JR KYUSHU IR DAY 2023

Progress on the JR Kyushu Group DX Strategy 2022–2024

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KYUSHU RAILWAY COMPANY
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- I am Yumi Akagi, Deputy Director General of Corporate Planning Headquarters.

- Today, I would like to discuss progress on the JR Kyushu Group DX Strategy.

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Ⅳ DX: Current Status and Outlook

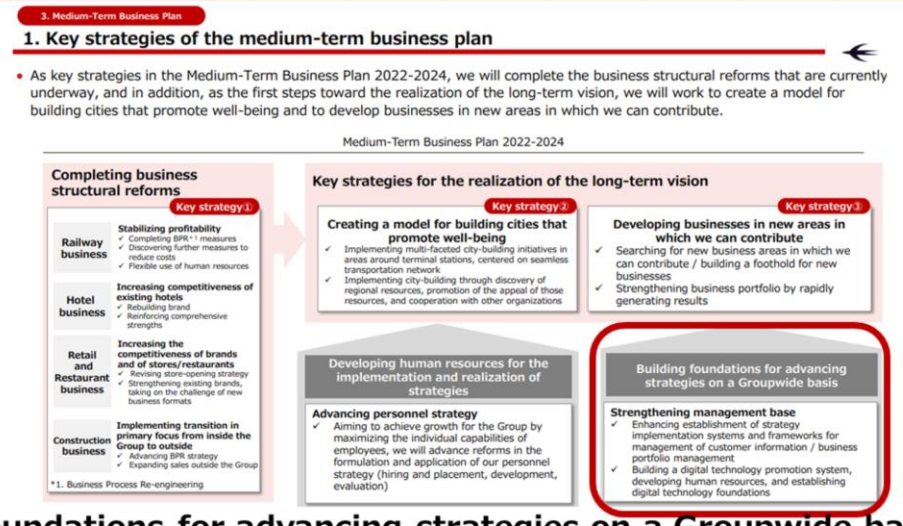
- This is today's agenda.

- I will begin by explaining the background to the formulation of the strategy and providing an overview of the strategy. Then I will go through some case studies and talk about our outlook.

I Background to Formulation of the Strategy

- First, let me describe the background to the formulation of the strategy.

Background to Formulation of the Strategy



Building foundations for advancing strategies on a Groupwide basis
Strengthening the management base
✓Enhancing establishment of strategy implementation systems and frameworks for management of customer information / business portfolio management
✓Building a digital technology promotion system, developing human resources, and establishing digital technology foundations

Formulation of a strategy for steady implementation (JR Kyushu Group DX Strategy 2022–2024)

- These are the key strategies of our current Medium-Term Business Plan. In addition to developing human resources for the implementation of these strategies, we must build foundations for advancing strategies on a Groupwide basis. One pillar of this is building a digital technology promotion system, developing human resources, and establishing digital technology foundations.

- To ensure steady progress, we have formulated the JR Kyushu Group DX Strategy 2022–2024.

Ⅱ　Overview of the Strategy

- Here is an overview of this strategy.

Overview of the Strategy (JR Kyushu Group DX Strategy 2022–2024)

Basic policies

We will promote "optimization" and "transformation" by utilizing digital technology to realize our vision of "increasing customer experience value," "operations / maintenance reform," etc. In addition, we will focus on developing the "infrastructure" and "human resource development and promotion system" that will provide the environment to support these efforts.

Our aims

[Increasing customer experience value]
We will provide experience value in line with customer needs by implementing collaborative initiatives and making effective use of data, including the entire Group as well as a variety of external organizations, centered on JR KYUPO.

[Operations / maintenance reform]
We will pursue safety and efficiency in railway operations and maintenance through the use of digital technologies.

[Working style reforms / productivity improvement]
Through the automation / mechanization of operations and the improvement of digital workplaces, we will support employee working-style reforms and productivity improvement.

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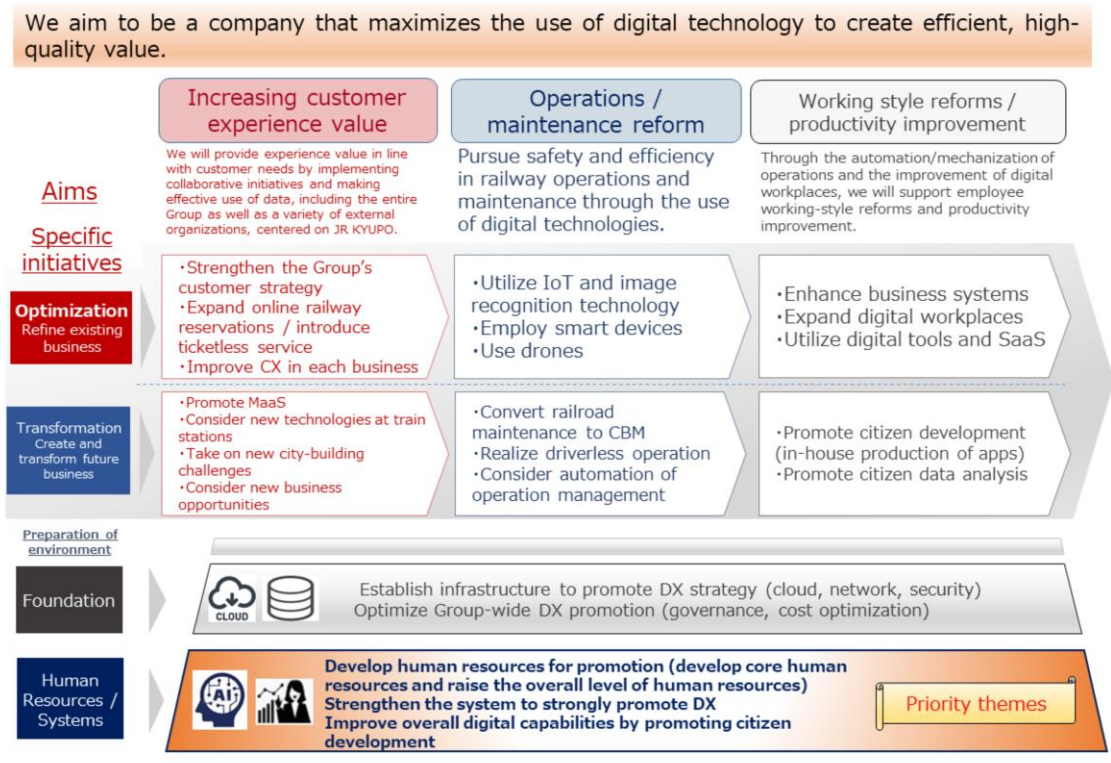
- As a basic concept, we aim to achieve three main goals by promoting the DX strategy.
- The first is "increasing customer experience value," the second is "operations / maintenance reform," and the third is "working style reforms / productivity improvement."
- By realizing these three aims, we will promote "optimization" and "transformation" by utilizing digital technology. In addition, we will focus on developing the "human resource development and promotion system" that will support this environment.

Overview of the Strategy (DX Strategy)

JR Kyushu Group DX Strategy (2022-2024)



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- Next we will look at specific initiatives for realizing the three aims.

- In “increasing customer experience value," for example, we will strengthen our customer strategy by providing experience value in line with customer needs through Group-wide data utilization based on JR Kyushu points, or JR KYUPO, which are awarded for train reservations and other activities.

- In “operations / maintenance reform," for instance, we aim to transform regular maintenance based on timed cycles, into condition-based maintenance through data management of railway facility monitoring using image recognition technology among others. This describes our transition from time-based maintenance (TBM) to condition-based maintenance (CBM).

- In “working style reforms / productivity improvement," we will support improvements in employee working style reforms and productivity by automating and mechanizing tasks and expanding the digital workplace.

- To achieve these goals, we have positioned the development of human resources and the strengthening of systems to enhance DX as priority themes.

Overview of the Strategy (Human Resources / Structure)

Human resources / structure

Priority themes

Develop human resources to promote DX for the entire Group and strengthen the promotion system to accelerate DX

Develop human resources for promotion (develop core human resources and raise the overall level of human resources)

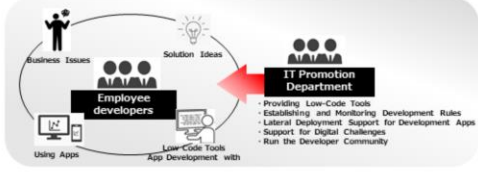
Provide digital education to the management level
Promote educational programs for data utilization / analysis and application development
...human resource development target: 500 people
Develop digital literacy education
Consider acquisition of external digital human resources (mid-career hires, new graduates)

Strengthen the system to strongly promote DX

Establish CoEs (in-house production of apps, data analysis)
Assign digital promotion staff in each business unit

Improve overall digital capabilities by promoting citizen development (Digital Challenges)

Review business processes in line with development
Maintain development and operation rules and developer community
Promote horizontal development



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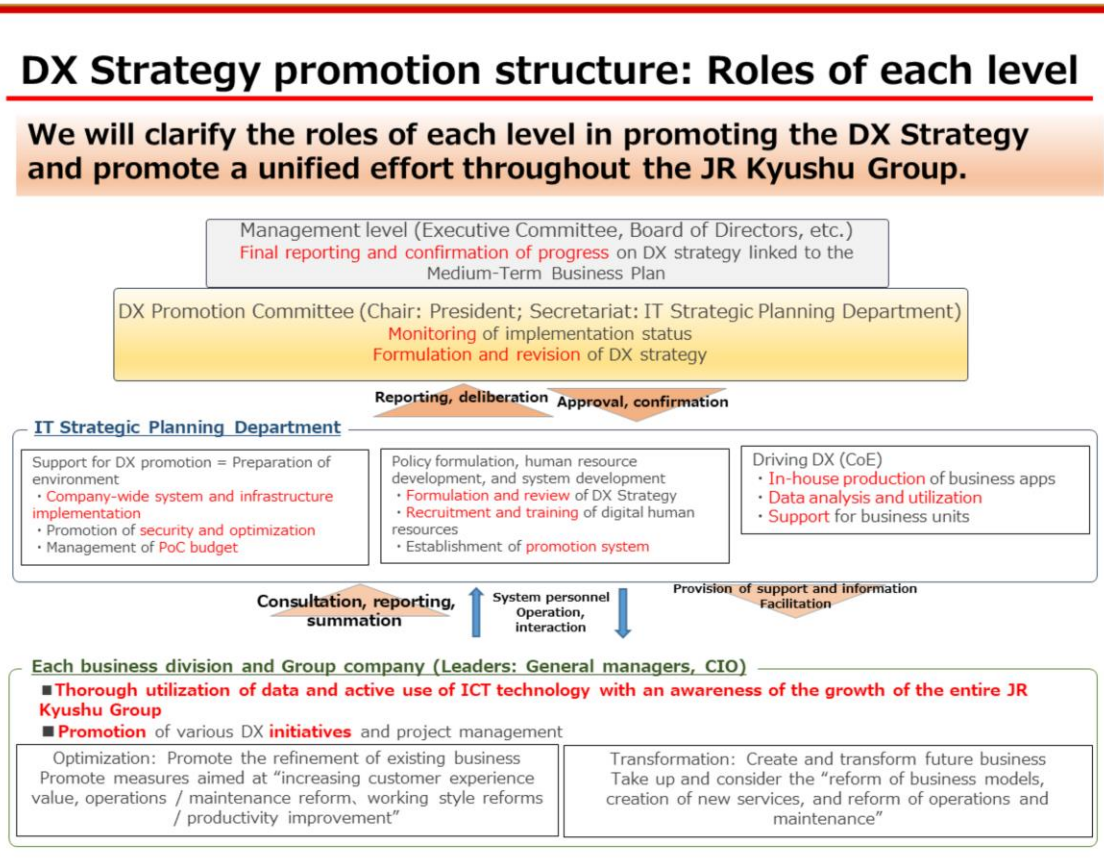
- With regard to human resources and systems, we are working to develop human resources for the entire Group and strengthen the promotion system.
- Regarding the development of human resources for promotion, we need to both develop core human resources and raise the overall level of human resources.
- As a specific goal, we plan to have 500 employees participate in training programs on data utilization, analysis, and application development during the period the period of the current Medium-Term Business Plan, and we are currently making good progress. (We cultivated 466 personnel through the first half of fiscal 2023.)
- In addition, to strengthen the promotion system, we have established a CoE consisting of specialists within the IT Strategic Planning Department of the Corporate Planning Headquarters. A digital promotion staff has been assigned to each business division to address issues in each division through the use of digital technology in cooperation with both parties.
- Furthermore, we believe it is essential to improve the digital capabilities of all employees, so we are having employees develop applications and review business processes themselves.

Overview of the Strategy (Promotion Structure and Roles of Each Level)

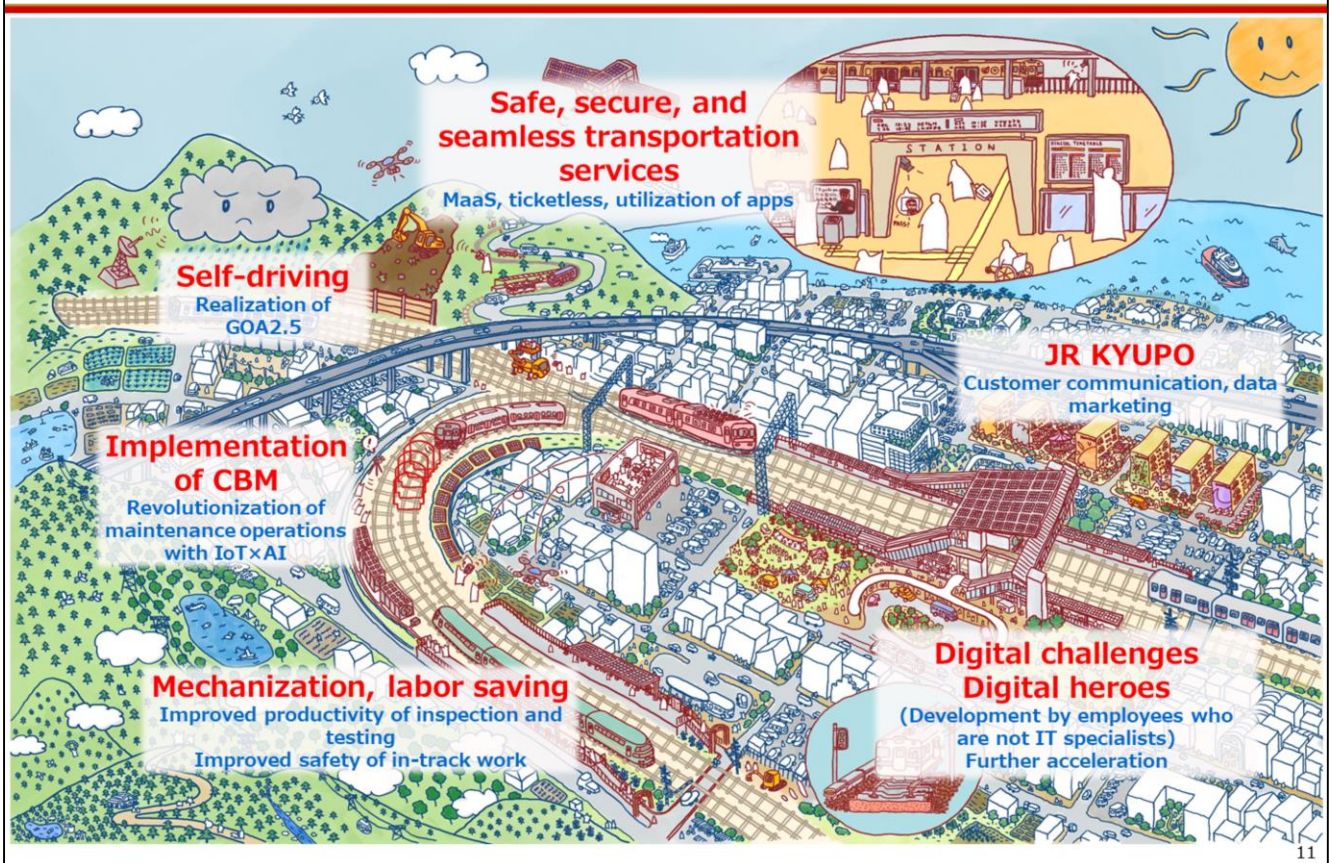


- Next, about the promotion structure.
- For this strategy, we clarify the roles of each level, starting with the general manager of each business unit and identifying the officers in charge of IT at Group companies as leaders to actively utilize data and ICT technology.
- The IT Strategic Planning Department is responsible for the development of the environment, policy formulation, and human resource development to support DX promotion, and is led by the CoE I mentioned earlier.
- Implementation of the strategy is monitored by the DX Promotion Committee, which is chaired by the president, and the progress of the strategy is reported and confirmed at meetings of the Executive Committee and the Board of Directors.

Ⅲ Case Studies

- Here, we introduce a few examples.

Case Studies of Initiatives



- This is an illustration based on the three goals of the DX Strategy.

- Under "increasing customer experience value," we are using MaaS applications to provide transit guidance and perform digital ticket sales, and are undertaking a QR code-based ticketless demonstration experiment in the aim of realizing "safe, secure, and seamless transportation services." We are also engaging in customer communication and data marketing based on JR KYUPO.

- In "operations / maintenance reform," we are working on “self-driving train operations" and the realization of "CBM," which aims for innovation in maintenance operations.

- Under "working style reforms / productivity improvement," we have introduced the Digital Hero Certification System. We are using this system to accelerate the Digital Challenge, which is application development by employees outside of the IT field.

- We believe that ensuring the implementation of these measures will contribute to the realization of the Medium-Term Business Plan and 2030 Long-Term Vision. In the following pages, I will describe specific examples.

Case Studies (Increasing Customer Experience Value: JR KYUPO)

- **We connect with customers through JR KYUPO, the Group's point service, and use the data to propose Group's services tailored to individual customers' needs.**

JR Kyushu points, "JR KYUPO"

- Points can be stored by using various JR Kyushu services such as Internet train reservation, JQ CARD, SUGOCA, and the JR KYUPO app.
- Points can be used for such things as recharging SUGOCA, making payments at JR KYUPO app participating stores, and they can be exchanged for reward items.
- JR Kyushu web member IDs will be used as a common ID for the entire JR Kyushu Group, and the ID will be linked to railroad and merchandise purchase data, point usage data, etc., for management and marketing purposes.

JR KYUPO app

- We launched this point app service with the aim of acquiring a wide range of purchase data irrespective of payment method. Users show the app at participating stores to accumulate JR KYUPO, and the accumulated points can be used at the rate of 1 point = 1 yen.
- Coupons are issued to encourage customers to visit participating stores.

- First, we are utilizing JR KYUPO to increase customer experience value.
- JR KYUPO points can be earned by using our Group services such as online train reservations and the JQ CARD.
- We have also released the JR KYUPO app, a point app that allows customers to accumulate JR KYUPO points by presenting the app at participating stores. The app also allows customers to use the points in ¥1 increments.
- Based on the usage data we obtain, we will promote usage by proposing services tailored to customer needs.

Case Studies (Increasing Customer Experience Value: JR KYUPO)

- **The JR KYUPO service (stored and used) started in October 2023 with the station building group.**
- **We will continue to improve point convenience in other businesses within the Group, including the railway business.**
- **We will promote the use of purchasing behavior data to provide services that match customers' tastes and preferences.**

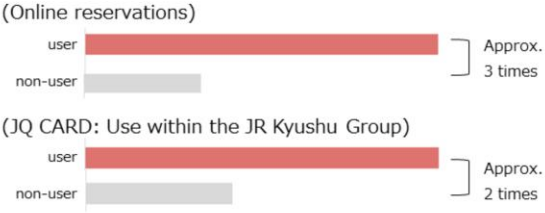
Creation of a Group ecosystem centered on JR KYUPO

- November 15, 2023: Start of Kyushu Furusato Tax Payment (Stored)
- We are considering ways to increase the convenience of railroad travel.

Changes in the number of JR KYUPO App members

- The number of JR KYUPO App members grew significantly due to the introduction in station buildings.

Annual amount spent by point users



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- This October, we introduced the JR KYUPO app with the station building group, expanding the scope of the point service. Although it has been less than two months since its launch, the number of app members has been steadily increasing.

- Annual spending by point users greatly exceeds that of non-point users for both online reservations and JQ CARD, which we believe is effective in increasing LTV.

- We will continue our efforts to improve point convenience in the railway business and other businesses within the Group.

Case Studies (Operations / Maintenance Reform: Self-Driving)

- **In December 2020, we commenced verification testing of self-driving train operational equipment (with a driver on board) between Kashii and Saitozaki stations, and in March 2022 we extended this to the entire Kashii Line.**

Initiatives in FY2023

- Expansion of target trains (from March 2024)> Expand to all trains, move to a 12-train structure
- ATS-DK-based GOA2.5 Self-Driving Implementation Study Committee (Summary completed on August 3, 2023)
  >Held in response to "Self-Driving Technology Study Committee for Railways" (compiled in March 2022 → published in September 2022)
- Implemented additional functions to realize GOA2.5 (completed in February 2023)
- Toward GOA2.0 demonstration operation on the Kagoshima Main Line planned from the end of FY2023, driving tests underway
  >Toward the evolution and utilization of self-driving technology

Future plans

By the end of FY2024, we aim to realize self-driving (GOA 2.5), in which attendants other than the driver are in the front of the train.

Classification by Crew Type (Level of Automation)

Level of Automation (The level of automation is defined* by IEC / JRSL)	Crew Type, Conceptually (Text in brackets describes crew's main role.)	State of Deployment in Japan
GOA(Grade of Automation) 0 TOS(On Sight Train Operation)	Driver (and conductor)	Streetcars
GOA1 NTO(Non-automated Train Operation)		General routes with railroad crossings, etc.
GOA2 STO(Semi-automated Train Operation)	Driver [starts train, operates doors, operates emergency stop, guides evacuation, etc.]	Some subways, etc.
GOA2.5 (Autonomous operations with attendant who do not have a driver's license for emergency braking, etc.) *Not defined by IEC and JIS	Attendant riding in the cab of the lead car [operates emergency stop, guides evacuation, etc.]	None
GOA3 DTO(Driverless Train Operation)	Attendant riding in the car [guides evacuation, etc.]	Some monorails
GOA4 UTO(Unattended Train Operation)	No crew member	Some new transportation, etc.

Note: Definitions for automated urban guided transport systems are in accordance with IEC 62267 (JIS E 3802).

Note: From Ministry of Land, Infrastructure, Transport and Tourism data

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- Next under operations / maintenance reform, I will introduce our autonomous train operations.

- In December 2020, we commenced verification testing of self-driving train operational equipment (with a driver on board), and in March 2022 we extended this to all Kashii Line trains.

- In addition to extending operations to all trains on the Kashii Line this fiscal year, toward demonstration operation on the Kagoshima Main Line planned from the end of the fiscal year, we are conducting driving tests.

- Following these demonstration experiments, by the end of fiscal 2024 we aim to realize self-driving train operations, in which attendants other than the driver are in the front of the train.

Case Studies (Working Style Reforms / Productivity Improvement)

- **We aim to achieve "working style reforms / productivity improvement" through employees' own efforts, improving overall digital capabilities through human resource development.**

Digital Challenge Initiatives

- Digital Challenge refers to the development of apps, etc., by employees who are not IT specialists.
- We have designed the PowerPlatform (app development tool) and others as important digital tools, and development is encouraged at each workplace.
- We are fostering a more comfortable workplace where employees can "resolve workplace issues inexpensively, quickly, and autonomously."
- Through the development of human resources, we are working to improve overall digital capabilities.

Results (app development)

・We saved 16,509 hours in operating time between Q1 2022 and Q2 2023.

<Train patrol report app >

(Details)

- The app uses GPS information to instantly calculate and register locations where abnormalities were found during train travel.
- The application can navigate traffic routes to locations where abnormalities were found.

(Opportunity)

- In the past, when conducting equipment inspections on Shinkansen trains, it was difficult to accurately identify the location of abnormalities because of the high travel speeds, and large margins of error were a problem.

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- Next, I will speak about working style reforms and productivity improvement.
- We aim to achieve "working style reforms / productivity improvement" through employees' own efforts.
- We have named the development of apps and other products by employees who are not IT specialists the "Digital Challenge". We encourage development at each workplace, with the aim of fostering a more worker-friendly workplace by encouraging employees to solve workplace issues on their own. Through the Digital Challenge, we hope to accelerate our DX Strategy by developing human resources skilled in DX.
- As a result of app development, we have waved 16,509 hours in operating time from the first year of the strategy to the second quarter of this fiscal year.
- Let me introduce one example from the Digital Challenge. This development facilitates a prompt response to abnormalities discovered during train rides. Using GPS information, the location of the issue can be calculated and reported directly via an app. Before the app was developed, it was difficult and time-consuming to accurately identify issues within a moving train. This innovation has led to a reduction in working hours.

Case Studies (Working Style / Productivity Reforms)

- **Established of the Digital Hero Certification System to accelerate the Digital Challenge (April 2023)**

	Digital challenger (Level 1)	Digital leader (Level 2)	Digital hero (Level 3)
Open badge			
Status sought	Experience in improving workplace development level operations using digital tools	Understand the characteristics of digital tools and can efficiently proceed through a series of development cycles, such as user request consolidation / development / trial / launch / operation.	・In addition to reaching level 2, achieved significant results in improving business operations using digital tools ・Teaches workshops on digital tools
Criteria for accreditation	At least one business improvement action using digital tools for use throughout the workplace	At least three business improvement actions using digital tools for use throughout the workplace	・At least five business improvement actions using digital tools for use throughout the workplace ・Also, cumulative effect of business improvement using digital tools exceeds 1,000 hours
Expected roles	・As a DX promotion member, promote business improvement in the workplace using digital tools ・Follow people who have level 2 or level 3 certification	As a DX promotion leader, propose, develop, and implement business improvements in the workplace using digital tools	As a DX promotion leader, propose, develop, and implement business improvement in the workplace, group, and area using digital tools

In 1H FY2023, we certified 20 challengers, 13 leaders, and one hero

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- Next, I will explain the Digital Hero Certification System, which is designed to accelerate the Digital Challenge.

- This fiscal year, we introduced a system to certify app developers who are not IT specialists as “Digital Heroes.” These are personnel who use digital tools to produce clear results.

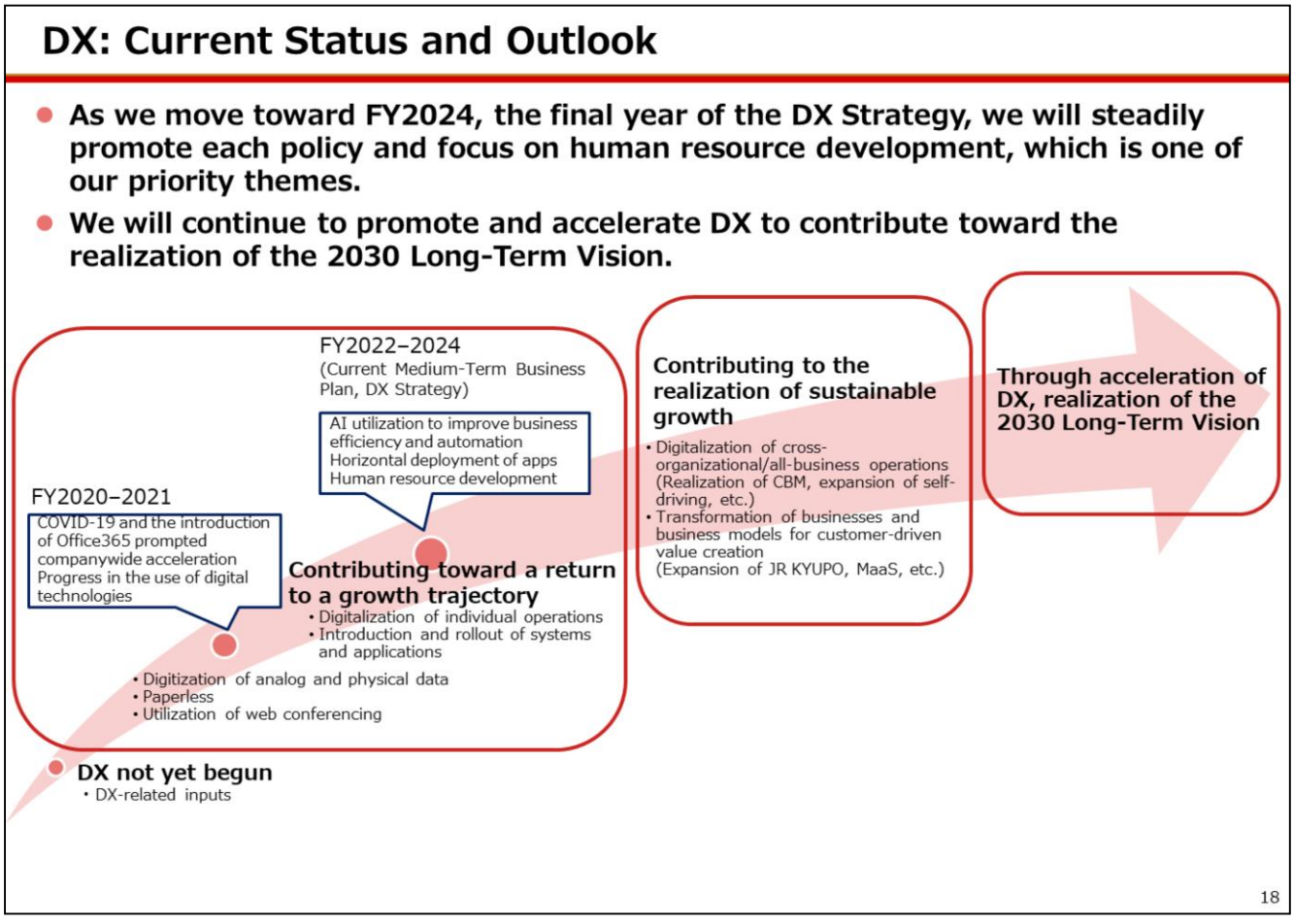
- We define a Digital Hero as "a hero who has acquired digital skills and can actively and boldly achieve business reform throughout the workplace and organization," and we recognize employees who have developed apps and engage in RPA as such.

- The system establishes three levels, based on a person’s record of development: digital challenger, digital leader, and digital hero. As of the end of the first half of this fiscal year, 34 people have been certified, including one as hero.

- Through the Digital Hero Certification System, we will continue to accelerate the Digital Challenge and improve the digital capabilities of all employees.

Ⅳ　DX: Current Status and Outlook

- Finally, I would like to talk about the outlook of DX.



- I believe we are making steady progress on the DX Strategy under the current Medium-Term Business Plan, as I have introduced up to this point.

- This is the second year for the DX Strategy. We will steadily promote each of the measures as we move toward fiscal 2024, the final year of the Medium-Term Business Plan, and focus on human resource development, which is a priority theme.

- Moreover, we believe that genuine DX is not just about adopting and utilizing digital technologies; it is about reviewing and transforming the entire business model. We recognize that we have not yet fully achieved this. Going forward, we plan to strongly promote and accelerate DX across the entire Group, including improving the digital skills of each employee, in order to realize our 2030 Long-Term Vision.

- This concludes my explanation.

Forward-Looking Statements

These materials contain forward-looking statements concerning business forecasts, targets, etc. of the JR Kyushu Group.

These statements are judgments made by the Company based on information, projections, and assumptions available at the time of the materials' creation. Accordingly, please be advised that actual operating results could greatly differ from the contents of the materials due to the influence of COVID-19; changes in people's values and lifestyles; the economic situation inside and outside Japan and the economic situation in Kyushu; real estate market conditions; the progress of respective projects; changes in laws and regulations; and a wide range of other risk factors.

IR materials can be viewed on our corporate website:

https://www.jrkyushu.co.jp/company/ir_eng/library/earnings/