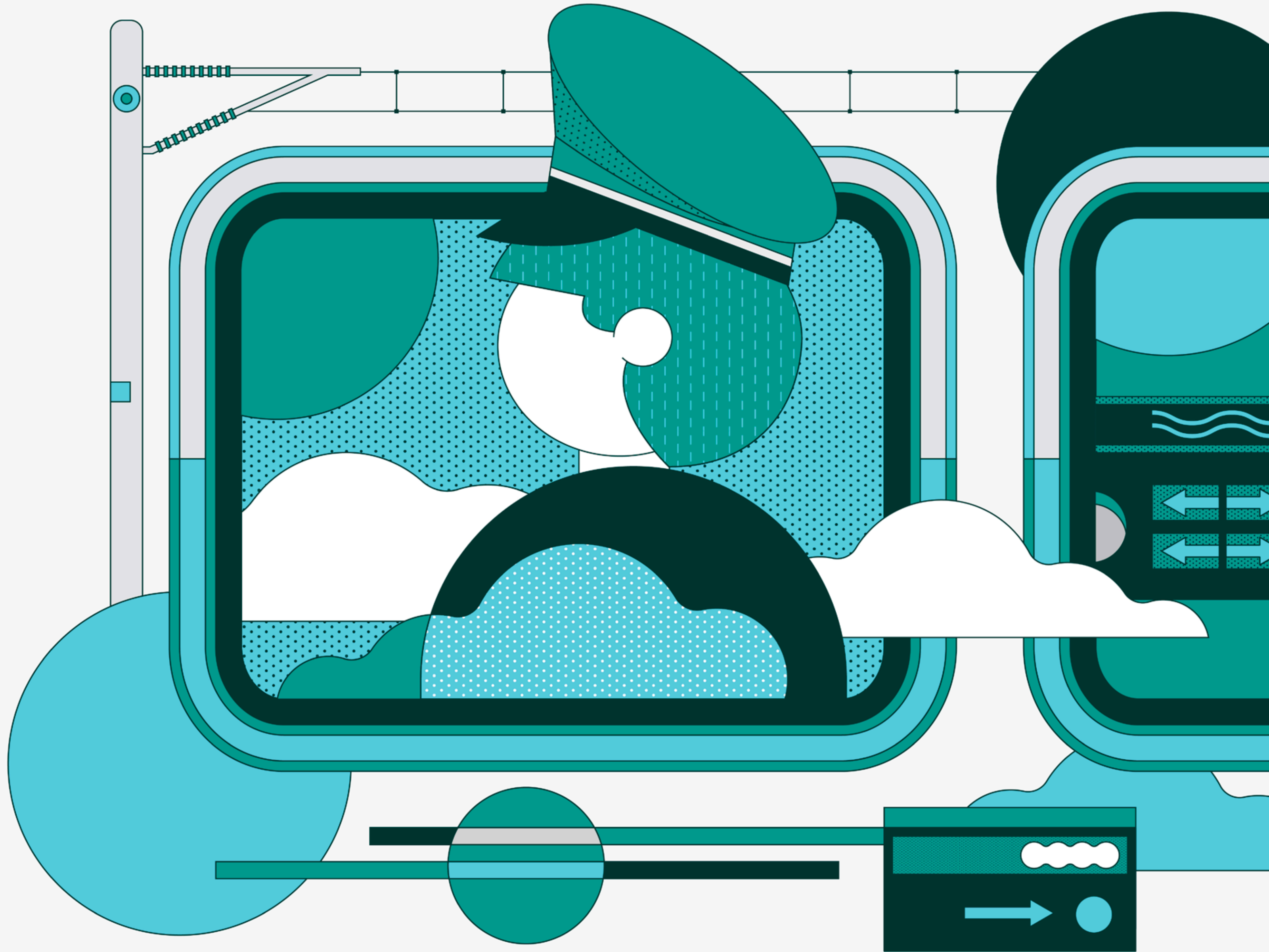
Revenue category	Revenue (before tax)
General Office (Trademark Authorization Fund, Image Authorization of "The Future" Train)	NT\$ 4,088
Car service department (including Hualien Branch and Taitung Catering Office) (sales revenue)	NT\$ 6,454
Restaurants in Taipei, Taichung, and Kaohsiung (sales revenue)	NT\$ 3,753
General Office (railway sightseeing tourism, including rental fees for "The Future" train and its premises, and sales revenue from the "Breezy Blue" train, cruise train, round-the-island train, and the concierge waiting room)	NT\$ 140,458
General Office (venue rental during the Railway Bento Festival, share in the profit of Railway Bento Festival goods sales)	NT\$ 426
Car service department (including Hualien branch and Taitung catering room) (bento revenue)	NT\$ 173,754
Restaurants in Taipei, Taichung, and Kaohsiung (bento revenue)	NT\$ 528,501
Revenue from Tengyun Cabin bento and goods	NT\$ 35,334
Commission revenue from consignment sales	NT\$ 17,212
Miscellaneous revenue	NT\$ 15,119
Annual cumulative revenue	NT\$ 925,099,613

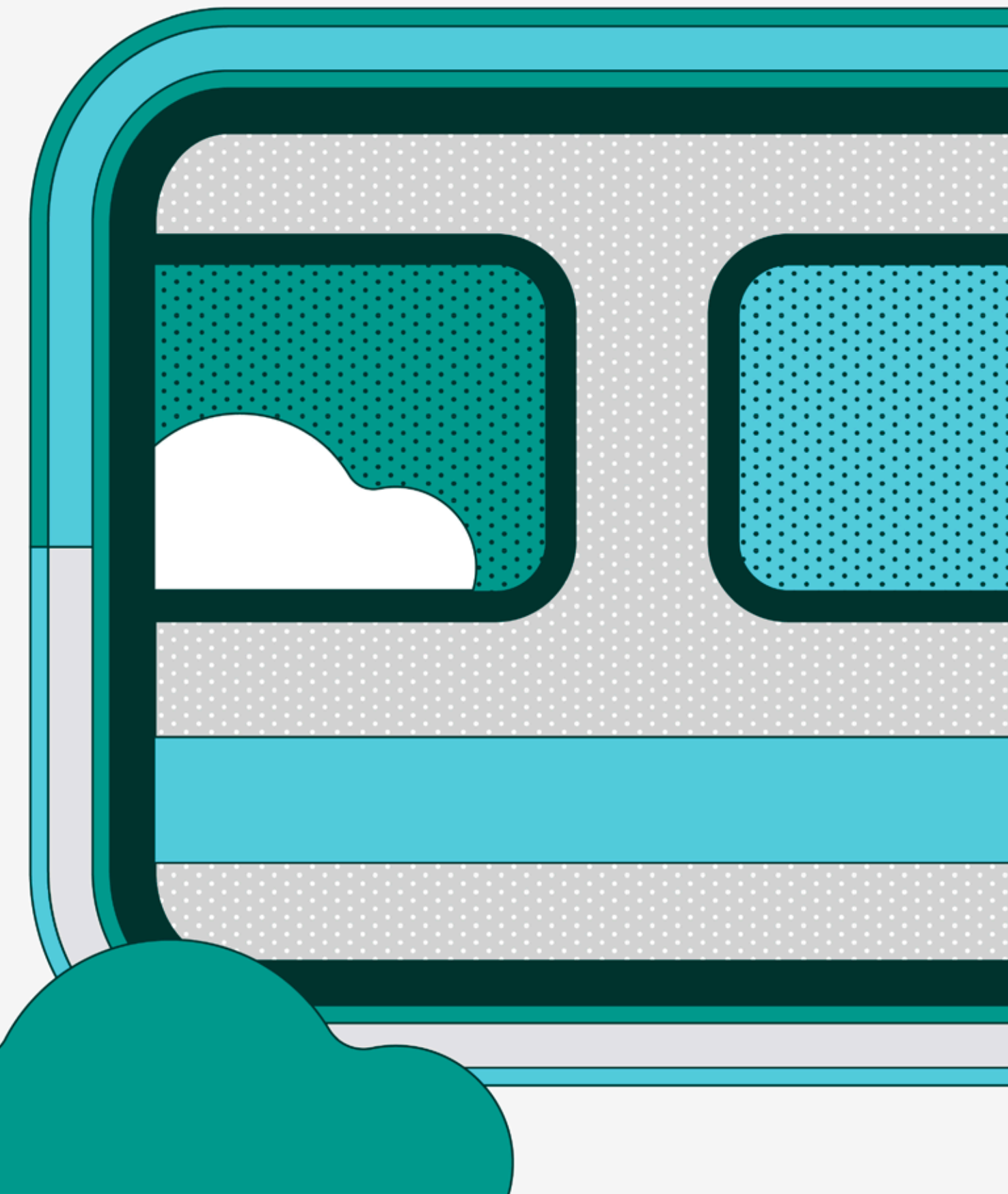
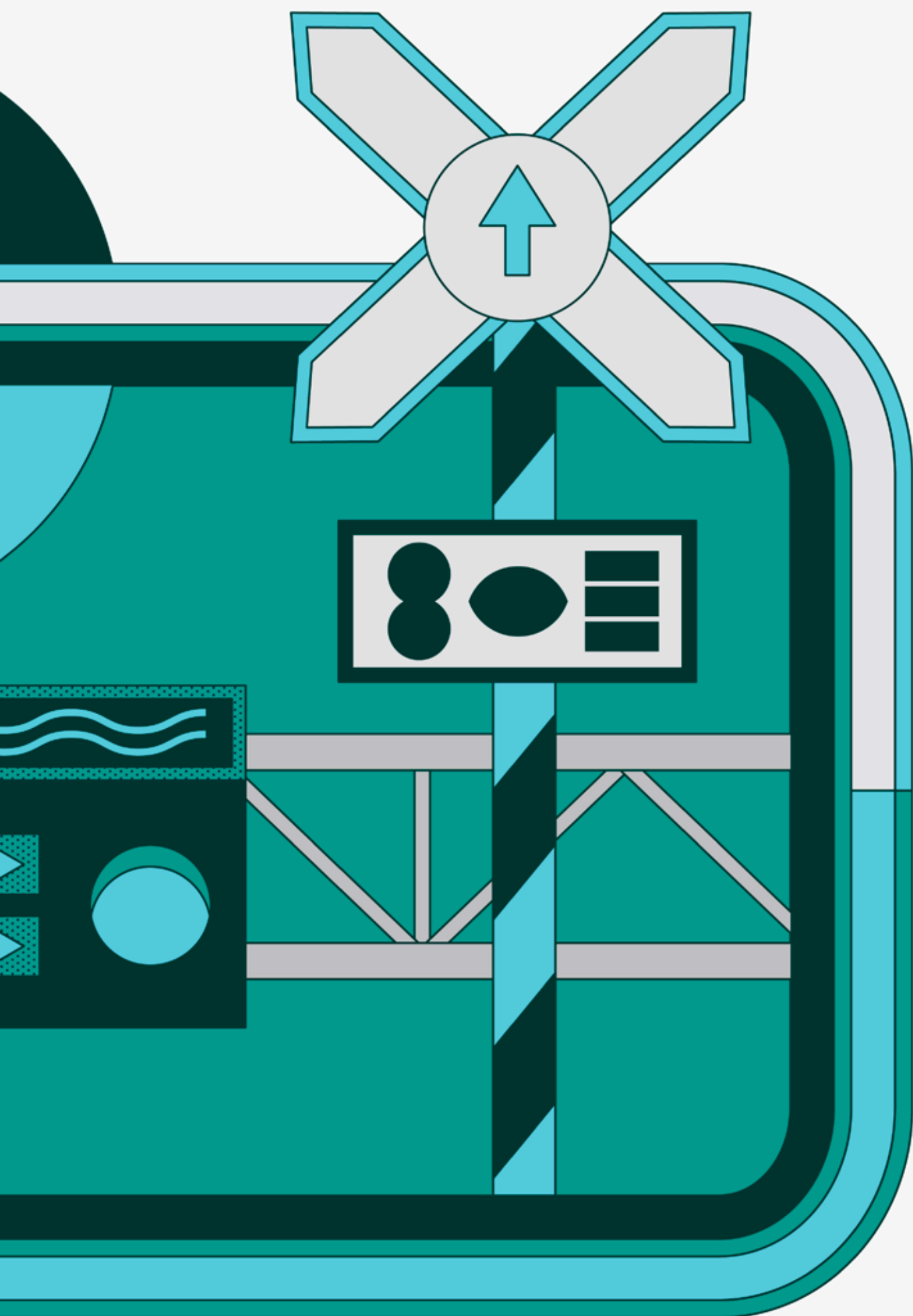


5

CHAPTER

Business Operational Status





- 5-1 Passenger and freight transport
- 5-2 Asset development and activation
- 5-3 Materials and procurement
- 5-4 Personnel matters
- 5-5 Professional human resources training

- 5-6 Labor safety
- 5-7 Driving security
- 5-8 Disaster prevention work
- 5-9 Celebrating the Railway Festival
(136th Anniversary of Taiwan Railways)

- 5-10 Ethics
- 5-11 Cultural assets

5-1 Passenger and freight transport

1 Passenger transport business

1. Train schedule adjustment on April 26, 2023

- (1) The Western Main Line increased its capacity with the addition of two EMU3000 and two Puyuma direct trains, enhancing the transportation capacity of the Tze-Chiang trains by 7.6%.
- (2) Added EMU3000 Tze-Chiang Trains 143 and 110, with a travel time of 3 h and 57 min from Taipei to Kaohsiung. The travel interval was from Qidu to Chaozhou from Monday to Saturday and extended to Hualien on Sunday via North-Link.
- (3) Added Puyouma Trains 131 and 132, with a travel time of 3 h and 40 min from Taipei to Kaohsiung. The travel interval of Train 131 was from Nangang to Chaozhou, and the travel interval of Train 132 was from Fangliao to Nangang.
- (4) Train 377 (Taichung-Taitung) and Train 378 (Taitung-Taichung), originally on the Southern Half Ring, were extended to travel from Qidu via South-Link to Taitung, and the train numbers were changed to 161 and 168.
- (5) EMU3000 and EMU900 electric multiple units have replaced the older PP push-pull and DMU Diesel Tze-Chiang Trains in the eastern region, increasing the transportation capacity on the East Line and South-Link Line by 9.8%.
- (6) The original DMU Diesel Tze-Chiang Trains 407 (Taitung-Shulin) and 242 (Shulin-Hualien) were replaced by the EMU3000 Tze-Chiang Trains. Train 242 was extended to Taitung and changed to 442.
- (7) The original PP Push-Pull Tze-Chiang Trains 443 (Xinzuoying-Shulin), 484 (Changhua-Taitung), 302 (South-Link Line), 305 (Xinzuoying-Taitung), and 310 (Taitung-Xinzuoying) were changed to operate with Puyouma trains.
- (8) The original Chu-Kuang Trains 702 (Taitung-Xinzuoying) and 707 (Xinzuoying-Taitung) were changed to operate with the EMU3000 model.
- (9) The original Chu-Kuang Trains 704 (Taitung-Xinzuoying), 713 (Xinzuoying-Taitung), and DMU Diesel Tze-Chiang Trains 235 (Hualien-Shulin) and 224 (Shulin-Hualien) were changed to EMU900 type interval express trains.
- (10) To extend the night maintenance time of track facilities and enhance the safety rate of PP Push-Pull Tze-Chiang Trains, EMU3000 special trains were introduced as replacements for the original PP model. Following Taiwan's high-speed rail practices, free-seating was piloted on these trains. The designated alternative trains were: 117 (Keelung-Chaozhou), 146 (Chaozhou-Qidu), 191 (Qidu-Chaozhou, renamed 133 after schedule change), 192

(Chaozhou-Qidu, renamed 120 after schedule change), 145 (Qidu-Chaozhou), and 108 (Chaozhou-Qidu).

- (11) To maintain service standards, the EMU3000 special trains will be equipped with six free-seating carriages (from the 4th to the 9th carriages). Free-seating tickets will be issued with total quantity control to prevent overcrowding. Passengers without reservations, as well as those holding electronic or regular tickets, will not be permitted to board to uphold service quality.
- (12) The price of a free-seating ticket is set at 95% of the ticket price for a Tze-Chiang train covering the same distance. These tickets can be pre-purchased on the official website of the Taiwan Railway Administration, at station counters, and through multifunctional vending machines up to 4 days before the journey (inclusive). However, ticket collection is restricted to counters and vending machines, and mobile QR tickets or collection from supermarkets and post offices are not available.

2. The timing adjustment started from June 28, 2023.

- (1) With the introduction of the new trains, EMU3000 and 900 models were deployed to replace other models. The original Puyouma Trains 222 (Shulin-Ruisui), 229 (Ruisui-Shulin), and Taroko Group Trains 21 (Taitung-Shulin) and 22 (Shulin-Taitung) were replaced by EMU3000 Tze-Chiang Trains. Additionally, 10 Interval (Express) Trains, including 4030, 4033, 4019, 4032, 4035, 1140, 4028, 4037, 4050, and 4003, were replaced by EMU900 electric multiple units.
- (2) Extended train schedule:
 - A. Express Train 4042 (Yilan-Hualien) was rescheduled to depart from Qidu Station.
 - B. Interval Trains 4191 (Su'ao-Yingge) and 4240 (Yingge-Nan'ao) were extended to Taoyuan.
 - C. Interval Trains 4519 (Taitung-Guanshan) and 4512 (Guanshan-Taitung) were extended to Chishang.
- (3) Trains with additional stops:
 - A. EMU3000 Tze-Chiang Trains 411 (Taitung-Shulin) and 438 (Shulin-Taitung) added stops at Fuli Station.
 - B. EMU3000 Tze-Chiang Trains 371 (Taichung-Taitung) and 386 (Taitung-Taichung) added stops at Xinwuri Station.
 - C. Interval Express Trains 2007 (Keelung-Ershui) and 2042 (Ershui-Qidu) added stops at Shetou Station.
- (4) To facilitate transfers, commuting, and academic needs, the departure times of 2537 Houlong Station, 2237 Fengyuan Station, 1701 Hsinchu Station, and 2123 Fengfu Station have been adjusted.

3. The timing adjustment started from December 20, 2023.

(1) Trains with additional stops:

- A. Six Interval Express Trains, including 3061 (Xinzuoyin-Fangliao), 3071 (Xinzuoying-Fangliao), 3031 (Tainan-Chaozhou), 3074 (Fangliao-Xinzuoying), 3078 (Fangliao-Xinzuoying), and 3082 (Fangliao-Xinzuoying), were modified to stop at all stations between Xinzuoying and Fengshan.
- B. Three Interval Express Trains, including 2007 (Keelung-Ershui), 4013 (Hualien-Hukou), and 1038 (Chaozhou-Qidu), added a stop at Neili Station.
- C. Two Interval Express Trains, including 4042 (Qidu-Hualien) and 4037 (Hualien-Yilan), added a stop at Hanben Station.

(2) To accommodate transfer needs, the departure times of 3081 Xinzuoying Station and 2284 Fengfu Station were adjusted.

(3) With the introduction of new trains, the original Puyouma 308 (Hualien-Xinzuoying) and 317 (Xinzuoying-Hualien) were replaced by EMU3000 Tze-Chiang Trains starting from January 3, 2024.

4. Provide safe and accurate transportation services

The punctuality rate of passenger trains operated by Taiwan Railways Administration in 2023 reached 95.98%, marking a 1.00% improvement compared to the same period in 2022. The primary reasons for train delays were attributed to train equipment failures (48.2%), natural disasters (26.1%), incidents at level crossings and fatal accidents (13.5%), foreign object intrusion (7.1%), and slow traffic (4.7%). Taiwan Railways Administration remains committed to actively executing plans to update and replace driving equipment, procure new cars, refine equipment maintenance processes, and enhance personnel training. Notably, the number of train equipment failures decreased by 4.5% in 2023 compared to the previous year. Moving forward, Taiwan Railways Administration will persist in strengthening equipment maintenance and repair, accelerating the replacement of outdated equipment, bolstering safety management mechanisms along work areas adjacent to rail lines, and consistently delivering safe and punctual services.

2 Freight business

1. The management regulations governing the verification and certification of state-owned and private railway train drivers have been revised, specifically amending Article 4 to include the types of driver licenses for state-owned railway trains, with the addition of “driving types for vehicle shunting drivers” as item 3. By the close of 2023, 153 shunting vehicle drivers had obtained driver’ s licenses, with 130 being internal employees and 23 from external manufacturers.
2. The establishment of vehicle registration records was initiated to facilitate the smooth operation of 24 diesel shunting vehicles, organized in four batches: six vehicles in the first, second, and third batches, and five vehicles in the fourth batch (4-1), with an additional single vehicle in the fourth batch (4-2).
3. In response to the earthquake in Chishang, Taitung, a three-month freight train allocation and workforce utilization plan was enacted to support the Taiwan Railways Administration’s “Fenglin-Yuli” engineering repair efforts.
4. To fortify national defense security, the Military Transportation Platform collaborated with the National Army’ s Land Service Department in allocating flat carriages and transportation equipment.
5. Regular inspection and maintenance of shunting vehicles were conducted at each station of the Operations Department throughout 2023, with corresponding efforts for shunting vehicles inspection and maintenance.
6. Collaboration with the Railway Bureau of the Ministry of Transportation entailed conducting regular inspections and compiling the driver’ s license documents submitted by various transportation departments for vehicle tuning drivers annually.
7. In response to the naturalization of 40 new self-owned stone hopper trucks by Happiness Cement, measures were taken to enhance transportation capacity to meet shipper demands.
8. Furthermore, revisions to cargo transportation contracts and package transportation contracts were made to reflect current practical conditions. These revisions included reducing the weight limit of packages from 30 kg to 20 kg and updating the types of consigned vehicles, valuable items, and other packages to ensure employee safety and mitigate disputes.

5-2 Asset development and activation

1 Asset development

In response to environmental changes, we actively integrate transportation construction and asset development to maximize the benefits of public construction. By employing mechanisms such as asset development and affiliated business operations, we adhere to laws and regulations such as the Law on Promoting Private Participation in Public Construction, Urban Renewal Regulations, and State-owned Property Law. We collaborate with the central government's railway construction plan, the urban renewal plans by Executive Yuan, and the urban development plans of local governments to manage various development projects.

The Taiwan Railways Administration has achieved significant progress in promoting private participation in public construction, urban renewal, and land development through superficies. The related land development and operational performance for 2023 amounted to approximately NT\$489.05 million, with income details outlined in the table below:



Unit: NT\$1,000

Land development methods	Project name	Revenue in 2023 (before tax)	
		Land rent	Royalty
Promoting private Participation Public construction	Taipei Station Special Zone Jiaojiu Plot Development Project	59,172	-
	BOT project of Nankang Station Building	58,139	101,800
	BOT project of Songshan Station comprehensive building and parking tower	47,314	60,888
	BOT Case of Wanhua (East and West) Station Building	41,750	-
	Construction and operation transfer of Taichung Railway Cultural Park	3,106	12,910
Setting up superficies	Construction and operation project of International Sightseeing Hotel in Banqiao Station Specific Area (Special Area 2)	9,284	9,923
	Setting up superficies for 10 plots of land (including 494 plot, Yuanlin Section, Yuanlin City, Changhua County, etc.)	331	695
	Establishing cases of superficies for 28 plots, Qiaobei Section, Yongkang District, Tainan City	52	242
	Setting up superficies for 2 plots of land (including 291 plot and 291-1 plot, Fuhe Section 2, Zhongzheng District, Taipei City)	1,319	3,300
	Setting up superficies for 2 plots of land (including 265 plot and 265-1 plot, Baoqing Section 6, Songshan District, Taipei City)	5,820	24,200
	Setting up superficies for 2 plots of land (including 126 plot and 127 plot, Chenggong Section 1, Zhongzheng District, Taipei City)	2,686	10,175
	Setting up superficies for 2 plots of land (including 125 plot and 129 plot, Chenggong Section 1, Zhongzheng District, Taipei City)	1,959	8,277
	Setting up superficies for 721 plot, Yucheng Section 2, Nangang District, Taipei City	10,260	11,170
	Setting up superficies for 2 plots of land (including 519-11 plot and 519-88 plot, Gangshan Section, Gangshan District, Kaohsiung City)	357	1,712
	Setting up superficies for 3 plots of land (including 519-28 plot, 519-85 plot, and 519-111 plot, Gangshan Section, Gangshan District, Kaohsiung City)	356	1,854
Subtotal		241,905	247,146
Total		489,051	

Moreover, to activate land asset management and advance the “Pingtung Railway Station Surrounding Area Urban Renewal and Development and Investment Planning Proposal,” the third round of investment promotion was initiated on October 25th, 2023. It is anticipated to generate approximately NT\$1.34 billion in land benefits in the future. The second round of investment promotion for the urban renewal project on the east side of Yuanlin Railway Station was conducted on September 11, 2023. The projected future income includes development rights fees of NT\$27 million, operation rights fees of NT\$484 million, and land rent of NT\$307 million, totaling NT\$818 million during the licensing period.

Five government-planned urban renewal cases were promoted in 2023, as illustrated in the table below:

Urban renewal construction (government planning)

	Project name	Base area	Signing date
Planned cases	Keelung Railway Station Urban Renewal Plan	83,000m ²	-
	Urban Renewal Plan for Guoguang Passenger Transport Temporary Station in the Surrounding Area of Taichung Railway Station	6,400m ²	-
	Urban Renewal Plan for the North District of Changhua Railway Station	15,333m ²	-
	Urban Renewal Plan for the Surrounding Area of Yuanlin Railway Station	Renewal unit Scope of design 27,033.69 m ² Setting up superficies 24,272.69 m ²	-
	Urban Renewal Plan for the Surrounding Area of Pingtung Railway Station	8,850m ²	-

2 Asset activation

1. Station mall/travel service space

Assets were activated in accordance with the provisions of the “Law on Promoting Private Participation in Public Construction.” This introduced ample funds and creativity from the public, transforming stations into regional commercial centers. They now offer comprehensive travel services, making them ideal hubs for cultural and business activities. By the end of 2023, the total mall royalties (including land rent) from four stations—Nangang, Taipei, Banqiao, and Xinzuoqing—with private participation exceeded NT\$438,680,000.

Furthermore, the multi-target shopping mall and parking lot rental project (parking lot section 30 and shopping mall section 22) under the railway elevated bridge in the Taichung Metropolitan Area were handed over to the successful bidder for renovation on March 18, 2021. Rent for the parking lot section commenced on March 1, 2023, while the shopping mall section is expected to commence operations by the end of 2024. The total estimated annual rental income from the project is approximately NT\$28.68 million.



New building project of Nangang Star (Nangang Business 3) Groundbreaking ceremony



Parking lot under railway viaduct in Taichung Metropolitan Area

2. Transforming warehouses and cultural assets into cultural, creative, and tourism hubs

To develop and leverage the assets of the Taiwan Railways Administration, we rented out old warehouses. Additionally, to effectively maintain and utilize the cultural assets managed by the Taiwan Railways Administration—including historical sites, buildings, and old structures—we collaborated with local governments to renovate them into exhibition venues for artistic creation and new cultural landmarks, providing spaces for public relaxation. In 2023, 29 items were rented out, generating a total rental income of over NT\$30.79 million.

3. Rental of real estate

Through diversified business development and the utilization of idle land, buildings, offices, and parking lots along the railway, a total of 187 buildings, 624 plots of land, and 131 parking lots were rented out by the end of 2023. The rental income amounted to approximately NT\$139.55 million for houses, NT\$260 million for land, and NT\$583.5 million for parking lots.

In line with the government's promotion of electric vehicles, 19 rental parking lots were established in the official parking lots of Taipei, Nangang, and Banqiao Stations, as well as in the vicinity of Taichung, Xinzuoing, Yilan, and Jiaoxi Stations. The parking lot operators completed the installation of charging stations with 71 slow and 11 fast charging ports. In early August 2023, the land around Yihua East Station was successfully rented out for the installation of charging stations, with four slow charging stations and 15 fast charging stations under construction. An annual rental income of approximately NT\$1.25 million was estimated.



Taipei Station underground parking lot charging station



Taipei Station Mall Christmas lighting event

4. Rental of advertising space

We continued to promote the use of station space for advertising rental while maintaining station aesthetics. Advertising options included flat frame, LCD, and carriage body paintings for carriage advertising, as well as flat, lightbox, and multimedia advertisements inside and outside the station.

Advertising arrangements were made on a station-by-station basis, either individually or by integrating multiple stations for advertising rental. The winning bidder was responsible for overall planning of advertising locations, sizes, and media formats to unleash advertising creativity. The total advertising rental income in 2023 exceeded NT\$43.36 million.

5. Rental of filming venues and equipment

In alignment with policies promoting the cultural industry and enhancing the image of the Taiwan Railway Administration, a total of 26 rental arrangements were made for theatrical, film, documentary, advertising, and other filming purposes in 2023, generating rental income of over NT\$1.04 million.

6. Rental of base station space

To facilitate travel and enhance communication quality, the Taiwan Railways Administration actively facilitated the addition of base stations along the railway. Stations, buildings, and land were opened up for telecommunications operators to set up mobile phone base stations, ensuring no compromise on driving safety and communication quality. Rental income in 2023 from these initiatives amounted to approximately NT\$33.99 million.

7. Solar photovoltaic equipment rental case

To achieve the policy goal of Executive Yuan increasing the proportion of renewable energy in total power generation to 20% by 2025, solar photovoltaic power generation equipment will be installed on the roofs of public buildings. In addition to previously completed installations, solar photovoltaic power generation equipment was installed at four new locations in 2023: the roofs and surrounding land of Taitung Railway Station, the roofs and land surrounding the Hualien Power Section (located in Taitung), the roofs of Shulin Marshalling Yard, and the employee parking lot of the Xinzuoing Joint Office Building. The rental term for this equipment is 20 years. The related solar photovoltaic power generation equipment was rented out and connected in parallel for power generation, generating an annual rental income of approximately NT\$25 million.

8. Diversified development methods

Establishing a real estate development and operation mechanism for state-owned railway institutions is significant for driving the transformation and regeneration of railway institutions and injecting financial resources into the industry. Additionally, adhering to the TOD concept, which combines transportation construction with land revitalization to drive urban development, is crucial. After the restructuring of the Taiwan Railway Administration into a corporation in 2024, asset activation methods will become more diverse, no longer limited by Article 28 of the State-owned Property Law. This will allow for the introduction of more flexible development methods and product positioning. Relevant operational regulations for asset activation of the company, such as the “Key Points for Handling Joint Construction and Development Projects (Draft) of State-owned Taiwan Railway Co., Ltd.,” and “Key Points for Setting up Land Superficies of State-owned Taiwan Railway Co., Ltd.,” can be formulated. In the future, the asset activation process will be expedited, and long-term cash flow can be generated by holding assets, supplementing overall revenue.

5-3 Materials and procurement

1 Procurement business statistics

In 2023, a total of 730 procurement cases were processed, including 263 engineering procurement cases, 342 labor procurement cases, and 125 property procurement cases, with a total bidding amount exceeding NT\$21,501,100,000. Procurements included the purchase of seven sets of track skeleton carriers, large (general) and medium (comprehensive) track tamping vehicles, track ballast trucks, and track stabilization vehicles. Updates were made to the motor systems for push-pull carriages, and the intelligent improvement plan for telecommunications was implemented, including the update of the wireless telephone system network management center for train dispatch. Projects such as the Kaohsiung Depot Chaozhou Base Phase II Construction Plan - CL111 Chaozhou Depot Piles and Coordination Engineering, and the Kaohsiung Depot Chaozhou Base Phase II Construction Plan - CL131 Maintenance Equipment Advance Project were also undertaken. Other cases involved maintenance of the high and low voltage power systems from Banqiao to Nangang 5 stations and tunnels, as well as procurement of dedicated channels for electronic ticket verification machines for Executive Yuan’s commuter monthly tickets.

2 Revising operation instruction to comply with regulations and improve procurement and material management performance

1. Revising Taiwan Railways Administration’s Procurement Responsibility Division and Internal Control Mechanism Table

To align with practical operational needs and in compliance with the revised regulations on the announcement amount and central government’s small procurement amount in Engineering Enterprise No. 1110100798 Order issued by the Public Works Committee of the Executive Yuan on December 23, 2022, the “Taiwan Railways Administration’s Procurement Responsibility Division and Internal Control Mechanism Table” (March 2023 version) underwent revision on March 8, 2023.

2. In accordance with the relevant regulations of the Public Works Commission of Executive Yuan, the procurement bidding instructions and contract terms were revised to meet actual needs

- (1) On January 31, 2023, the “Property Procurement Bidding Instructions and Contract Terms of Taiwan Railways Administration” (February 2023 version) were released.
- (2) On February 10, 2023, the procurement bidding instructions and the instructions for bidding with reference to the most advantageous tender for procurement that does not reach the announced amount but exceeds one-tenth of the announced amount were revised.
- (3) On March 1, 2023, the procurement bidding instructions, the instructions for bidding with reference to the most advantageous tender for procurement that does not reach the announced amount but exceeds one-tenth of the announced amount, and the engineering procurement contract were revised.
- (4) On March 31, 2023, the information service procurement contract was revised.
- (5) On April 20, 2023, the public works project management procurement contract, the turnkey engineering procurement contract, and the engineering procurement contract were revised.
- (6) On April 24, 2023, the procurement bidding instructions and the instructions for bidding with reference to the most advantageous tender for procurement that does not reach the announced amount but exceeds one-tenth of the announced amount were revised.
- (7) On April 26, 2023, the labor procurement contract, the public works technical service procurement contract, and the disaster rescue and repair on-call contract were revised.
- (8) On May 8, 2023, the “Property Procurement Bidding Instructions and Contract Terms of Taiwan Railways Administration” (May 2023 version) were released.
- (9) On June 9, 2023, the engineering procurement contract, the turnkey engineering procurement contract, and the disaster rescue and repair on-call contract were revised.

- (10) On August 4, 2023, the “Property Procurement Bidding Instructions and Contract Terms of Taiwan Railways Administration” (August 2023 version) were released.
- (11) On August 15, 2023, the procurement bidding instructions and the instructions for bidding with reference to the most advantageous tender for procurement that does not reach the announced amount but exceeds one-tenth of the announced amount were revised.
- (12) On September 6, 2023, the labor procurement contract, the information service procurement contract, the public works project management procurement contract, and the public works technical service procurement contract were revised.
- (13) On September 7, 2023, the engineering procurement contract was revised.
- (14) On October 2, 2023, the disaster rescue and repair on-call contract was revised.
- (15) On October 12, 2023, the procurement contract for the turnkey project was revised.
- (16) On December 14, 2023, the labor procurement contract, the information service procurement contract, the public works technical service procurement contract, and the public works project management procurement contract were revised.
- (17) On December 19, 2023, the procurement bidding instructions, the instructions for bidding with reference to the most advantageous tender, the engineering procurement contract, the turnkey engineering procurement contract, and the disaster rescue and repair on-call contracts were revised.

3. Administrative rules related to material management and procurement to meet corporate needs

- (1) On December 25, 2023, the “Key Points for Bidding Room Management” were issued.
- (2) On December 25, 2023, the “Notes on Selling Excess and Waste Materials Operations of State-owned Taiwan Railway Co., Ltd.” were issued.
- (3) On December 25, 2023, the “Notice on Selling Excess and Waste Materials Bidding of State-owned Taiwan Railway Co., Ltd.” was issued.
- (4) On December 25, 2023, the “On-site Bidding Operation Procedures of State-owned Taiwan Railway Co., Ltd.” were issued.
- (5) On December 25, 2023, the “Notes on Small Procurement” were issued.
- (6) On December 25, 2023, the “Notes on Material Management of Contract Work and Material Engineering of State-owned Taiwan Railway Co., Ltd.” were issued.
- (7) On December 25, 2023, the “Notes on Demolition and Receipt of Materials Management of State-owned Taiwan Railway Co., Ltd.” were issued.
- (8) On December 25, 2023, the “Preparation and Approval Procedures for Property Procurement Specifications of State-owned Taiwan Railway Co., Ltd.” were issued.
- (9) On December 25, 2023, the “Control Procedures of Materials for Construction

in Progress / Demolition and Receipt of Materials of State-owned Taiwan Railway Co., Ltd.” were issued.

- (10) On December 26, 2023, the “South District Supply Center Waste Processing Procedures of State-owned Taiwan Railway Co., Ltd.” were issued.
- (11) On December 27, 2023, the “Key Points for Accepting External Visits to Introduce Products (Including Application Forms and Closing Statements) of State-owned Taiwan Railway Co., Ltd.” were issued.
- (12) On December 27, 2023, the “Procedures for Publishing Defective Manufacturers in Government Procurement Bulletins of State-owned Taiwan Railway Co., Ltd.” were issued.
- (13) On December 27, 2023, the “Execution Procedures for Property Purchase Price Reduction and Receipt Operation of State-owned Taiwan Railway Co., Ltd.” were issued.
- (14) On December 25, 2023, the “Implementation Measures for Rewards and Punishments of Key Materials in Maintenance and Driving of State-owned Taiwan Railway Co., Ltd.” were issued.
- (15) On October 4, 2023, the “Procurement Standard Operating Procedures (Draft) of State-owned Taiwan Railway Co., Ltd.” were issued.
- (16) On December 26, 2023, the “Supply Department Material Management Audit Plan of State-owned Taiwan Railway Co., Ltd.” was issued.
- (17) On December 26, 2023, the “10 Major Risk Factors and Preventive Measures for Supply Centers of the Supply Department of State-owned Taiwan Railway Co., Ltd.” were issued.
- (18) On December 22, 2023, the “Notice on Property Procurement Bidding and Contract Terms of State-owned Taiwan Railway Co., Ltd.” were issued.
- (19) On December 29, 2023, the “Table of Responsibility Division and Internal Control Mechanism for Procurement Cases of State-owned Taiwan Railway Co., Ltd.” was issued.
- (20) On December 22, 2023, the “Notes on Setting the Basic Price of Procurement Case of Taiwan Railway Corporation,” “Key Points for the Division of Engineering Labor Procurement Operations in the Supply Department,” “Notes on Presiding over the Bid Opening Procedure by the Personnel in Charge of Bid Opening of Taiwan Railways Corporation,” “Regulations on the Bidding Schedule and Process for Regular Labor Procurement Cases of Taiwan Railways Corporation,” “Procedure for the Implementation of the Project Meeting of the Qualification and Specification Setting Group for Huge Procurement Cases of Taiwan Railways Corporation,” “Regulations on the Selection of the Selection Committee and Working Group for Procurement Cases of Taiwan Railway Corporation” were revised.
- (21) On December 27, 2023, the “Notice on Material Management of State-owned Taiwan Railway Co., Ltd.” was issued.

3 Carry out benchmark learning, on-the-job training, and business audits

1. In preparation for the upcoming corporate restructuring, plans were made to update the material management system. In February 2023, Taiwan high-speed rail corporation was invited to the Taiwan Railways Administration to share insights into the information management process and practical operation of the material management system for maintenance materials. This initiative aimed to enhance the supply efficiency of maintenance materials and serve as a valuable reference for future system upgrades.
2. In February 2023, a visit was made to the third district maintenance engineering department of the Highway Administration of the Ministry of Transportation, which had been honored with the Golden Archive Award for its exemplary document and archive management practices. This visit provided valuable insights into the department's archive management processes, serving as a foundation for improving archive management practices and document processes. Strategies were devised to enhance archive preservation and elevate the quality of document processing.
3. Between April and May 2023, material management audits and supply factory acceptance operation audits were conducted. These audits ensured compliance with relevant regulations in material management and acceptance processes, thereby enhancing systematic management mechanisms.
4. Retraining courses were organized for procurement professionals from May to September 2023. These courses were tailored to the nature of their work, with separate sessions for engineering and labor procurement personnel, totaling 97 people, as well as property procurement personnel, totaling 91 people. The training sessions focused on reinforcing understanding through procurement examples and fault patterns, aiming to bolster the practical handling capabilities of procurement personnel.
5. In July 2023, basic training sessions were conducted for all procurement personnel, with a total of 80 personnel receiving training. These sessions delved into procurement laws and related operational regulations to enhance the professional knowledge and skills of the personnel.
6. August 2023 saw the participation of 190 individuals in four levels of material management training courses held across the North, Central, South, and East districts. These courses effectively improved the material management performance of the Taiwan Railways Administration and augmented the awareness and proficiency of material management personnel regarding regulations.

7. In September 2023, visits were made to supply factories in the northern, central, and southern regions to address ten major risk factors and their prevention measures, alongside conducting small procurement audits. These audits were tailored to the unique business characteristics of each factory, ensuring adherence to operational regulations and safeguarding the quality of purchased materials and the safety of warehouse management.
8. Lastly, from September to November 2023, audits of the bid review operations control mechanism were conducted in the procurement departments of the northern, central, and southern regions. An experience sharing symposium was also held to foster improvements in procurement operations quality and promote operational consistency among various bidding units.



Invite Taiwan high-speed rail company to come to bureau to share brief report on maintenance material management



Third district maintenance engineering department of Highway Administration of the Ministry of Transportation Benchmark learning in archive management



North district session - material management training class



Audit of control mechanism for procurement bidding review

5-4 Personnel matters

1 Courses and lectures of the employee assistance program

1. March 16, 2023 - EAPs Work Lecture: “Meeting a better self under pressure”
2. March 23, 2023 - EAPs Legal Lecture: “Law only protects those who understand the law - discussing common legal issues in the workplace”
3. April 19, 2023 - EAPs Professional Training: “Enhancing awareness and sensitivity”
4. April 26, 2023 - EAPs Professional Training: “Deep breathing of the mind - self-awareness and stress relief for supervisors”
5. May 3, 2023 - EAPs Health Lecture: “Getting rid of sleep debt, starting from understanding sleep”
6. May 17, 2023 - EAPs Lifestyle Lecture: “Do you want a third year or a third life? Five proposals for those who are worried about retirement”
7. July 20, 2023 - EAPs Benchmark study of Taipei Mass Rapid Transit Co., Ltd.
8. August 16, 2023 - Growth Group Series Course: “Are you tired? EAPs can help you relieve stress”
9. September 13, 2023 - EAPs Care Tour Train: Experience sharing meetings

2 Contract signing ceremony for industry-school cooperation with Tsinghua Senior High School in Taoyuan City

To foster exceptional rail talent, the Taiwan Railway Administration held a signing ceremony for industry-school cooperation with Tsinghua High School on May 8, 2023. Director Du Wei and Principal Chang Yu-ping represented the Tsinghua High School at the signing. This renewed partnership aims to jointly cultivate a new-generation of railway professionals. It will enhance the operational internship program through the nearby Taipei Operations Department, allowing students to blend practical experience with theoretical coursework early on. This approach helps students establish foundational railway knowledge and shorten the adaptation period for future work in the industry. Additionally, students interested in railway careers are encouraged to join, improving overall railway services and shaping a new vision for the industry.



Signing Ceremony of Industry-School Cooperation with Tsinghua High School in Taoyuan City



Director Du Wei and Principal Chang Yu-ping of Tsinghua High School took a group photo as a souvenir

3 The 2023 model Civil Servant Award Ceremony of the Ministry of Transportation

The 2023 Model Civil Servants Award Ceremony of the Ministry of Transportation took place on August 4, 2023, at 2:30 pm in the 5th-floor auditorium of the Ministry. Minister of Transportation Wang Kwo-tsai presided over the ceremony, honoring 33 model civil servants. Chief Engineer Lai Hsing-lung, Senior Engineer and Deputy Director Yang Tun-hui, Director Tsao Tung-chun, and Director Huang Chen-chao attended the event.



Minister Wang Kwo-tsai and model civil servants of Taiwan Railways Administration took a group photo as a souvenir

4 2023 Director Cup Pool Championship

On June 29 and 30, 2023, the Director's Cup Table Tennis Championships were held at the Yilan County Sports Center. Chief Secretary Chen Yu-mou of the Taiwan Railway Administration presided over the opening ceremony, fostering team spirit, boosting morale, and showcasing the organization's vitality through spirited competition.



Opening ceremony



Happy group photo of participants

5 Group agreement signing ceremony

On November 20, 2023, witnessed by Minister of Transportation Wang Kwo-tsai and Minister of Labor Xu Ming-chun, the Taiwan Railways Administration and the Taiwan Railway Union signed a contract. Director-general Du Wei of the Taiwan Railways Administration and Chairman Chen Shih-chieh of the Taiwan Railway Union represented their respective organizations.



Complete group agreement signing



Group photo of the group agreement signing ceremony

5-5 Professional human resources training

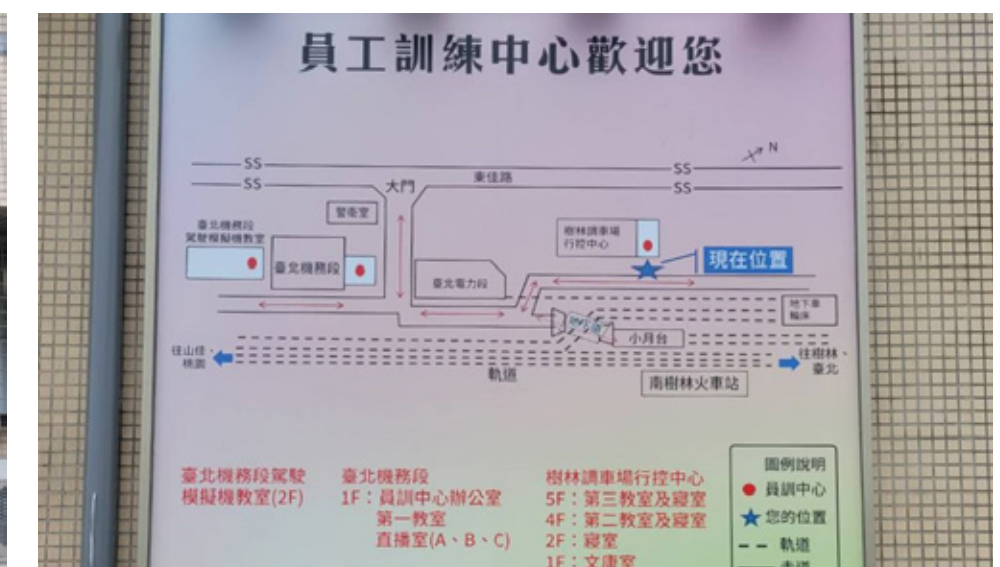
1 Current status of Taiwan Railways Administration Employee Training Center

The Employee Training Center (hereinafter referred to as the Center) serves as the primary unit for training talent within the Taiwan Railways Administration. Since its relocation to Beitou in the 60th year of the Republic of China, over 50 years have passed. However, due to aging infrastructure and inadequate seismic resistance, plans were made to relocate to a new facility upon the completion of the Tomioka Employee Training Center construction, aiming to offer an enhanced and comprehensive learning environment.

Employee training stands as a pivotal mission for the Taiwan Railways Administration. To ensure uninterrupted training until the new facility's completion, the center was temporarily relocated from Beitou to the Shulin Marshalling Yard (No. 7 Dongjia Road, Shulin) on October 17, 2022, to continue educational activities.



Employee Training Center (temporarily relocated to Shulin Marshalling Yard)



Schematic of location of Employee Training Center classroom

Currently, the Employee Training Center comprises two departments: Academic Affairs and Comprehensive Affairs, staffed by a total of 22 members. Facilities include four classrooms, a lounge and recreation area, a gym, and dormitories (with four-person suites) for trainees' use. While upholding the six core values of "safety, accuracy, service, innovation, unity, and honor," the training objective for 2023 was to deliver high-quality railway services and diverse operations to the public while nurturing a range of railway professionals to ensure the sustainable development of Taiwan Railways. To address the issue of insufficient training capacity and bolster local training mechanisms, the promotion of district training initiatives has been actively pursued. Regional training preparation units have been established in the northern (Banqiao), central (Wuri), southern (Kaohsiung), and eastern (Hualien) districts. In 2024, training centers were officially set up in each district, offering

practical or retraining courses tailored to existing equipment and on-site internship needs to enhance professional competence. Additionally, a series of digital courses focusing on accident prevention (pain point learning) were developed, including microfilms and digital modules, to facilitate knowledge review, streamline training, and enable prompt responses to emergencies.

2 Training launched in 2023

In 2023, the Taiwan Railways Administration Employee Training Center conducted 138 classes, catering to 5,340 individuals, accumulating a total of 55,996 person-days. The breakdown of training procedures is as follows:

1. Pre-service training for new employees: This included comprehensive introductory sessions to familiarize new recruits with the Taiwan Railways Administration's operations swiftly. Basic and professional technical training sessions were provided for new employees admitted through the 2023 Railway Special Examination, totaling 29 classes, accommodating 1,330 trainees, and accumulating 10,620 person-days.
2. Track professional skill training: To enhance employees' professional and technical abilities, transportation, operation, and dispatcher classes were organized to ensure train safety and facilitate the inheritance of professional skills. A total of 73 classes were conducted, with 2,536 trainees and 40,843 person-days.
3. Professional procurement knowledge training: To enhance the familiarity of procurement personnel with government procurement laws and professional knowledge, a basic training course for procurement professionals was organized. It comprised 10 classes, with 492 trainees and 1,807 person-days.
4. Middle to high-level management training: A training program was designed to quickly enhance the management thinking framework of mid to high-level supervisors in the telecommunications department, improving their ability to analyze and judge. Two sessions were conducted, with 105 trainees and 315 person-days.
5. Occupational safety professional knowledge and skills training: Safety and health education and training courses for emergency personnel were organized to ensure workers' health and safety and prevent occupational disasters. Training resources were focused on key personnel preparation for corporatization in 2024. External training was utilized, with subsidies provided for various units to send personnel to vocational training institutions. All personnel certifications were completed in accordance with the law.

6. Affiliated business management training: To increase non-operating income and enhance the competitiveness of tourism and catering-related talents, an asset development course was organized. Two sessions were conducted, with 155 trainees and 310 person-days.
7. Personnel and anti-corruption professional competence training: Training courses were organized to enhance the professional competence of personnel in charge of personnel matters and ethics. This included workshops for personnel in charge of personnel matters, labor law training courses, and ethics work promotion meetings. A total of 11 classes were conducted, with 497 trainees and 1,476 person-days.
8. Lecturer teaching skills training: An external specialized organization was appointed to handle the certification of internal lecturer teaching skills courses, promoting lecturer certification and improving teaching quality. Regular retraining was conducted, totaling 5 classes, with 125 trainees and 525 person-days.
9. Other training: Courses in track engineering and practical computer system operations, such as the Railway Construction Route Blocking Class and TMS Education and Training Management System Operation Class, were established to support external training for the Railway Bureau. Four classes were conducted, with 100 trainees and 100 person-days.



Lecturer teaching skills training class



Graduation group photo of the 53rd driver class

5-6 Labor safety

1 Enhancing the work safety culture of Taiwan Railways Administration

Given the occurrences of fatalities and serious injuries caused by service vehicles operated by public works units this year, relevant departments and branches were instructed to review effective prevention measures. Colleagues who work as official vehicle drivers during nighttime must drive full-time and refrain from participating in other work to prevent traffic accidents caused by nighttime mental exhaustion. This regulation has been horizontally expanded to various engineering branches and is planned to be extended to telecommunications and electricity units that operate at night to prevent the recurrence of fatalities and serious injuries from traffic accidents.

2 Promoting the physical and mental health of employees

1. On-site physician consultation services for occupational safety and health were provided once a month for 3 h each time, totaling 12 sessions.
2. To promote the prevention of infectious diseases in the workplace, reduce the incidence of influenza, and safeguard colleagues' health, we invited the Zhongzheng District Health Service Center to plan and provide "public funded influenza vaccination services in workplace." Colleagues eligible for vaccination were encouraged to actively receive the influenza vaccine.



Invited the Zhongzheng District Health Service Center within the jurisdiction to provide "public funded influenza vaccination services in the workplace"

3 Continuously promoting occupational safety and health management system (OHSAS 18001 & ISO 45001)

The promotion of the occupational safety and health management system continued, and the internal audit capabilities of the management system were strengthened to effectively control hazards arising from various facilities and the environment through institutionalized management. Due to organizational transformation, no external verification work for the management system was conducted by any unit in 2023. To ensure the continuous effectiveness of the system, each unit regularly conducted internal audits and management reviews of the management system. The Labor Safety Office of the Bureau Headquarters conducted the year-end evaluation of occupational safety and health services from August to November, assessing the performance of the management system of each unit.

4 Improving the safety and health standards of ongoing construction projects

For ongoing construction projects of the Taiwan Railways Administration, arrangements were made for project inspection and unannounced night audits. The inspection team, led by the Labor Safety Director, included the Labor Safety Director of the branch and occupational safety and health personnel from the Labor Safety and Health Office. External experts and scholars were also invited to participate. The ongoing construction projects reviewed in 2023 included the 6-year plan for improving railway safety - the reconstruction of the third Shuangxi and Xinshe bridges on the Yilan Line, the reconstruction of the Wencuobuxi Bridge, and the platform elevation project within the jurisdiction of the Hualien branch (Fengtian and Wanrong stations).



Project supervision without prior notice was implemented for construction in progress

5 Labor safety improvement

1. After an occupational disaster occurs, the unit will report relevant information to the Taiwan Railway Occupational Safety and Health Group and horizontally communicate and advocate within branches.

2. Strengthen post-disaster feedback and improve the occupational SMS.

For units experiencing high-risk or false alarm accidents due to occupational disasters, similar workplaces were audited to understand the environment of each workplace and the preventive actions taken by each unit. Further improvements were made in management and equipment.

(1) From November 23 to 24, 2023, the “Night Safety and Health Inspection of Miaoli Power Station in Changhua Power Section” was conducted. On-site inspections focused on the management and equipment aspects of workers working at heights. The unit was required to provide case studies and training, as well as improve equipment.

(2) On December 19, 2023, we requested assistance from the Industrial Safety and Health Association of the Republic of China - Occupational Safety and Health VR Experience Hall to provide virtual reality (VR) training experiences for occupational safety and education and training for labor representatives of the Occupational Safety and Health Committee of the Taiwan Railway Administration.

(3) Designated units with occupational accidents attended to report on the review of such accidents and the implementation of preventive measures. The Occupational Safety and Health Committee of the Taiwan Railway Administration convened in the second to fourth quarters of 2023, with supervisors and labor safety directors from the Yilan Power Section, Tainan Power Section, and Changhua Power Section attending. They reported on the analysis of reasons for worker falls during maintenance work on electric power maintenance vehicles and the progress of post-disaster reviews.

3. Strengthen year-end evaluations of each branch and conduct benchmark learning, education, and training.

(1) Business supervisors and occupational safety and health personnel responsible for management, command, and supervision at all levels.

(2) Establishment and operation of occupational safety and health management system, and observation and demonstration of year-end evaluations of outstanding units. From March 10 to April 12, 2023, eight training sessions were held in the northern, central, southern, and eastern regions, each lasting 2 h.

4. Enhance safety and health awareness among telecommunications workers and reduce occupational disasters.

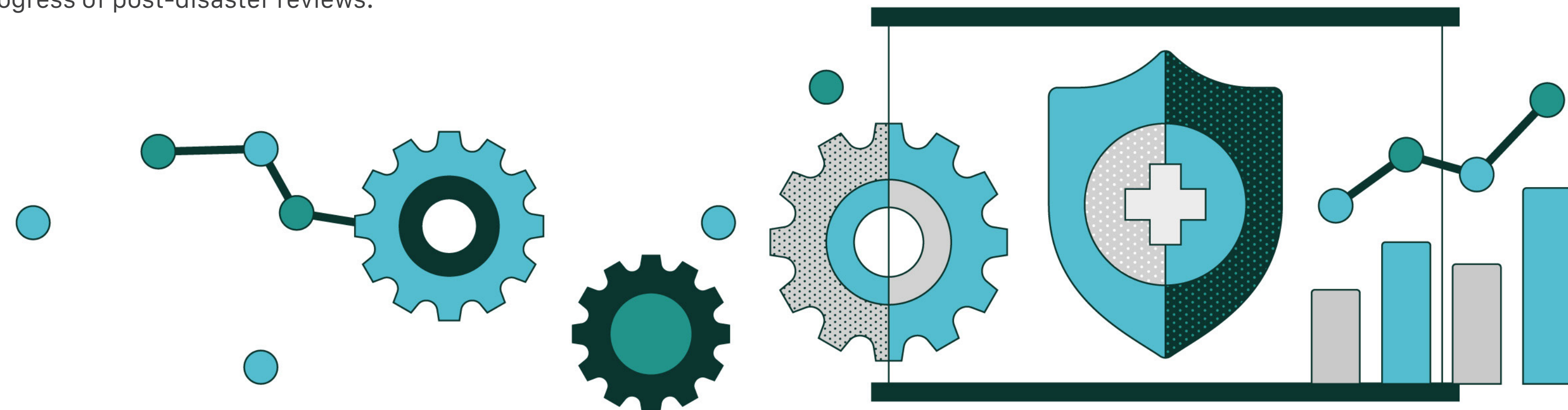
From July 10 to August 18, 2023, labor safety education and training were conducted for telecommunications operators. Relevant engineering and telecommunication unit supervisors and labor safety directors provided professional training on near-track operations, correct radio use, etc.



Benchmark learning of year-end evaluation along with education and training

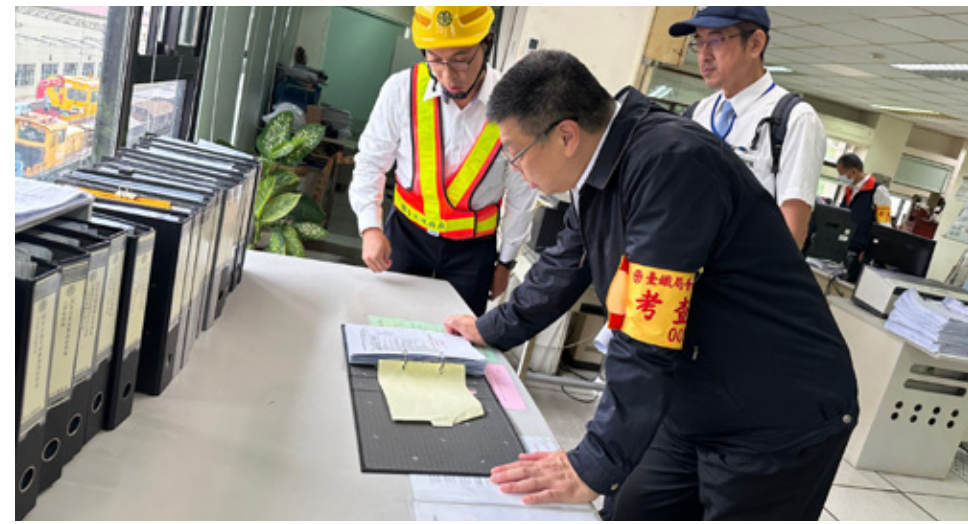


Labor safety education and training for telecommunications operators



5-7 Driving security

To strengthen accident prevention and station and train order inspection work at the Taiwan Railways Administration, the Operation Safety Department conducted the 77th Security Week of the Taiwan Railways Administration from October 16 to October 22, 2023. This effort also included promoting level crossing safety and related inspections to maintain operational safety.



Director checking the driving documents and information in the control room of the Shulin Marshalling Yard



The director took the train to inspect the driver's business performance



Inspecting the execution status of the Kaohsiung train security week



Inspecting the execution status of the Chiayi train security week

5-8 Disaster prevention work

With drastic climate change and an increasing number of safety incidents, it is necessary to adopt the strategy and approach of “disaster prevention is more important than disaster relief, and keeping away from disaster is better than disaster prevention” to achieve the goal of “being lenient in anticipating the enemy, being strict in defending the enemy, deploying in advance, presetting troops, and being ready to defend and rescue at any time.” The pace of prevention and disaster relief should be continuously adjusted according to the severity of the disaster. Each unit should conduct evaluations and analyses of various disaster scenarios in advance, implementing corresponding preventive measures and countermeasures. Through regular drills and contingency plans, damage from disasters can be minimized, and normal operations can be swiftly restored.

1 Carrying out the “mobilization, disaster prevention, and counter-terrorism” railway safety exercise

In 2023, the five mobilization joint offices of the Taiwan Railways Administration conducted large-scale comprehensive on-site drills for emergency response and repair of various railway disasters and accidents, with a total of five sessions and 1,584 personnel dispatched. On May 4, 2023, the Railway Bureau Headquarters conducted a “Taiwan Railway Building Disaster Prevention Exercise,” targeting areas above the second floor for actual evacuation and disaster prevention exercises, with 337 participants.

The above-mentioned participants included external support units, totaling 1,921 people mobilized to participate. Through drills, the aim was to strengthen the evacuation, rescue, and recovery capabilities of each district and headquarters in the face of various disasters.

#	Unit	Date	Exercise location
1	Railway Bureau Headquarters	2023.5.4	Taiwan Railway Building
2	Taipei Mobilization Joint Office	2023.6.16	Tomioka Base
3	Taichung Mobilization Joint Office	2023.6.1	Dajia Station
4	Kaohsiung Mobilization Joint Office	2023.5.23	Zuoying Equipment Division
5	Yilan Mobilization Joint Office	2023.7.17-18	Xinyongchun Tunnel
6	Hualien Mobilization Joint Office	2023.5.18	Taitung Station



Exercise situation in each district

2 Flood season disaster prevention preparation

Flood prevention efforts of the Taiwan Railways Administration are guided by the principle of “the safety of people, vehicles, and roads.” Starting from the flood season in March, various response teams have conducted disaster prevention advocacy, inspections, and preparations item by item according to the “Flood Prevention Inspection Record Form.” “Flood control drills” were conducted according to the established flood control exercise plan. In April, each district’s emergency response team formed a “spot check team” to conduct flood control inspections on various units within their jurisdiction. At the administration headquarters, a “joint supervision group” was formed by the operations, engineering, machinery, electricity, and special protection teams to supervise and assess flood prevention efforts by each emergency response group. A total of 312 people participated in the drill.

Currently, the Taiwan Railways Administration has completed the customization of the severe weather monitoring system and deployed it to various emergency response centers. This system, commissioned by the Taiwan Railways Administration to the Central Weather Bureau, provides real-time rainfall monitoring updated every 10 min for key sections, bridges, and branch rainfall warning points. It serves as reference values for “early warning,” “warning,” and “action” at each monitoring point. The Engineering Department compiles the data submitted by each branch quarterly and requests the Central Weather Bureau’s assistance for rolling corrections to the “early warning,” “warning,” and “action” values of key sections and bridges.

3 Military service team training

To enhance the service skills and emergency rescue capabilities of military service personnel during railway disasters in wartime, the Taiwan Railways Administration and the Ministry of National Defense organized “Military Service Team” training in accordance with the “Annual Military Service Team Training Guidelines.” Two independent district teams were formed, comprising a total of 82 individuals.

1. On August 4, 2023, the Taipei branch conducted the 2023 mobilization training of the military service team, training a total of 42 personnel.
2. On August 11, 2023, the Yilan branch organized the 2023 mobilization training of the military service team, training a total of 40 personnel.



Taipei branch training



Yilan branch training

4 Regular training of the Civil Defense Corps

The training aimed to enhance civil defense knowledge, cultivate the civil defense concept, and improve the operational functions of civil defense teams. This was to establish disaster prevention and rescue, counter-terrorism, self-defense, and self-rescue capabilities in peacetime, thereby implementing national defense mobilization preparations to effectively support military services during wartime and ensure national security. Trainer training for civil defense teams was conducted over eight sessions, involving approximately 332 individuals. Lecturers from civil defense, fire protection, health, and other units provided comprehensive training on civil defense organization, disaster prevention and rescue, first aid for injuries, and fire safety. These trainers then returned to their respective units to educate their colleagues.



Training situation

5 Air defense evacuation training for Taiwan Railways Building

To maintain vigilance in peacetime, the Taiwan Railway Administration utilized military-civilian joint air defense exercises (Wan An) to verify air defense preparation and operation, improve the performance of air defense mechanisms, reduce air raid damage, and ensure the safety of lives and property.

The exercise aimed to enhance public awareness and proficiency in air defense. In conjunction with the “Han Kuang #39 Exercise,” the air defense (Wan An 46) exercise took place on July 24, 2023, from 13:30 to 14:30, using a “warning and zoning” approach. When an air raid warning was issued, all personnel were familiarized with evacuation routes, shelter locations, and protective measures, swiftly taking shelter to minimize injuries. A total of 2,000 individuals participated in the exercise at the Taiwan Railway Building.



War disaster rescue and evacuation exercise at the Taiwan Railway Building

5-9 Celebrating the Railway Festival (136th Anniversary of Taiwan Railways)

On June 9, 2023, the Taiwan Railways Administration celebrated a milestone in Taiwan's railway industry with the Railway Festival, marking the 136th year of operation. The 2023 Railway Festival (136th Anniversary of Taiwan Railways) Celebration Ceremony was held at the Performance Hall of the Taiwan Railway Building. During the ceremony, the Minister of Transportation, Wang Kwo-tsai, presented awards and extended congratulations to Taiwan Railways on achieving this significant anniversary. He honored the dedication of Taiwan Railways' staff, who are committed to providing high-quality transportation services despite numerous challenges. The minister expressed his gratitude for the staff's selfless dedication and highlighted the crucial role of Taiwan Railways in delivering safe and convenient rail transportation. This contribution is pivotal in enhancing public transportation and urban development, thereby improving the quality of life for the public. He reaffirmed the Ministry of Transportation's commitment to supporting Taiwan Railways' corporatization efforts, safety reforms, organizational transformation, and asset development. These efforts are aimed at boosting operational efficiency, stabilizing finances, and ensuring the sustainable operation of Taiwan Railways to reclaim its century of glory.

The celebration also recognized outstanding individuals with awards such as "Friends of Taiwan Railways," "Excellent Volunteers," "Senior Service Personnel," and "Outstanding Personnel," acknowledging their complete dedication to railway operations. The event was attended by officials at all levels, domestic and foreign rail transit operators, and representatives from 17 Japanese railway companies that maintain friendly relations with Taiwan Railways Corporation. Over 600 VIPs were present at the celebration, reflecting the significant impact and legacy of Taiwan Railways in the region.

Director Du Wei emphasized that corporatization is essential for Taiwan Railways' sustainable development. Flexibility in organizational operations and improved efficiency and performance through corporatization are key to accelerating security reforms. Success hinges on the collective support of all colleagues. Future endeavors will entail advancing numerous business initiatives, with safety reform and Taiwan Railways' corporatization being the top priorities. Despite the complexity of the tasks, unity, collaboration, and a willingness to embrace change will pave the way for successful development amid security reforms, stabilization, and transformation.

The state-owned Taiwan Railway (Stock) Corporation is poised for listing on New Year's Day in 2024, marking a significant milestone. Various Railway Festival series activities planned by the Taiwan Railway Bureau underscore the meaningful year ahead. Transformation and reform demand concerted efforts from all Taiwan Railways members, who will bravely confront challenges and obstacles. Upholding the fearless spirit, they remain committed to Taiwan Railways' sustainable development and providing exemplary travel services for the public.



Primary vision of the celebration meeting



Minister of Transportation, Wang Kwo-tsai, delivered a speech



Minister awarded Taiwan Railway Friends



Minister awarded excellent volunteers



Minister awarded senior service personnel



Speech by Director Du Wei



Director awarded outstanding personnel

5-10 Ethics

1 Clean governance platform

With oversight from external agencies such as the Agency Against Corruption of the Ministry of Justice and the Department of Civil Service Ethics of the Ministry of Transportation, the Taiwan Railway Administration established the “Anti-corruption Platform for Car Purchase Cases” and the “Anti-corruption Platform for Intelligent Telecommunications.” These platforms aim to promote transparency by disclosing critical procurement information, facilitating contact meetings, participating in key procurement discussions, conducting on-site inspections, monitoring activities, and documenting anti-corruption ethics incidents. Various preventive measures are implemented to eliminate external interference and ensure the smooth progress of platform procurement cases, fostering a high-quality administrative environment and cultivating efficiency and integrity within the government. The Taiwan Railway Administration convened the 22nd contact meeting of the Anti-corruption Platform for Car Purchase Cases on August 10, 2023, and the 9th contact meeting of the Anti-corruption Platform for Intelligent Telecommunications on November 1, 2023. Consensus was achieved during these meetings, with both anti-corruption platforms successfully fulfilling their designated tasks.



Contact meeting of the Anti-corruption Platform for Car Purchase Cases



Contact meeting of the Anti-corruption Platform for Intelligent Telecommunications

2 Anti-corruption activities

1. Advocacy for clean governance

In targeting government agency colleagues, we have devised, advocated, and promoted anti-corruption education while reinforcing comprehension of relevant laws and regulations among government officials. Throughout 2023, the Taiwan Railway Administration and its affiliated ethics units conducted a total of two special legal and disciplinary advocacy sessions, 2 award-winning quizzes, and four special articles on laws and regulations in collaboration with the bi-monthly personnel magazine. Additionally, we collaborated with the Employee Training Center to host two legal education and training sessions, thereby deepening the legal literacy of our colleagues.

2. Social participation

As the Taiwan Railway Administration transitions into a corporation in 2024, conveying the principles of corporate integrity and sustainable operation to external stakeholders is paramount. To this end, we developed an integrity-focused digital educational resource titled “Sustainable Taiwan Railways, Welcome Aboard.” Alongside the 2023 Railway Festival and the 8th Railway Bento Festival, we conducted a series of promotional activities, including the “Sustainable Taiwan Railways, Welcome Aboard” online quiz game, the “Integrity and Fun” interactive exhibition area, and the “Integrity Management, Sustainable Taiwan Railways, Thank You” stage advocacy event. The audience comprised government employees, the general public, and representatives from domestic and foreign enterprises, resulting in a highly positive reception. Total attendance during the event reached 52,066. Furthermore, the Ethics Office of the Taiwan Railway Administration leveraged local festivals and campus outreach opportunities to organize seven physical advocacy events, attracting a total of 3,930 participants and effectively raising awareness of anti-corruption issues among the public.



Interactive game exhibition area



Stage initiative activities

3 Project audit

To strike a balance between material supply and demand, mitigate risks such as excessive material procurement, misuse of public funds, and improper management, and facilitate colleagues in carrying out their professional duties smoothly while reducing inefficiencies the Taiwan Railways Administration conducted a project audit on “Inventory and Demolition and Receipt of Materials Management” in 2023. An audit team comprising external experts and scholars was assembled, and the audit process included pre-consultation, preparation meetings, and on-site inspections. Policy recommendations were consolidated, and audit effectiveness was enhanced through anti-corruption advocacy, regulatory training, and recognition of outstanding units. These efforts aim to reduce corruption risks, improve management performance, and achieve the goal of sustainable operation.

4 Clean governance report

To uphold clean governance and enhance governance performance, the Taiwan Railways Administration convened a session on clean governance and government security maintenance on September 27, 2023, chaired by the Director. Models of integrity and exemplary units identified in project audits were commended to reinforce behavior and discourage misconduct. Furthermore, special reports and discussions were dedicated to major or high-risk ventures, ensuring thorough communication and deliberation among participating units. External committee members shared insights on risk awareness and risk identification, crucial for effectively identifying organizational anti-corruption risks. All relevant resolutions and instructions from the Chairman were disseminated to all units for collaborative implementation and subsequent management and review. To foster stronger regional ties, the units under the Taiwan Railway Administration held a total of nine regional anti-corruption reports, thereby enhancing the quality of anti-corruption efforts and solidifying employee consensus on integrity.



Clean governance report by the Taiwan Railways Administration

5 Information usage management audit

In 2023, the Taiwan Railway Administration conducted a management audit of information usage of ticketing system in 2023. Spanning from May to August 2023, the audit adhered to the prescribed schedule and scrutinized 10 key aspects, including system query trajectory logs, abnormal system access, reporting of abnormal system access, progress in implementing the ISMS, responsibilities and training of full-time personnel in information security, outsourced information security management, management of personal data protection and encryption mechanisms, access permissions and personnel management, information asset management, and response and disposal of information security incident reports. This audit randomly assessed one unit within the Taiwan Railway Administration and 22 affiliated stations to ascertain compliance with pertinent regulations and information security management systems such as the Personal Data Protection Law and the Information Security Management Law throughout the ticketing process. The aim was to effectively prevent leakage and improper use of official secrets and personal information, thereby ensuring the security of ticketing data, systems, equipment, and networks.



5-11 Cultural assets

1 Cross-unit cooperation to promote railway culture

In a bid to promote Taiwan's railway culture and deepen railway education, the Taiwan Railway Administration collaborated with the Taiwan Historical Resource Managers Association and the Taiwan Railway Cultural Volunteer Team to organize the "2023 Historical Site Summer Camp with Taiwan Railways" for primary and secondary school students on July 25, 2023. This initiative centered around Taiwan's railway stations and cultural resources along railway lines, adopting an experiential learning method through cultural field trips. Students engaged in educational activities at Taipei Station, Shanjia Station, Songshan Station, and the Railway Police Station, exploring areas such as the station master's office, ticket office, and station travel service facilities.

The Taiwan Railway Administration collaborated with the Archives Management Bureau of the National Development Commission to organize the "Miracle Island - 1970 - 1980 Taiwan Construction Archives Special Exhibition from Development to Conservation." This exhibition commenced on October 18, 2023, with a focus on the construction of the North-Link Line, portraying the historical journey of its development. Through themes such as construction background, funding, and engineering challenges, it highlighted the significance of railway construction.



Teaching ticket purchasing



Introduction to station service facilities



Exhibition site of "Miracle Island"

2 Improve railway culture and conduct on-site visits

The Taiwan Railway Administration boasts a rich railway culture, with over 110 cultural assets registered under the Cultural Asset Preservation Law. Additionally, more than 2,900 items have been registered in the cultural relics section following review by the Railway Cultural Preservation and Utilization Group, underscoring the organization's commitment to preserving railway cultural heritage.

To effectively manage preservation and utilization efforts, the Cultural Resources Division of the Comprehensive Planning Department conducted field visits for railway cultural preservation and utilization in 2023, covering 18 sites. Apart from reaffirming the status of cultural relics, valuable insights were exchanged with each unit, fostering collaborative planning and implementation to ensure the sustainable preservation of railway culture.



On-site visit to Kaohsiung depot



Confirm the status of cultural relics



Meeting discussion and exchange

3 Carry out education and training in various districts to establish a strong cultural foundation

To instill the concept of railway cultural relics registry and preservation among colleagues and equip them with essential judgment skills for related tasks, the Taiwan Railway Administration conducted four education and training sessions on railway cultural relics registry and preservation across the northern, central, southern, and eastern districts in 2023. These practical sessions featured lectures by Tsai Chin-yan from Lancuo Creativity, aiming to share insights and experiences in cultural relics registry and preservation by a professional team. The objective was to facilitate the seamless execution of future plans through interactive exchanges among frontline colleagues of the Taiwan Railway Administration.



North District Education and Training Site



Central District Education and Training Site

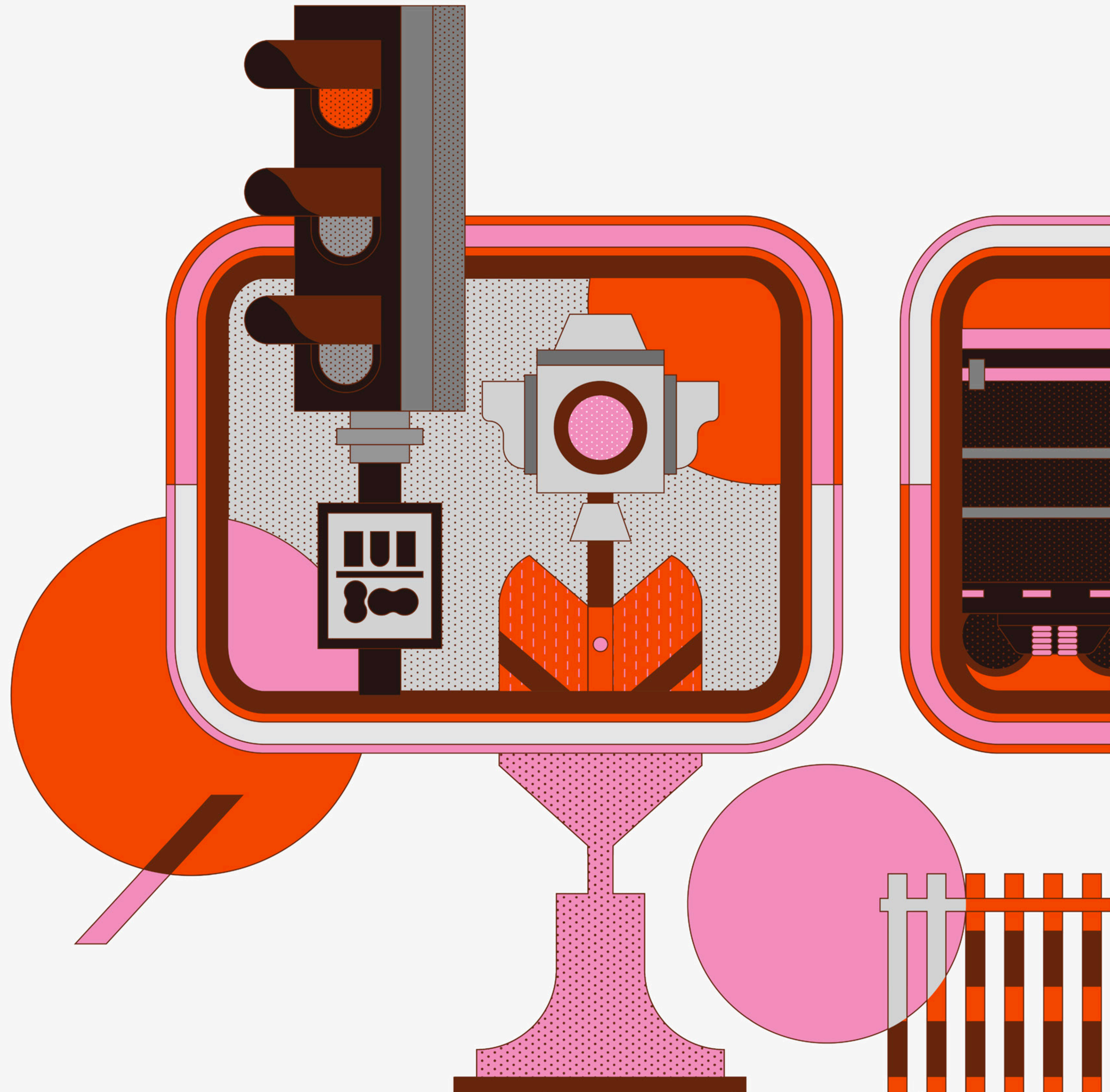


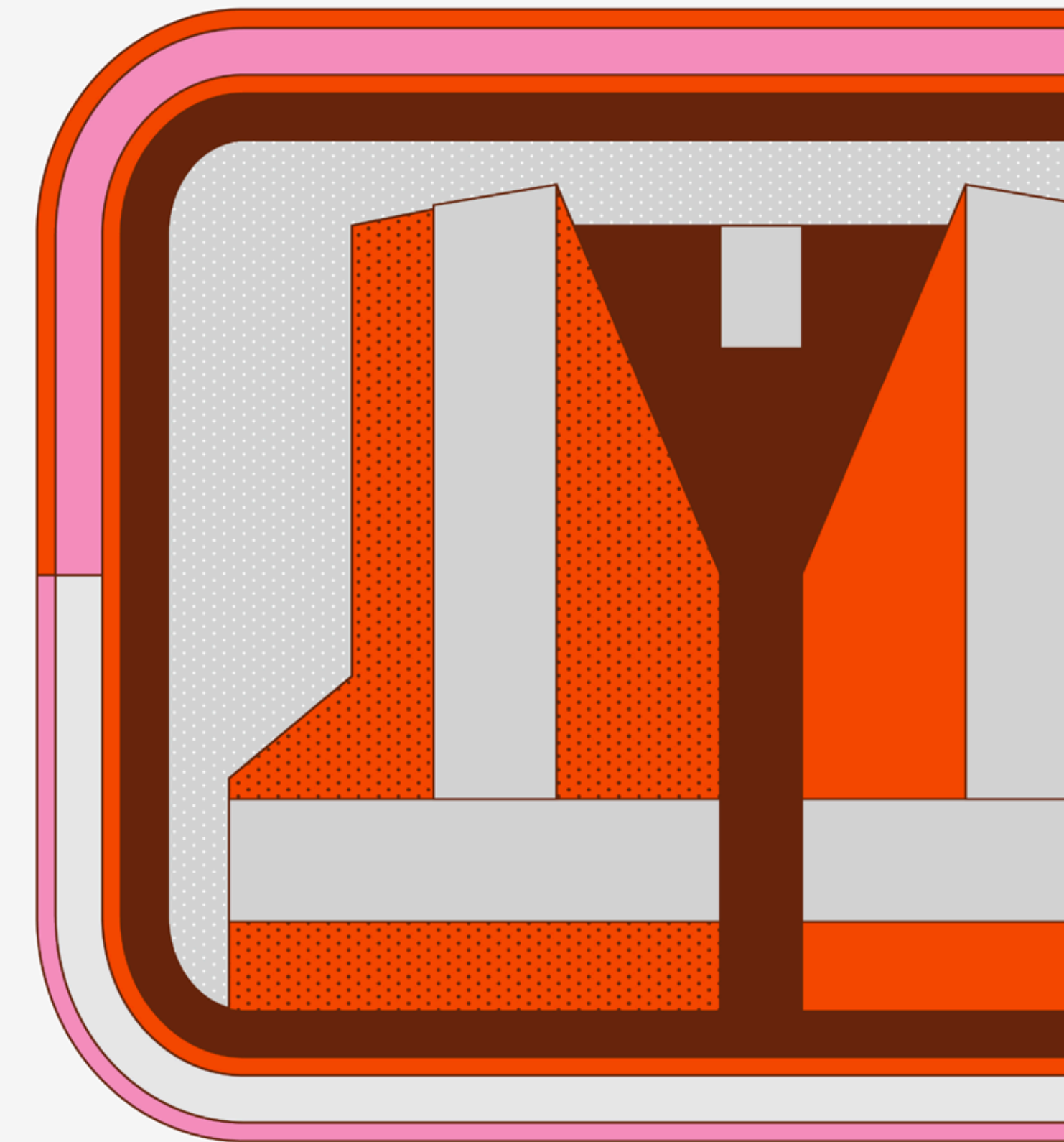
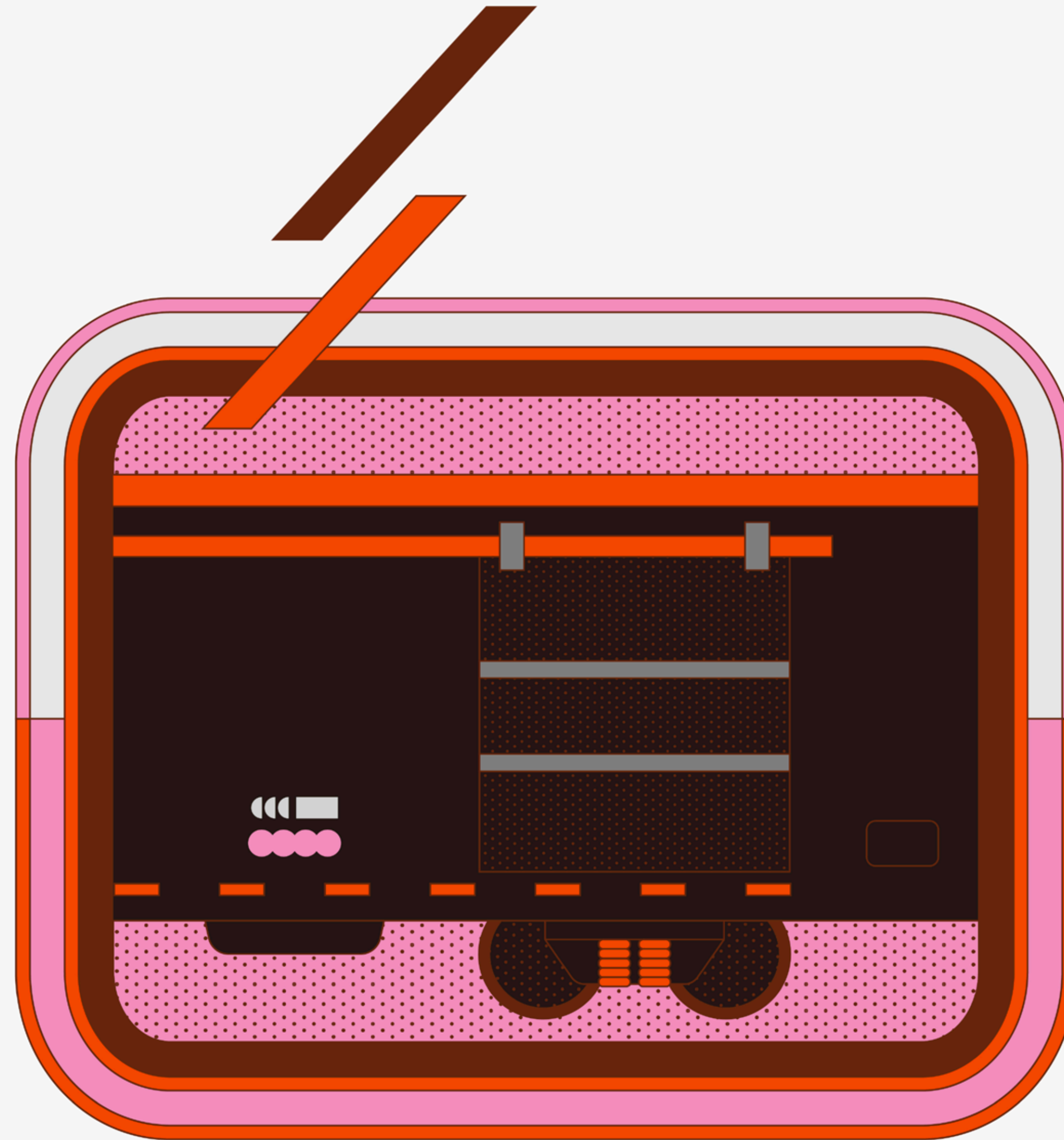
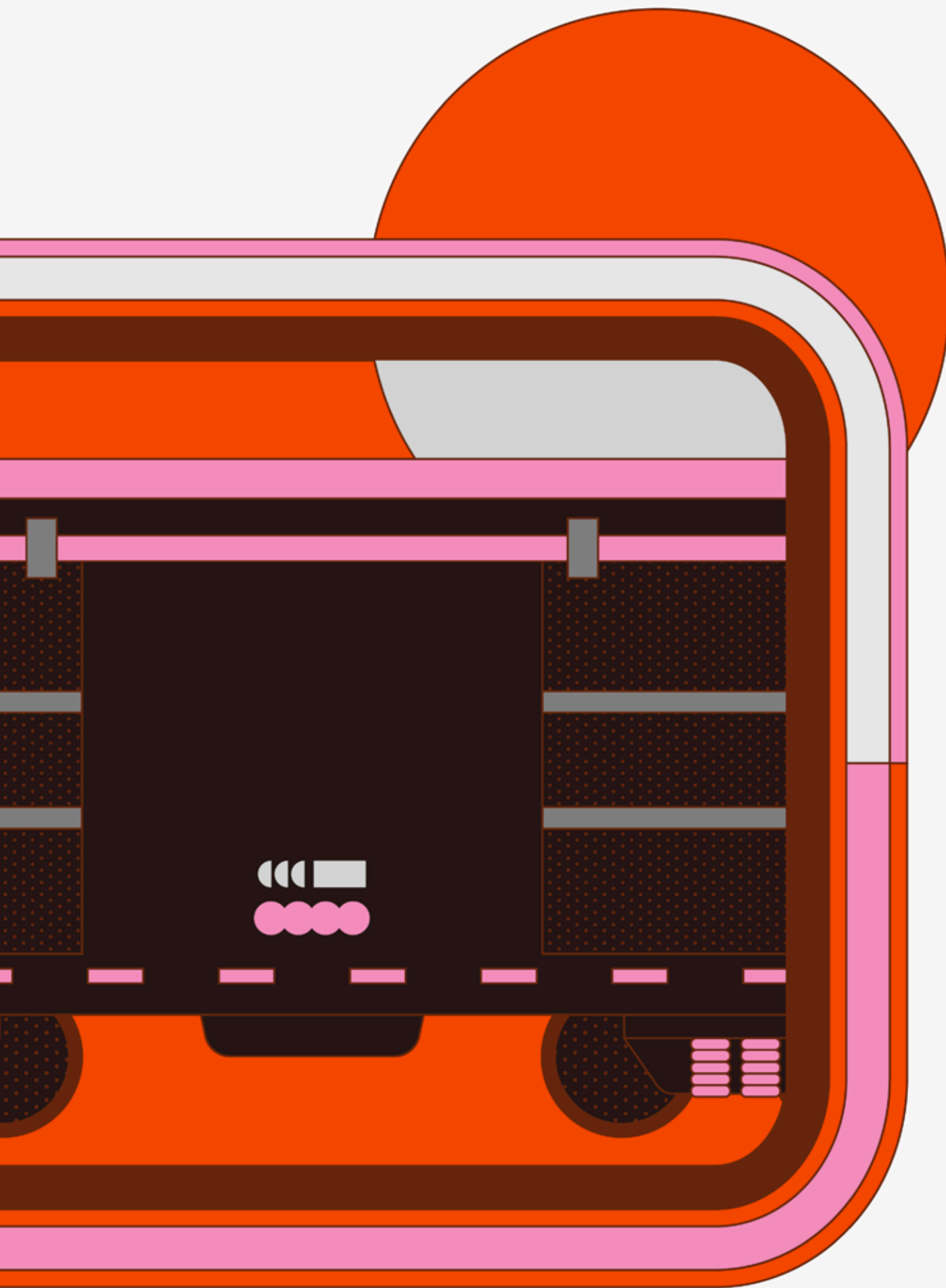
Lancuo Creative Enterprise Society Explanation from Teacher Tsai Chin-yan

6

CHAPTER

Major projects and
investment construction





- 6-1 Security reform
- 6-2 Railway operation safety improvement plan
- 6-3 Forward looking plan
- 6-4 Rail structure security improvement plan
- 6-5 Feasibility study plan for the improvement project of the “Guishan-Waiao” section of the Yilan Line
- 6-6 Feasibility study on route improvement of Yilan Line

- 6-7 Construction plan for vehicle intrusion barrier facilities and alarm systems
- 6-8 Overall procurement and vehicle replacement plan of Taiwan Railways (2015–2024)
- 6-9 Kaohsiung depot relocation to Chaozhou and original site development plan
- 6-10 Kaohsiung depot Chaozhou base phase II construction plan
- 6-11 Route maintenance engineering

6-1 Security reform

1 Security reform

1. Completion of the Security Management Information System (SMIS)

Since June 2021, the Taiwan Railway Administration has been actively pursuing security reforms and establishing Key Performance Indicators (KPIs). In 2023, the organization reported no major traffic accidents and a reduction in general traffic accidents by one compared to the previous year. The statistical results are detailed in the table below:

Security performance indicator	2022	2023	Comparison
Number of major traffic accidents	2 cases	0 cases	-2 cases
Number of general traffic accidents	41 cases	42 cases	+1 cases
Number of abnormal traffic events	616 cases	732 cases	+116 cases

Note 1: No major traffic accidents occurred.

Note 2: The number of general traffic accidents was increased by 1 compared with that for the same period last year. Specifically, the number of death and injury accidents was decreased by 5 compared to 30 in the same period last year, the number of derailment and collision was 5, which was the same as that for the same period last year, and the number of level crossing accidents was increased by 5 compared to 6 in the same period last year.

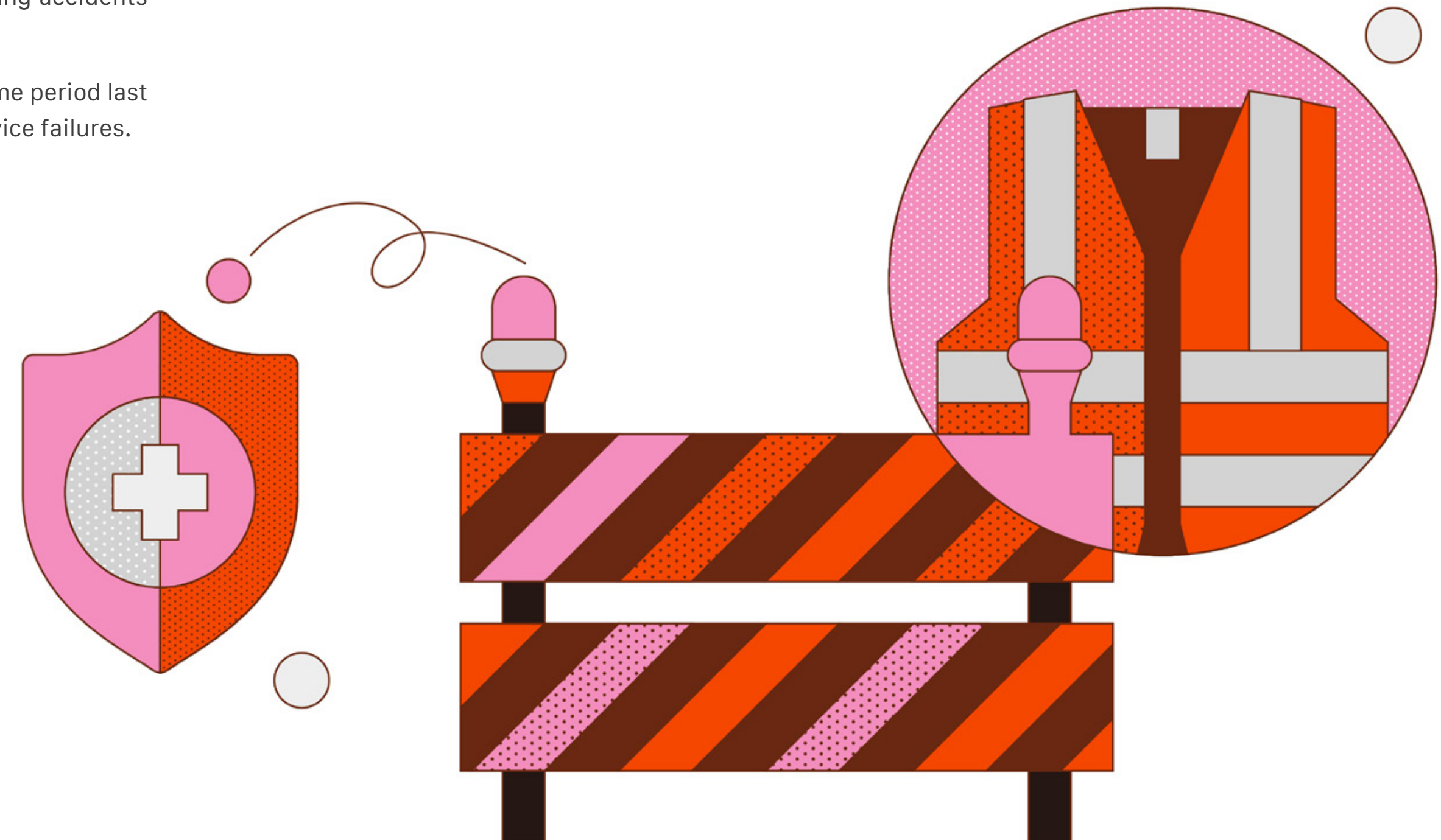
Note 3: The number of abnormal traffic incidents was increased by 116 compared to the same period last year, mainly due to an increase of 40 vehicle failures and 56 operational security device failures.

Achievement rate of safety performance indicators in 2023

Security performance indicator	Actual number of items (people)	Target value	Actual value	Remarks
Major traffic accident rate	0	≤ 0.058	0	Target achieved
General traffic accident rate	40	≤ 0.920	0.836	Target achieved
Abnormal traffic incident rate	737	≤ 11.925	15.410	Target achieved
Passenger mortality rate	0	0	0	Target achieved
Passenger serious injury rate	0	0	0	Target achieved
Passenger minor injury rate	0	0	0	Target achieved

Note 1: Target values for major traffic accidents, general traffic accidents, and abnormal traffic accidents were the average number of cases in the past three years multiplied by 0.9 per million train kilometers on average in the past three years.

Note 2: Target values for passenger mortality rate, passenger serious injury rate, and passenger minor injury rate attributed to the Taiwan Railways Administration were zero.



Under the supervision of the Executive Yuan and the Ministry of Transportation, we have accelerated various improvement measures in our comprehensive reviews and have vigorously promoted security reforms. Through inspections that encompass personnel, vehicles, and infrastructure, we have actively advanced various security enhancement measures. These include six strategies and thirty-four plans designed to improve construction site management, repair and reinforce high-risk road sections, enhance track structure and power equipment for traffic signaling, ensure vehicle availability, promote the SMS, and introduce a professional technical service team. This team has been crucial in internalizing and implementing various operational guidelines at the grassroots level, thereby fostering a safety culture.

From 2022 to 2023, a professional service team was engaged to establish a risk management and performance-oriented management mechanism. Units at all levels have been effectively guided to promote SMS operations and complete the establishment of the SMIS. Practical operation instructions were finalized and presented on August 23, 2023, and external committee members, comprising experts and scholars, were invited to provide assistance and guidance. The system was officially launched on December 28, 2023.

To leverage Japan's expertise in promoting railway safety reform, the Ministry of Transportation invited a Japanese delegation of four, including Professor Abe, to engage in workshops, on-site visits, and thematic discussions. These activities provided valuable insights to Taiwan Railways' related agencies and operating institutions, advancing the security reforms of Taiwan Railways.



Drawing on JR West Japan to Promote Security Reform - Special Seminar



Establishing Safety Culture Continuously



Promote Security Management System (SMS) and third-party evaluation



Four major dimensions of security management system



12 Key Items Architecture of Security Management System



- ① Safety policy/objectives and resources
- ② Safety responsibilities and key personnel
- ③ Safety risk management
- ④ Safety education and training and competency management
- ⑤ Safety information transmission and communication
- ⑥ Equipment management and operation management
- ⑦ Safety documents
- ⑧ Event/accident reporting and investigation
- ⑨ Change management
- ⑩ Emergency response
- ⑪ Audit, review and evaluation
- ⑫ Continuous improvement

2 Establishing a Vehicle Maintenance Management Information System (MMIS)

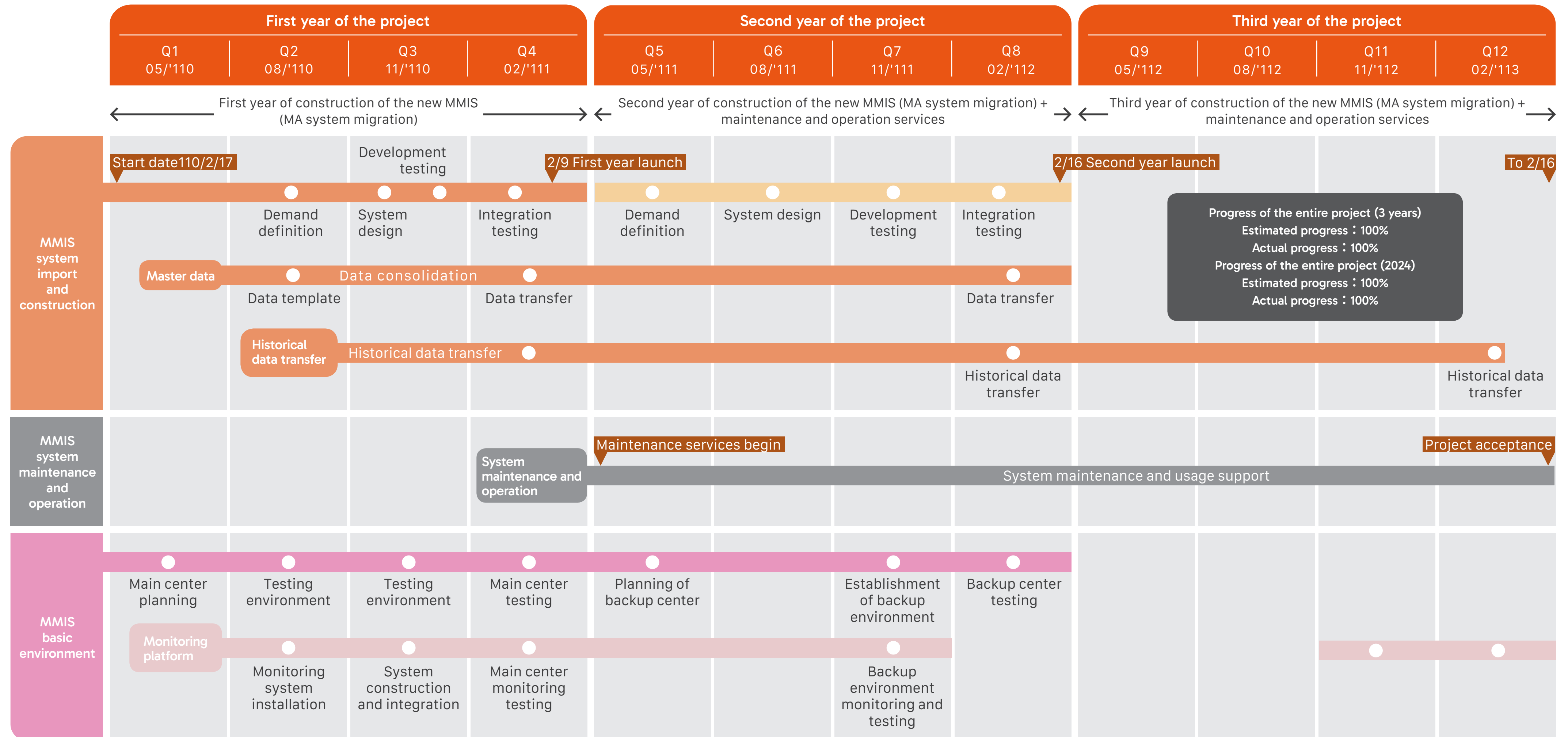
In line with the Taiwan Railway Administration’s 10-year vehicle purchase plan and the phased introduction of new vehicles, a new-generation vehicle maintenance information management system (MMIS) will be developed for use by vehicle maintenance units. The system's primary goal is to manage the work plans and work orders for vehicle maintenance, meet the inspection and maintenance needs, and integrate with other information systems of the Taiwan Railways Administration to facilitate data exchange. This integration aims to enhance operational reliability, reduce unforeseen failures, and maximize vehicle utilization.

The project was initiated on February 4, 2021, with construction beginning on February 17, 2021. It is structured in two phases: the first from February 2021 to February 2024,

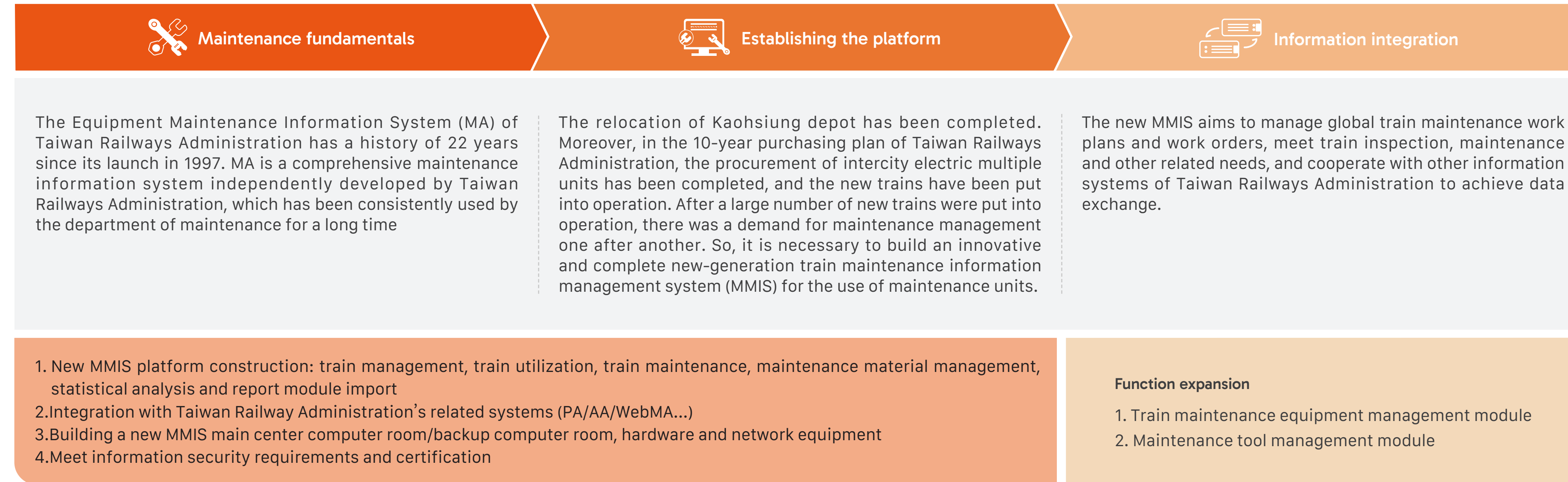
and the second from February 2024 to February 2027, covering a total duration of six years.

As of February 16, 2023, three system modules—fault notification service, action application, and repair cost management—along with 73 sub-functions, were operational. These functions include fault notification, action application, repair cost management, inventory management, train equipment, work plan, preventive maintenance, work orders, repair materials, statistical reports, and a performance indicator kanban. The comprehensive functionality of the system supports the monitoring of maintenance KPIs, the dynamic distribution of vehicles, and the fault reporting processes, enhancing the operational oversight for each factory section.

MMIS Plan Schedule



Based on existing maintenance foundations, established new platforms and achieved the goal of information integration



6-2 Railway operation safety improvement plan

This plan was approved by the Executive Yuan in 2014, with a budget allocation of NT\$27.522 billion. It originally spanned from January 1, 2015, to December 31, 2020. Following the second revision, the plan was re-approved under the Taiwan Transportation No. 1110028568 Letter by the Executive Yuan on September 28, 2022. The budget remained unchanged, and the timeline was extended to December 31, 2024.

1 Public works

1. Main content of the plan

- (1) Installation and improvement of level crossing signals: Fiber optic engineering for remote monitoring and transmission of level crossings and automatic obstacle detection engineering.
- (2) Reconstruction and reinforcement of bridges to comply with existing legal regulations: The reconstruction of two bridges, Xiaqijie Bridge and Qiwulanchuan Bridge, has been completed.

- (3) Establishment of slope sliding, debris flow, and strong wind warning systems: The slopes, roadbeds, and drainage facilities of high-risk sections along the Taiwan Railways were improved, and a slope disaster prevention and warning system was established.
- (4) Station facilities update in accordance with laws and regulations: The platforms of all stations on the Taiwan Railways have been elevated, and safety facilities such as barrier-free facilities have been improved.
- (5) Track facility update: Taiwan Railways replaced 250 km of 50 kg steel rails, 60 km of 50 kg hard-headed steel rails, and 600 sets of 50 kg PC sleeper-type switches along the entire line. The Xinma bend was also improved.

2. Implementation results

- (1) In 2023, platform elevation was completed at 6 stations, including Dongli, totaling 132 stations to date.
- (2) In 2023, barrier-free elevators at Zhuifen and Gongliao Stations were installed, bringing the total to 179 stations across the Taiwan Railways Administration that have this facility.
- (3) The slope rockfall-related alarm system, part of the full life cycle maintenance and management of slopes (early warning and management system turnkey project), was completed in 2022. The system construction at 26 locations along the entire line was completed, and the entire line was under online monitoring before the flood season in 2023.



Platform elevation was completed at Sanmin Station



Platform elevation was completed at Dongli Station



Newly installed barrier-free elevator at Gongliao Station



Equipment in the front and rear station operation rooms



Xiaqijie Bridge reconstruction project (north side)



Xiaqijie Bridge reconstruction project (south side)

2 Project Engineering

1. Wencuobuxi Bridge reconstruction project

This project, initiated as part of the 2008 governance plan by the Water Resources Administration of the Ministry of Economic Affairs, transformed the original Wencuobuxi steel beam bridge into a pre-stressed concrete bridge. This transformation included elevating the bridge to enhance local traffic flow and pedestrian safety by eliminating three level crossings. Additionally, the cross-section of the Wencuobuxi River was enhanced, the elevation of the beam bottom was raised to improve railway safety, reduce the risk of surrounding floods, and increase the safety of residents during the flood season.

The project commenced on April 22, 2018. The transition to the Dongzheng Line was completed on May 21, 2022, and the construction of the bridge deck, track, and electromechanical systems of the Xizheng Line was finished on December 13, 2023. Independent inspection work prior to the track switching is currently ongoing.

The main content includes the following:

- (1) Improving the problem of insufficient span and beam bottom elevation: The elevation of the bridge was raised by 2.27 m, reducing the probability of train stoppages. The bridge spans 67 m, allowing it to cross the Wencuobuxi River directly without any piers.
- (2) Reducing the impact of train passing noise on residents: The track was constructed using permanent, long welded steel rails, which significantly diminish the noise from trains.
- (3) Increasing road driving safety: With the elevation of the entire line, three level crossings—Liuying South, Zhuyuanpi, and Nongchanglu—were removed. This alteration has improved local traffic conditions and enhanced the safety of road users.



Wencuobuxi Bridge reconstruction project



2. Third Shuangxi and Xinshe Bridges reconstruction project in Yilan

This project was designed to align with government efforts under the "Flood Control Plan for Flood-prone Areas" by enhancing the structural integrity and safety of the Third Shuangxi Bridge, Xinshe Bridge, and the 1.84 km embankment between them. The improvements are part of the "6-Year Plan for Railway Traffic Safety Improvement - Third Shuangxi Bridge and Xinshe Bridge Reconstruction Project," which aims to comply with the governmental initiatives to improve the Shuangxi River water system and societal expectations to manage flooding effectively and enhance the structural and line shape integrity of railway bridges.

The project commenced on September 30, 2018. As of now, the construction of the bridge deck and track on the Xizheng Line was completed on November 10, 2023, and the construction of the electromechanical system began on November 22, 2023.

The main content includes the following:

- (1) Improving local flooding issues: The elevation of the bridge bottom was increased from 6.57 m to 9.2 m, a change of 2.63 m, significantly enhancing the flood control capacity.
- (2) Improving ride comfort: The radius of the curve was expanded from 600 m to 1600 m, and the driving speed was increased to 130 km/h, which considers both safety and ride comfort.
- (3) Railway operation service was enhanced: Safe corridors and disaster-preventive environments were developed to minimize disruptions in railway operations caused by typhoon-related disasters.
- (4) Protecting the ecology of Tianliaoyang Wetland: The bridge design was modified, and environmentally friendly construction techniques were employed to minimize impacts on the ecological environment.



Third Shuangxi and Xinshe Bridges reconstruction project

3 Equipment

1. Stepless transformation of carriages

To enhance passenger safety, the project aimed to eliminate the height difference between the floors of railway carriages and the station platforms. By 2023, a total of 1,208 carriages had been renovated.

2. Train speed limit backup system

In collaboration with the Taiwan Railways Administration and the Chinese Academy of Sciences, a "train speed limit backup system" was developed to bolster railway safety. As of 2023, 397 sets of this equipment were operational, excluding one accident-involved train and two scrapped trains).

3. Power system and static inverter (SIV) system updates for 252 commuter electric multiple units (EMU500 model)

Shilin Electric Co., Ltd. was responsible for the updates. By 2023, all updates for the 63 sets (comprising 252 units) were completed.

4. Add vehicle recording CCTV for EMU500 models

By the end of 2023, CCTV systems had been installed in 332 units.

4 Telecommunications

1. Fiber optic engineering for remote monitoring and transmission of level crossings

- (1) In response to societal development and environmental changes, the Taiwan Railways Administration executed the "6-Year Plan for Railway Traffic Safety Improvement," which incorporates the Fiber Optic Engineering initiative for Remote Monitoring and Transmission of Level Crossings. This project replaces traditional metal cables with fiber optics to enhance the safety level at level crossings, thereby reducing the occurrence of train accidents, ensuring safer and more reliable train operations, and improving the quality of passenger travel.

(2) The "Fiber Optic Engineering for Remote Monitoring and Transmission of Level Crossings" project was successfully completed on April 24, 2023. This comprehensive project installed infrastructure components including 175 sets of backbone switches, 675 regional switches, and 1,085,030 m of fiber optic cables. Responsibilities encompassed the communication and transmission tasks of level crossing safety equipment such as obstacle automatic detection systems, video monitoring systems, and centralized monitoring of level crossings. Additional tasks included signal interlocking and central train control systems management for the round-the-island railway. This project also aligned with the ongoing "Taiwan Railways Telecommunications Intelligent Enhancement Plan." Post-updates scheduled for completion in 2027 are expected to significantly enhance the safety and reliability of the signal systems. Remote monitoring and statistical analysis technologies have been deployed to allow real-time monitoring of on-site equipment statuses. This capability facilitates proactive planning for adjustments, maintenance, and replacements by on-site personnel, thereby minimizing equipment failures and enabling a more flexible use of the workforce to boost efficiency and meet operational demands.



Regional ring L2 switch



Fiber optic cable connection box

6-3 Forward looking plan

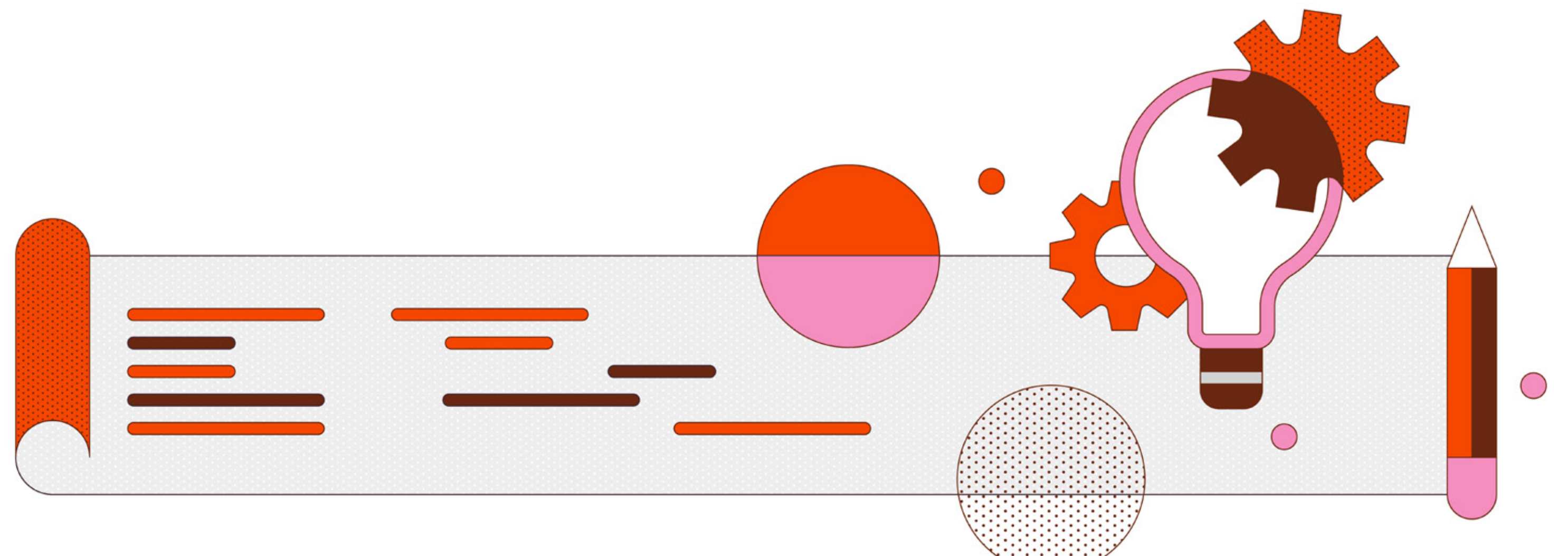
1 Transfer and connection plan between Changhua high-speed rail station and Taiwan Railways

1. Plan content

The Transfer and Connection Plan aims to facilitate seamless integration between Changhua High-Speed Rail Station and Taiwan Railways, including a connection to the Jiji line and enhancement of tourism services. The projected budget for this initiative is NT\$2.955 billion, covering an estimated period of 7 years. The plan primarily involves the construction of the Tianzhong branch line, which spans approximately 3.135 km. This includes about 1,475 m of elevated sections, 1,500 m of embankment sections, and 160 m of elevated station sections. Newly laid single tracks at Taiwan Railways' Tianzhong Station will connect to the High-Speed Rail Changhua Station. Additionally, the Jiji line will be integrated for series operation, with added intersection functions.

2. Implementation results

The final feasibility study report for the transfer and connection between Changhua High-Speed Rail Station and Taiwan Railways was submitted to the Executive Yuan by the Ministry of Transportation on August 29, 2019, and received approval on September 27, 2019. The comprehensive planning assignment was endorsed by the Executive Yuan on October 28, 2022, and was subsequently entrusted to the Railway Bureau for planning, design, supervision, and construction. The agency agreement was executed on December 2, 2022, and design activities commenced on July 10, 2023.



2 Taiwan Railways telecommunications intelligent enhancement plan

1. Fifteen tram line working vehicles and 10 railway boom trucks

- (1) Currently, each power section possesses a total of 40 tram line working vehicles, distributed across 17 stations. Among these, 14 vehicles have been in service for over 20 years, including 8 that have been used for over 30 years. Additionally, each telecommunications section has eight railway boom trucks, assigned to four different sections, which support the maintenance of signal equipment.
- (2) In recent years, with the gradual electrification of the Kaohsiung-Pingtung, Yilan, North-Link, Huadong, and Pingchao lines, and the addition of new branch lines such as Shalun and Neiwan, the total mileage of electrified lines has increased significantly. This expansion has heightened the demands on power maintenance capabilities. To address the aging fleet and enhance maintenance efficiency, it is planned to acquire 15 new electric maintenance vehicles and 10 railway boom trucks. These new vehicles will replace those past their service life, reduce failure rates, expand the operational range of maintenance crews, and improve both efficiency and the timeliness of repairs.

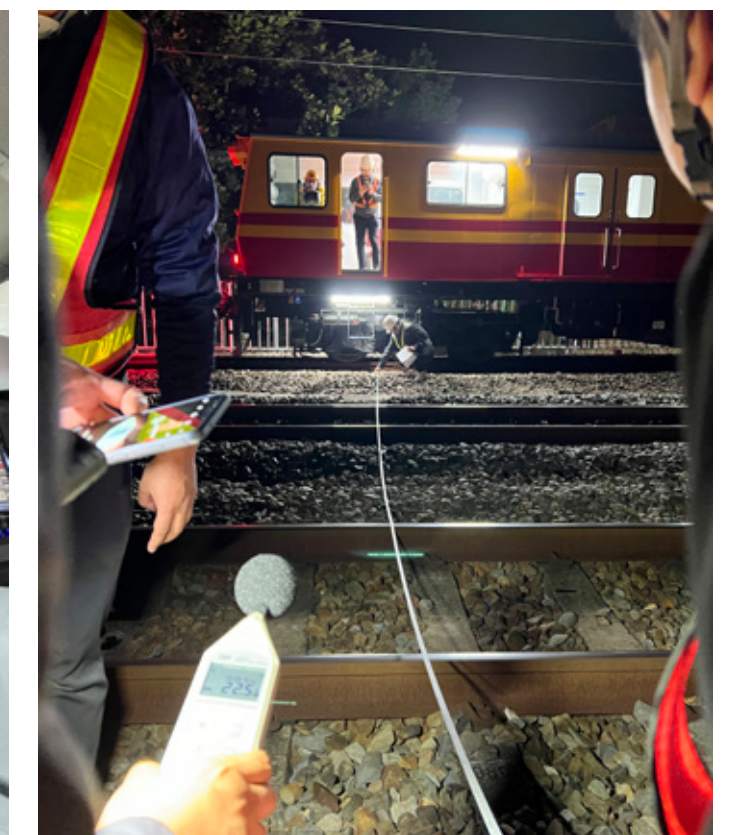
- (3) Aligning with the Ministry of Transportation's principles of "safety," "efficiency," "quality," and "green," this project aims to enhance sustainability and operational efficiency. By utilizing tram line working vehicles, the project will reduce the reliance on road vehicles, saving an estimated 18,000 liters of gasoline and 15,000 kWh of electricity annually. Furthermore, the reduction in electricity use is expected to decrease carbon dioxide emissions by approximately 9,555 kg each year, considering that producing 1 kWh of electricity generates 0.637 kg of carbon dioxide. In terms of safety and efficiency, the working vehicles equipped with platforms will facilitate elevated operations, which are safer and more efficient, thus ensuring the safety of the maintenance personnel and delivering superior service quality to the public.
- (4) In 2023, the new tram line working vehicles and railway boom trucks began arriving at the port and were subsequently inspected as per the contractual specifications to ensure they met all required standards.



Speed testing of the first batch of tram line working vehicles and railway boom trucks



Noise test inside the boom truck



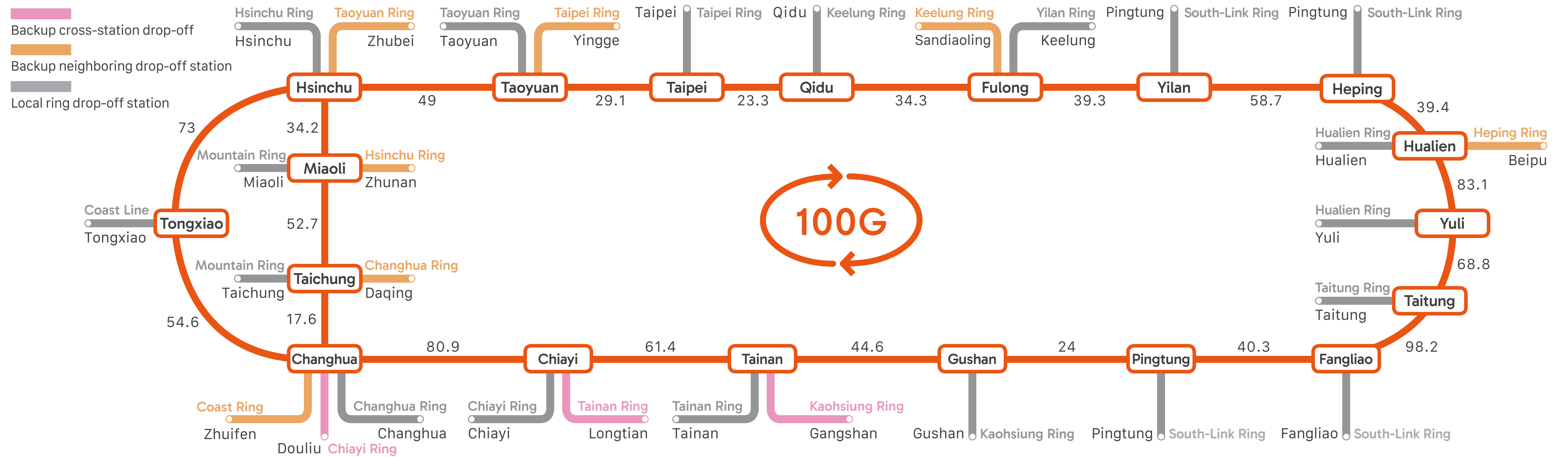
External noise testing of tram line working vehicles

2.Round-the-island fiber optic transmission network system update project

The “Round-the-island Fiber Optic Transmission Network System Update Project” was newly established with a 100G transmission rate, designed to accommodate the IP-based interfaces of various subsystems of the Taiwan Railways Administration in the future. It aims to meet the needs for high-speed, high reliability, and high scalability communication and transmission. The project completion and acceptance occurred

on September 25, 2023. The system is equipped with an automated alarm feature that, upon activation, displays the location of the alarm, the data center, and the specific equipment or module that failed. This alarm signal is integrated with the Team+pro SMS system of the Taiwan Railway Administration, enabling intelligent and proactive notifications to relevant supervisors and on-site duty personnel.

The IP/MPLS telecommunications network transmission system has a total of 15 regional rings in Taiwan

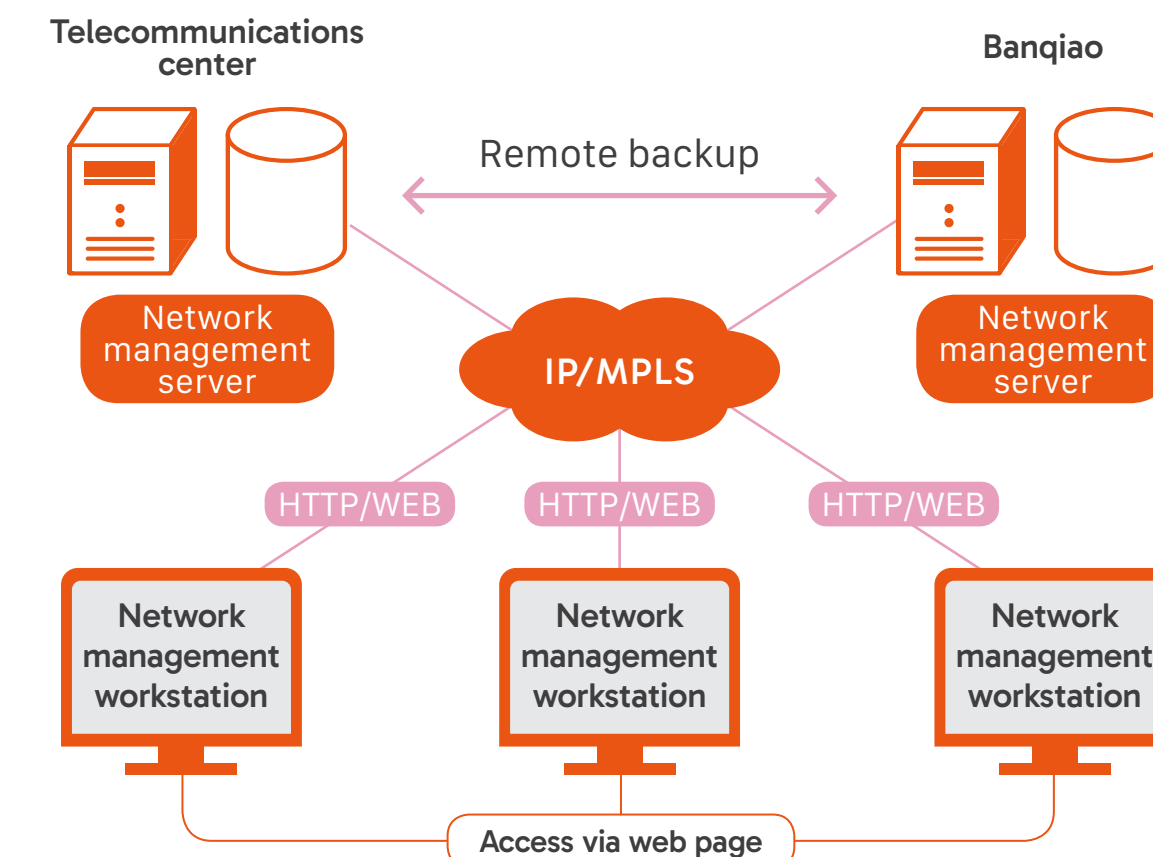


Management and backup of the IP/MPLS telecommunications network transmission system

	Network management server	Network management workstation
Telecommunications center	1	2
Taipei telecommunications section	1	7
Changhua telecommunications section		4
Kaohsiung telecommunications section		6
Hualien telecommunications section		5



Graphical human-machine interface operation



3. Second ring layout project of the round-the-island 96-core fiber optic cables:

This project commenced on June 28, 2019, and reached completion with its acceptance on February 10, 2023. A total of 613 km of fiber optic cables were laid out across the project. The system's protection mechanism was upgraded to a double loop physical fiber optic cable configuration to enhance the reliability of communication transmission within the Taiwan Railways Administration's network and the tourism transportation systems.

4. 1,424 sets of crossing barriers (including installation)

- (1) The bid for this project was awarded on March 16, 2021, with construction beginning the following day. This project marked the first instance of the Taiwan Railways Administration using localized production for all machinery, tailored to current usage requirements and customized material specifications.
- (2) The developed crossing barriers feature customizable appearances and sizes and are equipped with various types of crossing rods. The barriers utilize a modular design with sealed bearings that do not require oil maintenance, achieving a dust and waterproof rating of IP55. Additionally, these barriers are capable of passing the IEC/JIS/EN vibration tests. They are also intelligent, capable of learning, and comply with railway safety regulations, including the detection of broken rods at level crossings.
- (3) The barriers are controlled by a new-generation system that includes a high-speed processor capable of fast output. The system is characterized by its anti-interference properties, high-temperature resistance, and a fail-safe design suitable for use with AC/DC current, bipolar current, and DC pulse current. It can store over 3,000 sets of records and transmit them in real-time to the control center via an RJ-45 network interface. The system includes built-in storage for monitoring and alarm functions. As of December 2023, mass production had yielded 1,220 units, with 180 units already installed at various level crossings. Full installation across all sites is anticipated to be completed by August 2024.



Overall appearance of the crossing barrier



Internal view of the controller of crossing barrier

5. Update project for the level crossing video surveillance system, automatic protection centralized monitoring device, and manual alarm system

The bid for this project was awarded on July 14, 2022, and construction commenced on November 7 of the same year. The project is designed to enhance the protective infrastructure at the round-the-island level crossings through the integration of video surveillance systems, centralized monitoring devices, and manual alarm system hosts. It incorporates existing automatic obstacle detection systems, which are augmented with intelligent functions to facilitate big data analysis for preventive maintenance and replacements, aimed at reducing equipment failure rates and optimizing workforce utilization. The key functions of the software system are as follows:

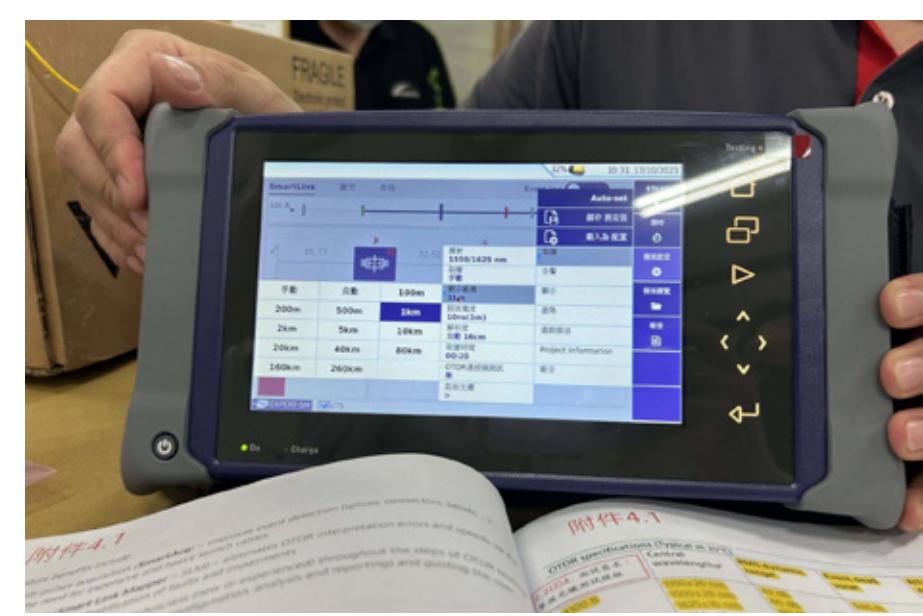
- (1) Integrates the interfaces of various secondary systems and intelligent alarm systems at the level crossings.
- (2) Enables quick access to the operational status of level crossing equipment, collects data on equipment operation, and analyzes the overall system equipment status to predict potential equipment failures.
- (3) Acquires real-time images from level crossings to analyze the presence and behavior of pedestrians and vehicles. This includes the ability to recognize bicycles, motorcycles, cars, large vehicles, and license plate numbers, as well as pedestrians.

- (4) Allows for the remote activation of the emergency alarm and the resetting of the level crossing systems.
- (5) Provides highway signal interlocking and displays text signals on large directional indicators at level crossings.
- (6) Handles data related to vehicle congestion, blockage at level crossings, abnormal crossing barriers (including early warning notifications), and obstacle intrusion detection (including historical data). This information is transmitted back to the management workstation for storage, analysis, and triggering of sound and light alarms. Additionally, the system retains expandable mobile communication applications (such as Team+ and Line) for synchronized information push and playback.

As of December 2023, the project's cumulative progress reached 21.49%. It is projected to be completed by November 2025.



CMT centralized monitoring host



Obstacle detection analyzer

3 Infrastructure improvement plan for Taiwan Railways Jiji Line

This plan encompassed hardware construction, track alignment, and slope stability testing and enhancement at various stations along the Jiji Line to bolster the overall service capacity of the branch line and augment the convenience, safety, and tourism experience for passengers. The total budget allocated for this project was NT\$2.363 billion, spanning from August 23, 2019, to July 31, 2026.

The plan received approval from the Executive Yuan on August 23, 2019. The rail project's contracted work was completed on September 13, 2023. Following this, the excavation of Tunnel 2 commenced on August 11, 2023, and is currently in progress.

The main content of the plan included platform elevation and extension at various stations, improvement of station exterior and travel facilities, improvement of fence and drainage facilities along the line, slope stability reinforcement and remote monitoring, bridge and tunnel rerouting and reconstruction, improvement of track alignment, station track function enhancement, and level crossing relocation.



Track engineering (replacement of ballast)



Tunnel and slope improvement turnkey project (shotcrete pouring)

6-4 Rail structure security improvement plan

1 Plan content

This plan received approval via the Taiwan Transportation No. 1080199278 Letter issued by the Executive Yuan on January 21, 2020. It features a total budget of NT\$9.9003 billion and spans from 2020 to 2025. The primary objectives include the replacement of 1,946 sets of wooden sleeper-type switches with PC sleeper-type switches across the entire railway line, the replacement of 250 km of steel rails, the renewal of road maintenance machinery, and the procurement of 74 sets of road maintenance machinery.

2 Implementation results

1. As of 2023, 1,154 sets of switch materials have been delivered, with the remainder to be delivered progressively.
2. Delivery of all rail materials totaling 250 km has been completed.

3. Contracts for 41 large and medium-sized track tamping vehicles, track ballast trucks, and track stabilization vehicles, totaling a budget of NT\$3.17 billion, were awarded on September 22, 2023.
4. A procurement process for 25 engineering maintenance vehicles, with a budget allocation of NT\$807 million, is scheduled to commence with a bid opening on January 2, 2024.
5. Seven sets of track skeleton carriers, valued at NT\$354 million, were successfully awarded on June 6, 2023.

6-5 Feasibility study plan for the improvement project of the “Guishan-Waiao” section of the Yilan Line

1 Plan content

The improvement involves constructing a long tunnel, starting from Guishan Station with a curvature exceeding 1,000 m, to bypass disaster-prone areas and residential structures at the tunnel's exit. This tunnel will connect northward to the existing line from Waiao Station. The current layout of the curves at Waiao Station and its northern extension will remain unchanged. The total budget for this project is NT\$2.334 billion, with completion expected within six years from the date of approval.

2 Implementation results

1. The feasibility study received approval through the Taiwan Transportation No. 1080034550 Letter from the Executive Yuan on November 25, 2019. Comprehensive planning commenced on October 19, 2020, and the plan was submitted to the Ministry of Transportation for review on November 24, 2022. The Ministry returned the report on March 3, 2023, requesting revisions based on feedback from various units. The Taiwan Railways Administration submitted the revised report on December 1, 2022.
2. The environmental impact assessment report was reviewed by the Ministry of Transportation on September 19, 2022. The Taiwan Railways Administration submitted a revised version on February 14, 2023. The Ministry then forwarded the documents to the Ministry of Environment, which held a review meeting on July 20, 2023. The outcome was a request for the Taiwan Railways Administration to conduct additional environmental studies during the winter, with a revised report due by December 30, 2023.

6-6 Feasibility study on route improvement of Yilan Line

1 Plan content

The initial plan covered 16 sections with small radii between Houdong Station and Shuangxi Station on the Yilan Line, with a budget of NT\$11.28 billion.

2 Implementation results

1. The feasibility study report was revised following the pre-submission review meeting held by the Ministry of Transportation on January 19, 2021. Adjustments were made based on an on-site survey, and a local briefing was conducted on August 18, 2021.
2. A second pre-submission review meeting was held on October 7, 2021, during which the scope of the study was extended to include the entire Yilan Line to integrate improvements comprehensively.
3. The Taiwan Railways Administration updated the feasibility study, and a mid-term review meeting on July 7, 2023, led to further revisions by the consulting company. The final report is anticipated to be completed in April 2024 and will subsequently be submitted to the Ministry of Transportation.

6-7 Construction plan for vehicle intrusion barrier facilities and alarm systems

1 Plan content

This plan considered the vulnerable sections of adjacent roads near the round-the-island railway that are at risk of vehicle intrusion. The plan included the installation or reinforcement of physical barriers at 38 high-risk road sections and the setup of alarm systems at 15 road sections. Its goal was to prevent abnormal intrusion into the railway operating space, alert the control center and train drivers promptly about intrusion situations, and facilitate immediate train stops close to the affected area. The total budget allocated for this project was NT\$617 million. The Ministry of Transportation approved this plan in principle in the No. 1110019016 Letter issued on June 29, 2022. The Ministry of Transportation granted preliminary approval in the No. 1110019016 Letter on June 29, 2022, with project completion targeted for June 30, 2024.

2 Implementation results

Design activities for the barrier facilities began in February 2023, covering four sections for barriers and one section for mechanical and electrical engineering works. The first and fourth barrier sections are currently in the pre-bidding stage, with construction slated to begin in January 2024.

6-8 Overall procurement and vehicle replacement plan of Taiwan Railways (2015–2024)

The total budget was expected to be NT\$99.73 billion, with 1,307 locomotives and vehicles to be purchased. The procurement details are as follows:

1. A total of 600 intercity electric multiple units, with the first train (12 units) delivered on July 30, 2021. By the end of 2023, a total of 42 trains (504 units) had been delivered.
2. A total of 520 commuter electric multiple units, with the first two trains (20 units) delivered on October 24, 2020. By the end of 2023, a total of 52 trains (520 units) had been delivered.
3. A total of 127 locomotives (102 purchased initially, with the remaining to be purchased through subsequent expansion) and 68 Group A electric locomotives, with a total of three delivered by the end of 2023; 34 Group B diesel-electric locomotives, with a total of four delivered by the end of 2023.
4. A total of 60 trains have been commissioned, with the contract awarded to Taiwan Vehicle Corporation Limited on August 25, 2022. Deliveries are anticipated to start in 2025.
5. Updates for the electric machinery of 250 PP passenger trains have been contracted to Shilin Electric Co., Ltd., as of July 11, 2023, with expected commencement of deliveries in May 2024.

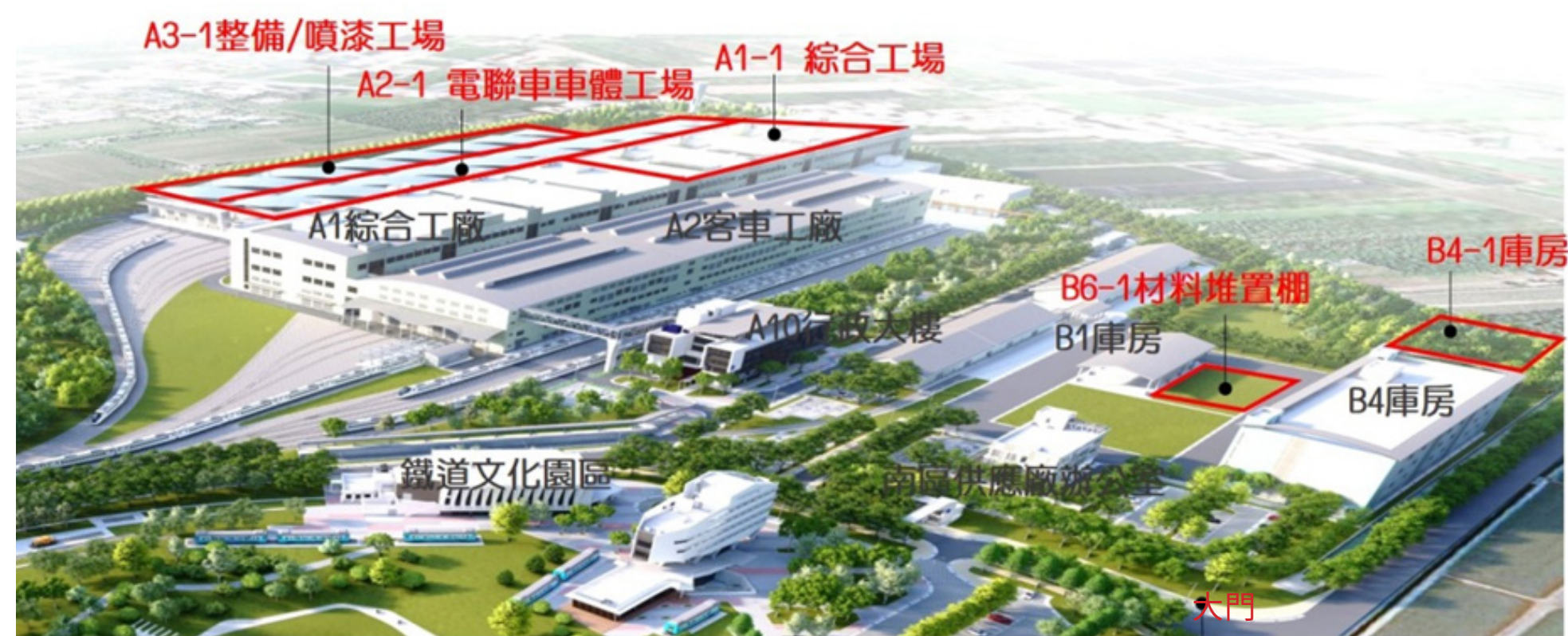
6-9 Kaohsiung depot relocation to Chaozhou and original site development plan

To ensure a consistent supply of repair and accessory materials for both passenger and freight vehicles, and to maintain the safe and regular operation of these services, this plan outlines the development of the newly established Chaozhou depot as a central maintenance facility in southern Taiwan. Specifically, it includes the transfer of the Kaohsiung depot and the Southern District Supply Factory to Chaozhou. The land vacated because of these transfers will be redeveloped following changes to urban-planning regulations. The revised plan received approval from the Executive Yuan in 2017, featuring a total budget of NT\$13.4818 billion, with the timeframe extended from August 13, 2013, to December 31, 2021.

The logistics vehicle maintenance information management system was initiated on February 9, 2022. It currently includes comprehensive data for 25 primary vehicle models, and a backup center has been established to support it. The system's interface and functionalities are continuously being enhanced to improve efficiency. On February 16, 2023, the system was expanded to include three new modules—fault notification service, action application, and repair cost management—along with 73 sub-functions, covering all 25 main vehicle models. This enhancement allows for precise control over maintenance KPIs, vehicle distribution dynamics, and the fault reporting processes across different factory sections. The contract for integrating public art within the project was secured on November 15, 2023, with implementation commencing on December 1, 2023.

6-10 Kaohsiung depot Chaozhou base phase II construction plan

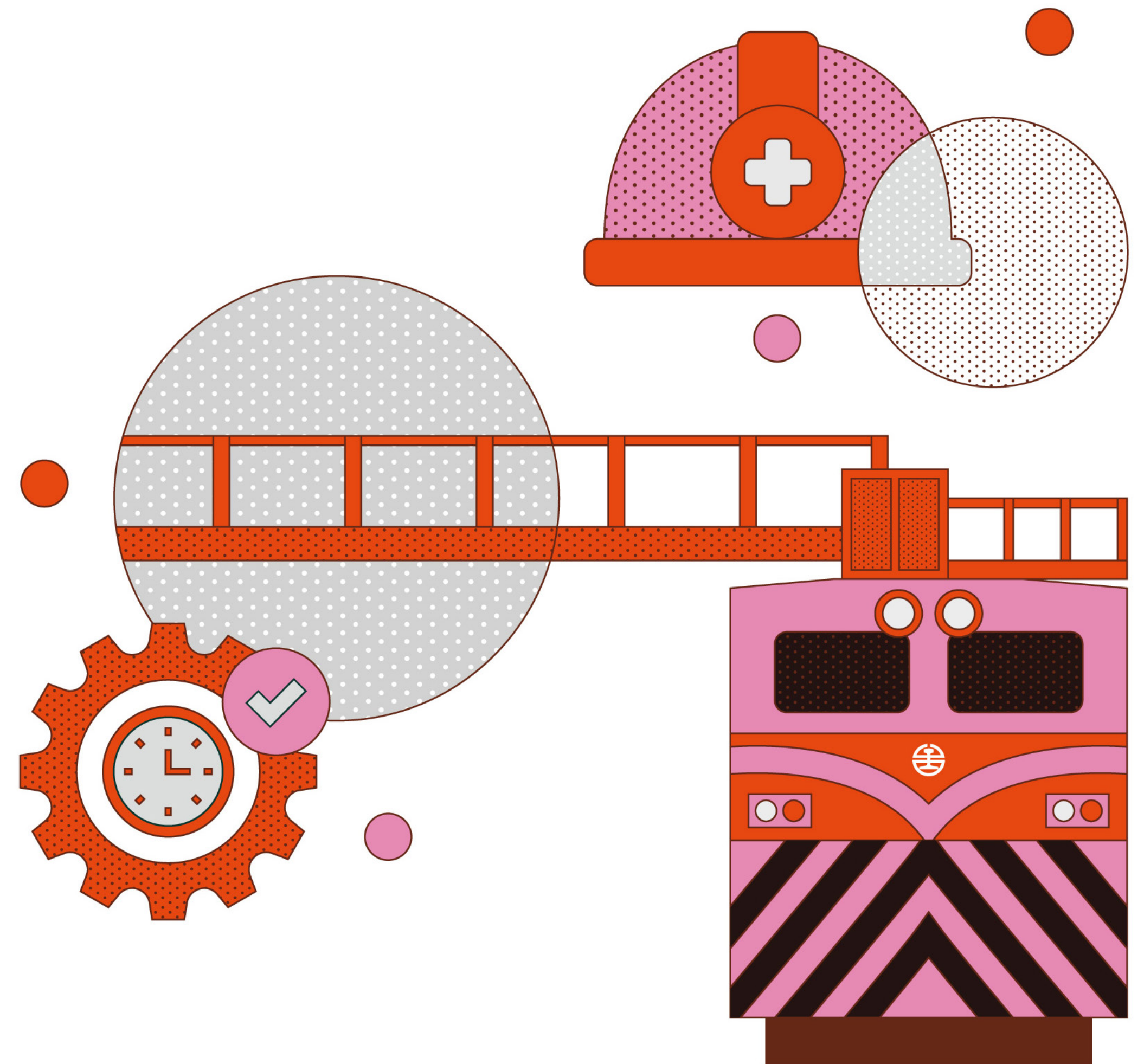
This plan, approved by Executive Yuan, encompasses a budget of NT\$12.1477 billion for the period spanning September 27, 2021, to December 31, 2025. It primarily involves the establishment of an intercity electric vehicle maintenance workshop and a material supply warehouse, in addition to acquiring maintenance equipment. The contract for the design and supervision of technical services was assigned on April 7, 2022, with construction commencing on May 20, 2022. The basic design was completed on December 5, 2023, and development of the detailed design is ongoing. The initial phase of the equipment maintenance project began on September 28, 2023, and the foundation piles project was initiated on December 12, 2023.



Schematic of construction of Chaozhou Depot Phase II project

6-11 Route maintenance engineering

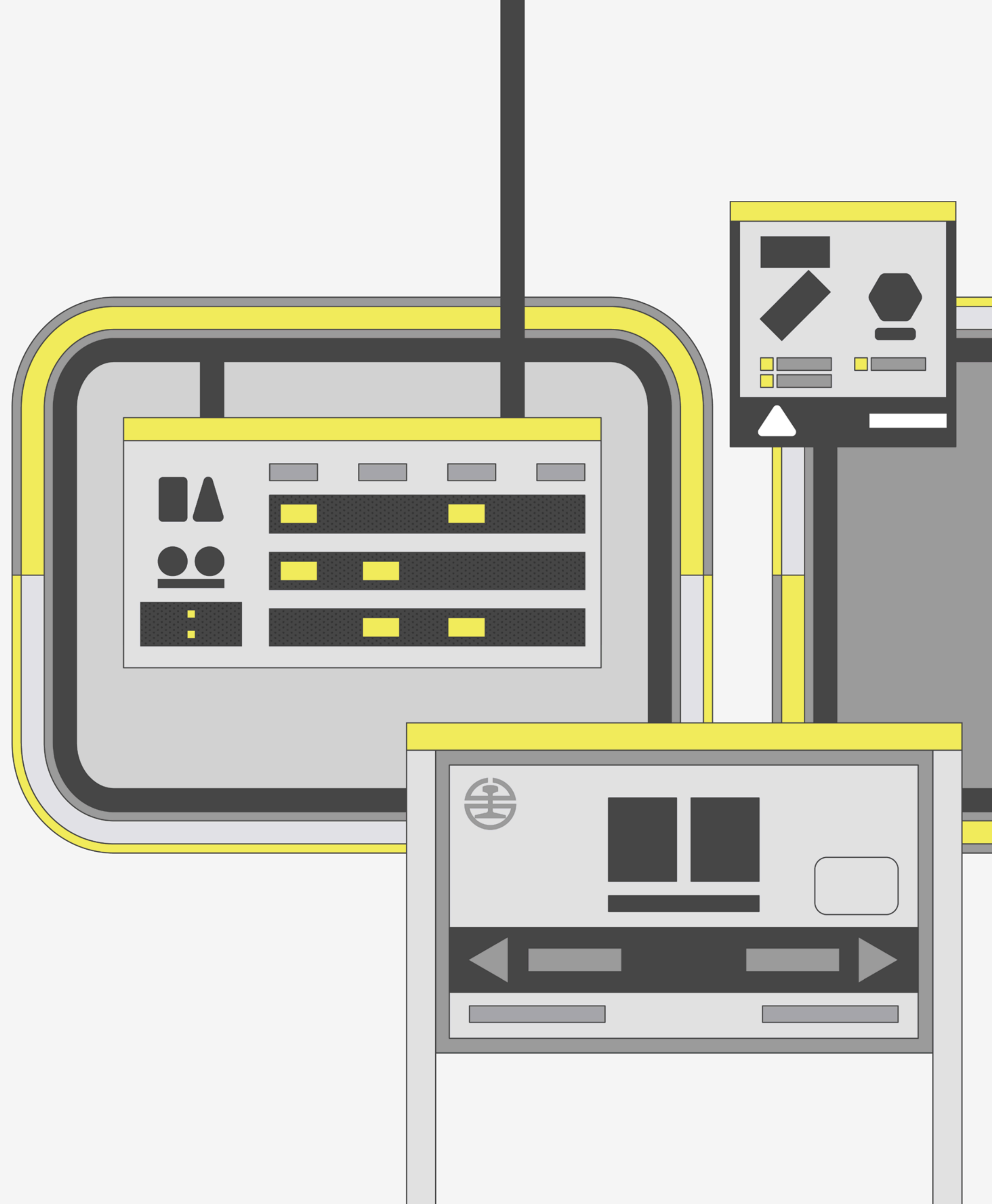
The Public Works Department of Taiwan Railways Administration improved the entire track route in 2023, with a total of 80,408 m of steel rails and 317 sets of switches replaced.

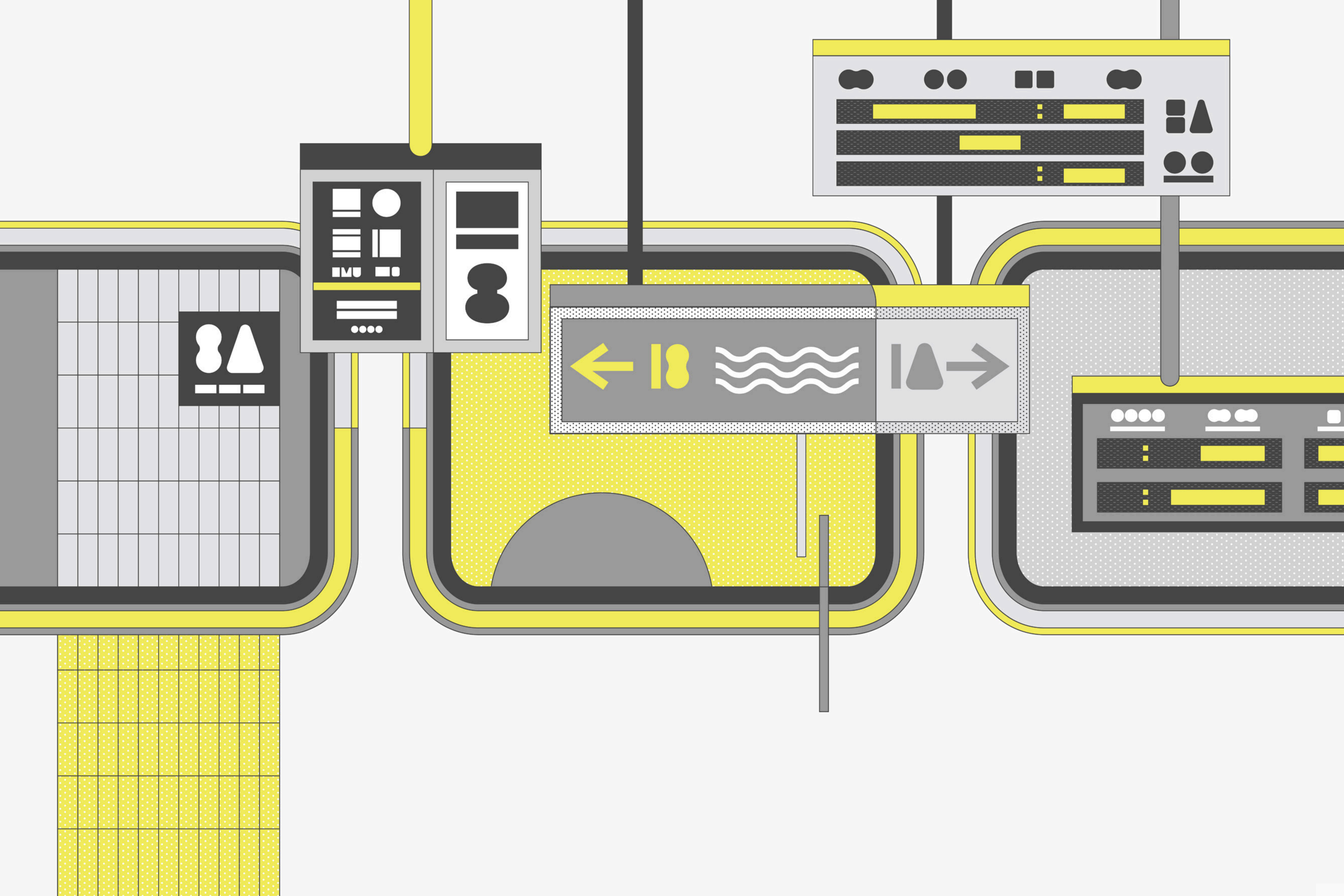


7

CHAPTER

Appendix.
Memorabilia in 2023





Appendix. Memorabilia in 2023

Date	Deed
01.03	<p>Successfully completed the 2023 New Year's Day holiday transportation</p> <p>The New Year's Day holiday transportation in 2023 lasted for 5 days, from December 30, 2022, to January 3, 2023. During the transportation period, a total of 139 additional trains and 48 additional vehicles were added along the entire line. The passenger transport revenue was NT\$269,839,312, with a daily average of NT\$53,967,862, a decrease of 1.45% compared to the New Year's Day holiday in 2022. The total number of transported passengers was 3,006,152, with an average of 601,230 per day, an increase of 1.63% compared to the New Year's Day holiday in 2022. The overall punctuality rate of passenger trains was 95.94%, an increase of 7.99% compared to 87.95% for the New Year's Day holiday in 2022.</p>
01.16	<p>The Minister of Transportation, Wang Kwo-tsai, listened to the progress of Taiwan Railways Corporation's promotion of handling matters.</p>
01.17	<p>Deputy Director Feng Hui-sheng held a meeting on the operation of EMU3000 intercity trains, EMU900 electric multiple units, and push-pull Tze-Chiang trains.</p>
01.20	<p>President Tsai Ing-wen inspected the Taipei Station Joint Disaster Prevention Center to understand the situation of transportation throughout Taiwan during the Spring Festival holiday.</p>
01.30	<p>Successfully completed the 2023 Spring Festival holiday transportation</p> <p>The 2023 Spring Festival holiday transportation lasted for a total of 13 days, from January 18 to 30. During the transportation period, a total of 499 additional trains and 186 additional vehicles were added, resulting in a 15.24% increase in transportation capacity compared to the 2022 Spring Festival holiday transportation. The passenger transport revenue was NT\$745,351,123, with a daily average of NT\$57,334,702, an increase of 51.42% compared to the Spring Festival holiday in 2022. The total number of transported passengers was 7,580,976, with an average of 583,152 per day, an increase of 57.94% compared to the Spring Festival holiday in 2022. The overall punctuality rate of passenger trains was 94.18%, an increase of 1.42% compared to 92.76% during the Spring Festival holiday in 2022. The number of traffic accidents was 17, a decrease of approximately 22.72% compared to 22 cases during the Spring Festival holiday in 2022.</p>

Date	Deed
02.01	<p>Taiwan Railways Administration held an Expert Symposium on the Entrusted Planning and Supervision Review Service Case of the Smart Railway Information Integration Platform</p>
02.03	<p>Director Du Wei inspected the construction of the cut and cover tunnel on the Jiji branch line</p>
02.08	<p>Deputy Minister of Transportation Hu Hsiang-ling inspected the construction of the cut and cover tunnel on the Jiji branch line</p>
02.09	<p>The Taiwan Railways Administration held an aesthetic consultation and review meeting for the renovation of the Haifeng and Shanlan sightseeing trains</p>
02.13	<p>Deputy Director Feng Hui-sheng led a team to visit the Taipei Mass Rapid Transit Company's control center</p>
02.28	<p>Director Du Wei inspected the repair and reconstruction work on the Jiji branch line</p>
02.28	<p>Successfully completed the 228 holiday transportation tasks in 2023</p> <p>The 228 holiday transportation tasks in 2023 lasted for a total of 6 days, from February 24 to March 1. During the transportation period, an additional 119 trains and 70 vehicles were added along the entire line, resulting in a total of 4,081,842 passengers being transported, with a daily average of 680,307 people, an increase of 20.07% compared to the 228 holiday transportation tasks in 2022. The passenger transport revenue was NT\$366,966,342, with a daily average of NT\$61,161,057, an increase of 25.71% compared to the 228 holidays in 2022. The overall punctuality rate of passenger trains was 95.07%, an increase of 1.38% compared to 93.69% for the 228th Peace Memorial Day holiday in 2022.</p>
03.06	<p>Director Du Wei led first-level supervisors to visit Kaohsiung University of Science and Technology to strengthen industry-university cooperation</p>
03.09	<p>The Taiwan Railways Administration held a review meeting on the handling of the Taiwan Railway Aesthetic Design Consultation and Review Group</p>
03.15	<p>Director Du Wei inspected the progress of station renovation projects in the northern region</p>
03.30	<p>Deputy Director Feng Hui-sheng inspected the preparation work for the Qingming Festival holiday transportation at the Taipei Depot and explored the feasibility plan for catering at the Employee Training Center</p>

Date	Deed
03.30	Director Huang Meilian of the North Operations Office of Taiwan Power Company visited the Taiwan Railways Administration to exchange opinions on the current electricity consumption situation and energy-saving strategies of Taiwan Railways
03.31	Deputy Minister of Transportation Hu Hsiang-ling inspected the Qingming Festival holiday transportation at Taipei Station
04.06	<p>Successfully completed the 2023 Qingming Festival holiday transportation task</p> <p>The Qingming Festival holiday transportation in 2023 lasted for a total of 7 days, from March 31 to April 6. During the transportation period, an additional 233 trains and 85 vehicles were added along the entire line, resulting in a total of 4,705,578 passengers being transported, with a daily average of 672,225 people, an increase of 31.21% compared to the Qingming Festival holiday transportation in 2022. The passenger transport revenue was NT\$457,497,818, with a daily average of NT\$65,356,831, an increase of 26.21% compared to the Qingming holiday in 2022.</p>
04.12	Deputy Director Feng Hui-sheng led his staff to visit the Yanchao General Depot of Taiwan High-Speed Rail Corporation as the standard and guideline for the factory planning and construction of Taiwan Railways
04.13	Deputy Director Feng Hui-sheng led a team to visit the Railway Bureau and discussed the driving license change for state-owned railway passenger and freight power vehicles
04.13	Director Du Wei inspected the renovation of the Xinfeng Station building
04.18	The completion and operation of the new elevator at Gongliao Station
04.19	Deputy Director Feng Hui-sheng led his staff to visit JR West Japan and JR East Japan Railway Company in Japan as a reference for improving train safety and preventing accidents in advance
04.22	This year's first Taiwan Railway Duobao School Public Welfare Train departs for love
04.26	DR2800/2900/3000 Diesel Tze-Chiang train retired, Taiwan Railways launched the last commemorative train
05.01	Director Du Wei inspected the preparation work for holiday transportation in various units during Labor Day
05.08	Taiwan Railways Administration and Taoyuan Tsinghua High School signed a cooperation agreement to cultivate outstanding talents in railway transit

Date	Deed
05.10	Taiwan Railways Administration and Breeze Company worked together for public welfare, accompanying the Down syndrome baby railway culture tour
05.12	The Taiwan Rail Engineering Society held an academic seminar on "Opportunities and Challenges Faced by Taiwan Railways Corporation"
05.12	Taiwan Railways Administration collaborated with Taiwan Tobacco and Liquor Company to launch the "Taiwan Railways Classic Station Commemorative Wine," which showcased the new collection of classic liquor
05.18	Director Du Wei led a team to visit the Naval Officer School and exchanged views on topics such as personnel recruitment, education promotion, school affairs development, and future trends in software and hardware for training facilities.
05.20	Director Du Wei inspected the Qidu Depot to understand the progress of strengthening train protection measures to improve train safety and efficiency
06.09	Held the "136th Anniversary of Taiwan Railways" Railway Festival Celebration Meeting
06.09	The Taiwan Railways Administration held the Opening Press Conference of the 8th International Railway Bento Festival in 2023
06.12 06.13	Deputy Minister of Transportation Chen Yen-po inspected the TPASS Executive Yuan's commuter monthly ticket entrance and exit channels and guidance readiness at Taipei Station, Banqiao Station, and Songshan Station
06.14	The Highway Bureau held a press conference at the Taipei Station Hall to launch the TPASS Executive Yuan commuter monthly pass, with Director Du Wei attending the meeting
06.21	Premier of the Executive Yuan Chen Chien-Jen inspected the Dragon Boat Festival holiday transportation at Taipei Station
06.26	<p>Complete the 2023 Dragon Boat Festival holiday transportation</p> <p>The Dragon Boat Festival holiday in 2023 lasted for 6 days, from June 21 to 26, with a total of 167 additional trains and an increase of 75,388 seats. The total revenue from passenger transportation was NT\$364,328,771, with a daily average of NT\$60,721,462, an increase of 102.96% compared to the same period in 2022. The total number of passengers was 3,654,208, with a daily average of 609,035, an increase of 88.86% compared to the same period in 2022.</p>
06.26	The Transportation Committee of the Legislative Yuan inspected the transportation construction in the Changhua area
06.28	Minister of Transportation, Wang Kwo-tsai, inspected the TPASS Executive Yuan commuter monthly pass exercise at Taipei Station

Date	Deed
07.03	The Minister of Transportation, Wang Kwo-tsai, inspected the usage of the TPASS commuter monthly pass at Taipei Station
07.10	New vehicle meeting - R200 diesel-electric locomotive
07.14	The 1st Graduation Ceremony of the Taiwan Railways Administration Taipei Station Workplace Cooperative Educare Center
07.15	Director Du Wei and Deputy Director Feng Hui-sheng went to Kaohsiung University of Science and Technology to participate in the “2023 Railway Industry Joint Talent Recruitment Expo”
07.15	CT273 Steam Train (Midsummer Treasure Island) rejuvenates its glory and the first trip ceremony
07.18	Director Du Wei led a team to visit Hanshin Electric Railway and JR West Japan. They learned from experience to accelerate the reform of Taiwan Railways and studied the application mode of platform safety doors at Umeda Station.
07.20	Director Du Wei led a team to visit Japanese railway companies such as Kintetsu Railway, Seibu Railway, Shinano Railway, Ueda Electric Railway, Nagano Electric Railway, and JR East to exchange opinions and insights as part of Taiwan Railways’ management policy for sightseeing trains.
07.25	The 2023 Taiwan Rail Engineering Society held a general meeting of members
08.01	Taiwan Railways Administration EMU3000 Tengyun Cabin Catering Re-upgrade
08.02	The Hualien Station concierge waiting room was in use, providing honorable hospitality services
08.12	Grand Opening of the Chaozhou Railway Park Mysterious Centenary Wooden Carriage Exhibition
08.20	Taiwan Railways Administration promoted railway sightseeing tourism and launched the “Hualien-Taitung Creation Familiarization Trip” for the first time
09.01	The Ministry of Transportation held a seminar on “Drawing on JR West Japan to Promote Security Reform,” inviting domestic railway-related organizations, a Japanese delegation of four, including Professor Abe, representatives of accident family members, and approximately 20 related personnel from the Taiwan Railways Administration, including Director Du Wei, Deputy Director Feng Hui-sheng, Deputy Director Chen Chang-shih, and first-level supervisors. To raise public awareness of railway safety, the Ministry of Transportation will draw on experience, and continue to implement railway safety reform.

Date	Deed
09.27	Yingge Station Aesthetics and Escalator Project Opening Ceremony
09.28	The Premier of Executive Yuan Chen Chien-Jen inspected the preparation work for the Mid-Autumn Festival holiday transportation at the Taipei Station Joint Disaster Prevention Center on the eve of the Mid-Autumn Festival
10.02	<p>Complete the 2023 Mid-Autumn Festival holiday transportation</p> <p>The transportation during the Mid-Autumn Festival holiday in 2023 lasted for 5 days, from September 28 to October 2. A total of 144 additional trains were added along the entire line. In conjunction with the 160th anniversary celebration of the Gongtian Palace in Baishatun, the original 4-carriage trains were extended to 8-carriage trains, with an additional 240 carriages. The total number of transported passengers was 3,426,959, with an average of 685,392 per day, an increase of 30.57% compared to 2022. The passenger transport revenue was NT\$320,334,458, with a daily average of NT\$64,066,892, an increase of 19.43% compared to 2022.</p>
10.06	Deputy Minister of Transportation Hu Hsiang-ling inspected the preparation work for the National Day holiday transportation at the Taipei Station Joint Disaster Prevention Center
10.09	Director Du Wei went to the transportation and depot units in Taitung and Hualien to conduct on-site inspections of the preparation work for the National Day holiday return-to-work transportation
10.10	Deputy Minister of Transportation Hu Hsiang-ling inspected the Double Ten Day holiday transportation at the Taichung Station
10.02	<p>Complete the 2023 Double Ten Day holiday transportation</p> <p>The 2023 Double Ten Day holiday transportation lasted for a total of six days, from October 6 to 11, 2023. A total of 162 additional trains were added along the line, with a total of 4,202,080 people transported, an average of 700,347 people per day, an increase of 18.6% compared to 2022. The total revenue from passenger transportation was NT\$389,535,204, with a daily average of NT\$64,922,534, an increase of 20.7% compared to 2022.</p>
10.14	Director Du Wei inspected the operation of trains at Kaohsiung Underground Station and Kaohsiung Depot
10.19	The Transportation Committee of the Legislative Yuan inspected the transportation construction in the Hualien area

1

Transformation and Reform of Taiwan Railways and its Prospects

2

Organizational Structure and Operation Overview

3

Highlights and Business Innovation

4

Performance in 2023

5

Business Operational Status

6

Major Projects and Investments

附

Memorabilia in 2023

Date	Deed
10.23 10.24 10.25 10.26 10.30	Taiwan Railways Administration held an “Employee Meeting” in the North, Central, South, and East districts to explain corporate planning and provide responses to issues of concern to employees
10.28	President Tsai Ing-wen inspected the construction of the Jiji and Tianzhong branches
10.28	New vehicle meeting - E500 electric locomotive
10.30	The Taiwan Science Popularization Round-the-island Train officially sets sail at Taipei Station
11.01	Sister Station Conclusion Ceremony for the Taiwan Railway Administration’s Rinan Station and JR Kyushu Nichinan Station
11.02	Director Du Wei held a meeting to discuss the installation of commemorative lighting in the K51 tunnel in the 0402 accident
11.08	Deputy Minister of Transportation Hu Hsiang-ling visited Tainan Railway Station to understand the progress of the station’s historic site restoration project
11.09	Groundbreaking ceremony for the construction of the “Nangang Star” new building project
11.10	The Minister of Transportation, Wang Kwo-tsai, listened to the report of the Taiwan Railways Administration on the restoration of ancient sites at Tainan Station
11.10	Minister of Transportation, Wang Kwo-tsai, listened to the progress of Taiwan Railways Corporation’s transformation
11.12	The Premier of Executive Yuan Chen Chien-Jen inspected the fan-shaped garage of Changhua Depot
11.12	Taiwan-Japan Friendship Station - Tianzhong Station Celebrates 5th Anniversary of Conclusion and EMU100 Tze-Chiang Train’s Rejuvenation
11.20	Taiwan Railways Administration and Taiwan Railway Corporation Union signed a group agreement
11.28	The 8th Railway Bento Festival of Taiwan Railways Administration won the Silver Award of the 10th Taiwan Activity Excellence Award
11.29	Executive Yuan held a meeting to hear a report from the Ministry of Transportation on the implementation of Taiwan Railways’ corporatization and handling of demands raised by the union
12.02	24 pairs of couples from Taiwan Railways tied the knot in 2023

Date	Deed
12.04	Deputy Director Feng Hui-sheng visited the Taipei Depot to explain the future agenda of the Taiwan Railway Corporation
12.06	Deputy Director Feng Hui-sheng convened the 2nd meeting of the Planning Report and Draft Work Plan for the “0402 K51 Accident Site Tunnel Lighting Commemorative Setting Promotion Group”
12.08	To celebrate the signing of a friendly agreement between Taiwan and Japan railway bento, we have launched the “Seafood” joint specialty bento
12.11	Deputy Director Feng Hui-sheng convened a meeting to promote the setting of commemorative lighting for the 0402 accident
12.11	The Transportation Committee of the Legislative Yuan visited the Comprehensive Dispatch Office of the Taiwan Railways Administration for inspection
12.12	Taiwan Railways and KATO collaborate to develop the EMU3000 N-scale model
12.13	The Transportation Committee of the Legislative Yuan inspected the idle commercial land at Taichung New Station
12.14	The Minister of Transportation convened a meeting on “The Progress of Taiwan Railway Corporatization”
12.22	The Minister of Transportation, Wang Kwo-tsai, inspected the Longtian Station Site Survey
12.22	Deputy Minister of Transportation Chen Yen-po convened a symposium on promoting the bicycle business of the Ministry of Transportation
12.23	Director Du Wei inspected the temporary track switching project of the Dongzheng Line and the advance project for the Pingzhen Temporary Station of the Taoyuan Underground Transformation Plan
12.26	Deputy Minister of Transportation Hu Hsiang-ling held a project meeting on the progress and implementation content of the steel slant support removal operation and subsequent protection optimization of the open tunnel of the “North-Link Line K51+170~500 Mountain Side Slope Safety Protection Project
12.27	The Railway Technology Research and Verification Center signed a memorandum of cooperation with the Taiwan Railways Administration
12.28	The commemorative set of “Memories, Meaningful” round-the-island business card-style tickets is available for sale in limited quantities
12.29	Deputy Minister of Transportation Hu Hsiang-ling inspected the preparation work for the New Year’s Day holiday transportation at the Taipei Station Joint Disaster Prevention Center
12.31	Gratitude Concert “Taiwan Railways Administration” Official Title Plate Removal

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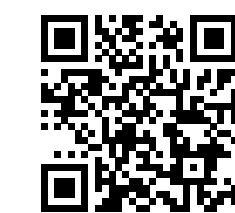
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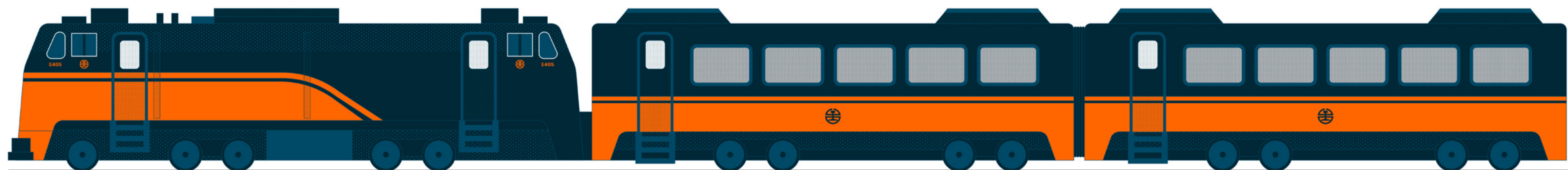
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