

**JR KYUSHU IR DAY 2022**

# **Toward the Railway of the Future**

---

November 29, 2022  
Kyushu Railway Company  
Director and Managing Corporate Officer,  
Director General of Railway Operations Headquarters  
Hiroyuki Fukunaga

- I am Hiroyuki Fukunaga, Director General of Railway Operations Headquarters.
- I will talk about the railway of the future while discussing the characteristics of our railway business.
- Please turn to the next slide.

## 1 Characteristics of the Railway Business

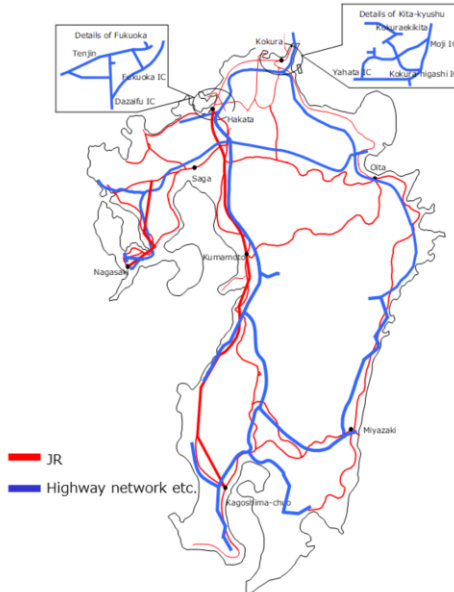
## ● Characteristics of JR Kyushu's railway business

- Kyushu's population is shrinking and aging faster than in the rest of Japan.
- Competition with private cars and highway buses is fierce in Kyushu as the highway network is being developed in stages.

## Railway network



## Highway network



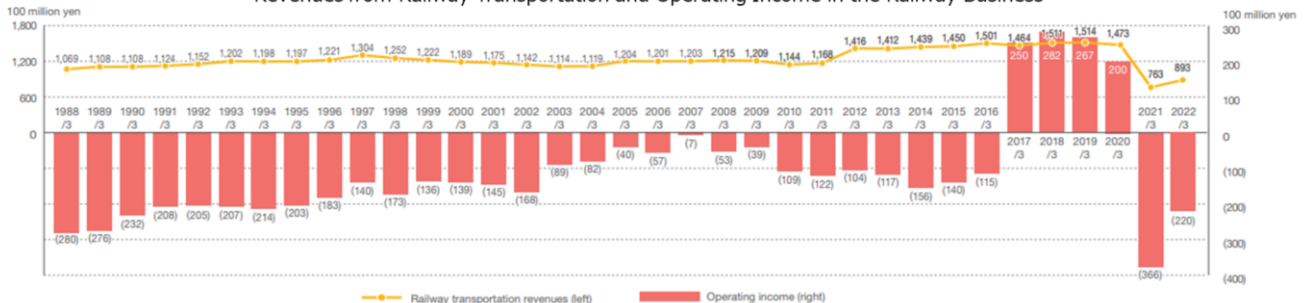
- To begin, I will discuss conditions in the railway business for JR Kyushu.
- Shrinking population is a serious national problem and a problem in Kyushu, with the exception of a few cities such as Fukuoka City. As highways are constructed, train services are facing more competition for market share with private cars and highway bus services.
- Please turn to the next slide.

# 1 Characteristics of the Railway Business

## ● Characteristics of JR Kyushu's railway business

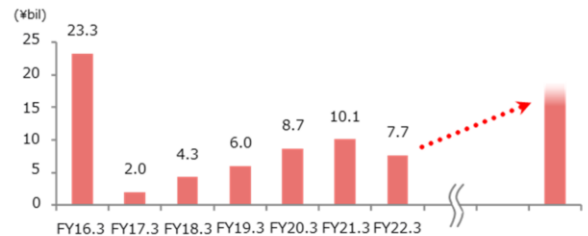
- From our start at the time of breakup and privatization in 1987, we have had numerous unprofitable local lines.
- Due to the full opening of the Kyushu Shinkansen line in 2011 and other factors, pre-pandemic transportation revenues exceeded ¥150.0 billion.

Revenues from Railway Transportation and Operating Income in the Railway Business



## ● Gradual increase in depreciation costs

- Decrease in depreciation costs in conjunction with impairment losses on fixed assets held in the railway business (approximately ¥520.0 billion) recorded on March 31, 2016
- Capital investment of between ¥25.0 billion and ¥30.0 billion a year conducted in railway business after impairment losses
- Gradual increase of ¥1.0–2.0 billion per year in depreciation costs going forward due to continuation of current trends



- Our railway business has been unprofitable for many years after the national railways were broken up and privatized in 1987. However, operations became profitable with the full opening of the Kyushu Shinkansen and after the booking of impairment losses on fixed assets in 2016. Before the pandemic, railway revenue from passenger transportation had increased to around ¥150.0 billion.
- After booking impairment losses, JR Kyushu has spent ¥25.0-30.0 billion annually on capital investments, and depreciation has tended to rise by about ¥1.0-2.0 billion annually.
- Please turn to the next slide.

# 1 Characteristics of the Railway Business

## ● Pre-pandemic efforts to improve profits

### Raise revenues

#### Increase and speed up intercity transportation

Changes in the number of trains and travel times  
<April 1987→April 2019>

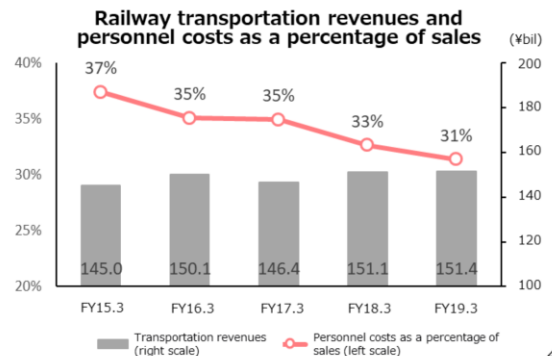
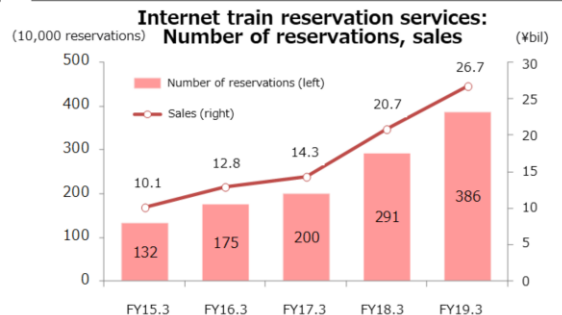
Hakata to Nagasaki	[26 trains → 52](+26) [2:13→1:48](-0:25)
Hakata to Oita	[18 trains → 63](+45) [2:45→2:01](-0:44)
Hakata to Kumamoto	[50 trains → 112](+62) [1:38→0:32](-1:06)
Hakata to Kagoshima	[22 trains → 72](+50) [4:33→1:16](-3:17)

### Reduce costs

#### Realize efficient business operations

- Slim station systems
- Move to single-person operation
- Achieve labor savings through mechanization, etc.
- Optimize business operations through business transfers
- Streamline organization

#### Promote use of the internet reservation service



- In this challenging business environment and given the characteristics of the business, JR Kyushu has worked to improve income and expenditures in the railway business.
- For example, JR Kyushu has worked to increase revenue by proactively shifting toward an online reservation system while increasing and accelerating intercity transportation services. We have reduce costs by steadily reducing the ratio of personnel costs to revenues through more efficient business operations, as a result of slimming down station systems and adopting single-person operations.
- Please turn to the next slide.

## 2 COVID-19 and BPR

### ● Issues faced during COVID-19 and the post-pandemic

- Weaknesses of the railway business (over-reliance on flow of people, fixed cost ratio too high) exposed
- As the sales outlook is not expected to recover dramatically in the post-pandemic, efforts to reduce costs continuously is urgently called for to restore profitability.

### **BPR (Business process re-engineering) introduced over a short period**

**Objective: Achieve ¥14.0 billion\* reduction in fixed costs during the current medium-term business plan**

\*Compared with FY20.3, excluding extraordinary items

### ● BPR project characteristics

- Implement structural reforms targeting railway business operations and back office

#### **Reform without exceptions**

- No significant cost reductions possible by extending conventional approaches
- Thoroughly collect and analyze objective information such as amounts, time, number of people
- Reexamining organizational boundaries and conventional rules, and what we aim to be

#### **Quickly consider and decide**

- Plan shakeout measures swiftly (plan in 4 months, execute in 2 years)
- Management swiftly decides on whether or not to implement measures

#### **Taking ownership**

- Project leaders issue weekly reports for real-time sharing, including among the 2,100 employees of Group companies
- Solicit ideas from a wide range of employees (4,000 ideas) and hold opinion-exchange meetings

5

- Due to the pandemic, these initiatives completely changed as the dependence of the railway business on the flow of people and its high fixed cost ratio was laid bare. In order to continue offering railway business in the post-pandemic, we had to quickly reduce fixed costs.
- Therefore, we implemented structural reforms in a short period, reducing fixed costs with business process re-engineering (BPR). Our objective is to reduce costs by ¥14.0 billion, which is equivalent to about 10% of operating costs in the railway business in the fiscal year ended March 31, 2020.
- The characteristics of BPR focuses on reforming without exceptions, making quick considerations and decisions, and taking ownership. Based on an objective quantitative analysis, we have repeatedly reviewed systemic barriers and rules, and management made a commitment to making decisions in short order to devise a restructuring plan. We internally collected more than 4,000 ideas about reforms, and worked in unison as a Group to tackle these issues.
- Please turn to slide 7.

## 2 COVID-19 and BPR

### ● Key BPR initiatives

- Implement optimization of service levels, increase efficiency of inspection and maintenance, multi-skilling, etc.
- For BPR, basically focus on reducing fixed costs without investing

#### Establish new service systems

Review station staffing structure through the use of DX, discontinue ticket-sales counters, and reduce operating hours, etc.



Promote use of the JR Kyushu app and internet reservations



#### Establish a new rolling stock and ground equipment systems

Renovate rolling stock to increase boarding efficiency and handle internally those operations related to rolling stock, etc.



Use longer seats in rolling stock



As we expand the number of segments where trains are operated by a single person, we will ensure safety by installing cameras on rolling stock and installing platform railings at some stations.



Camera on rolling stock

#### Optimize timetables (fall 2022 timetable revisions)

- Revise the operating system to match passenger usage
- Particularly on conventional lines, revise operating system centering on the Fukuoka metro area, expand number of segments where trains are operated by a single driver, and introduce other measures.

#### Increase efficiency of inspection and maintenance

- Revise replacement standards by enhancing inspection accuracy.
- Reduce labor requirements by changing rolling stock materials.
- Revise inspection/maintenance operations based on train lines' state of use.

#### Promote employee acquisition of multiple skills

On the Nishi-Kyushu Shinkansen, which opened in September 2022, the driver conducts vehicle inspections along with the staff in charge of rolling stock.

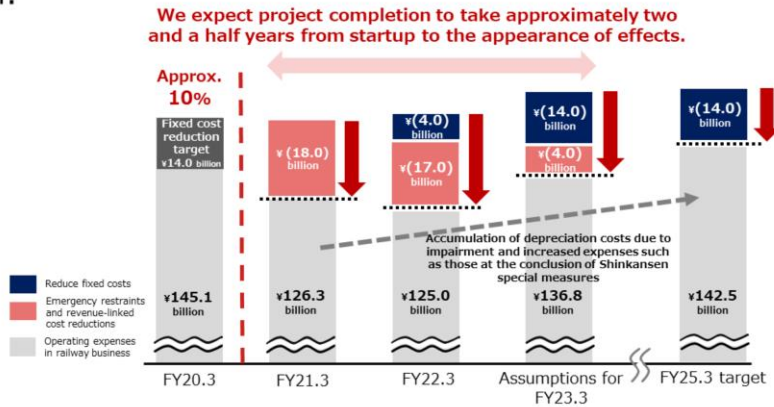


Train-kilometers	Rolling stock owned	Expected cost reductions (full year)
(2.3)%	(7)%	¥(0.8) billion

## 2 COVID-19 and BPR

### ● Completion of BPR

- We are on track to meet our fixed-cost reduction target of ¥14.0 billion this fiscal year.



### ● Numerical targets of the current medium-term management plan (FY2025.3)

- We aim for operating revenue of ¥159.0 billion, around 96% of the level in FY2020.3.
- We expect to move into the black, and are targeting operating profit of ¥16.5 billion, even factoring in the accumulation of depreciation costs and the conclusion of Shinkansen special measures.

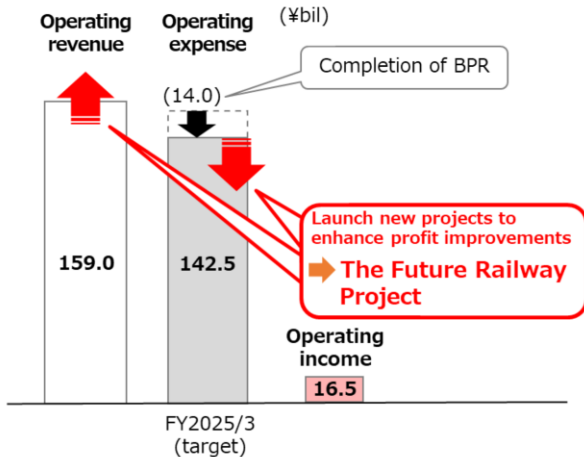
- Over a period of about two and a half years since the launch of this project, we expect to achieve, this fiscal year, our target for a ¥14.0 billion boost from BPR.
- In the fiscal year ending March 31, 2025, the final year of our medium-term business plan, JR Kyushu targets operating revenue of ¥159.0 billion and operating income of ¥16.5 billion, even though railway transportation revenues are unlikely to return to pre-pandemic levels.
- However, we have not given up on efforts to improve income and expenditures in the railway business.
- Please turn to the next slide.

### 3 The Post-Pandemic World and the Future Railway Project

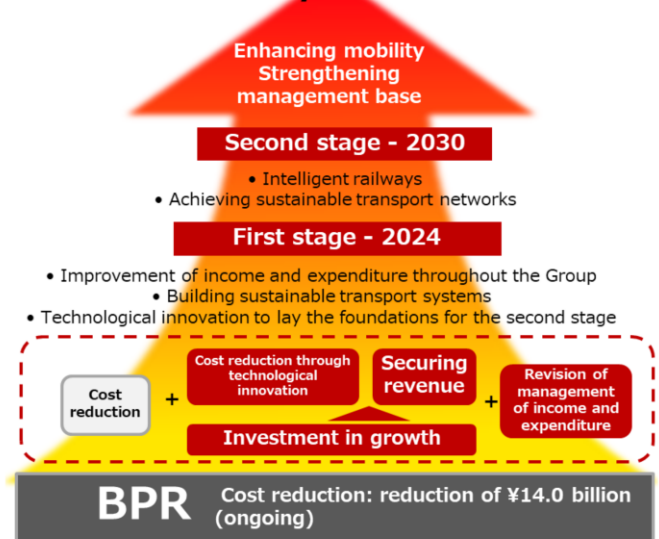
## The Future Railway Project

Taking a railway business streamlined through BPR as our starting point, we will work to advance mobility and strengthen our management capabilities to **create the "future of railways" that will drive city-building in Kyushu.**

#### Relationship between the medium-term business plan and the Future Railway Project



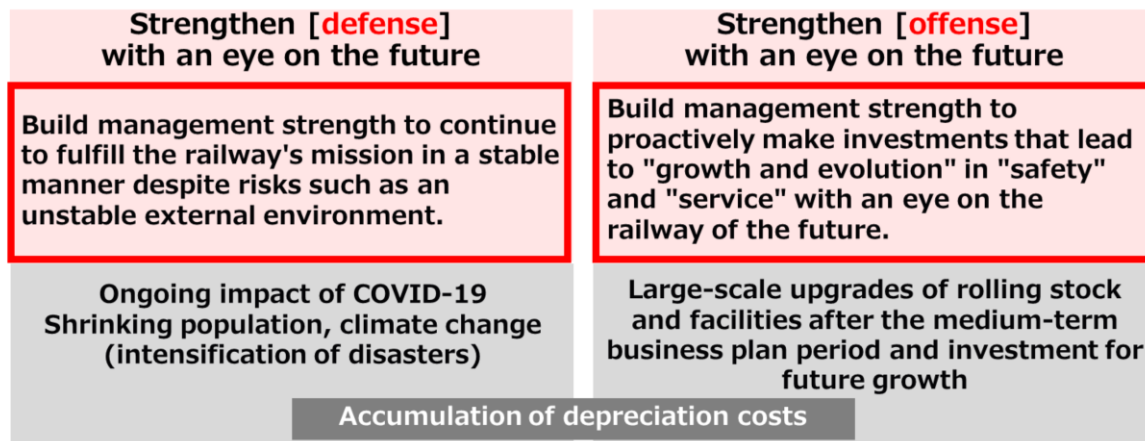
#### Create the "future of railways" to drive urban development in Kyushu.



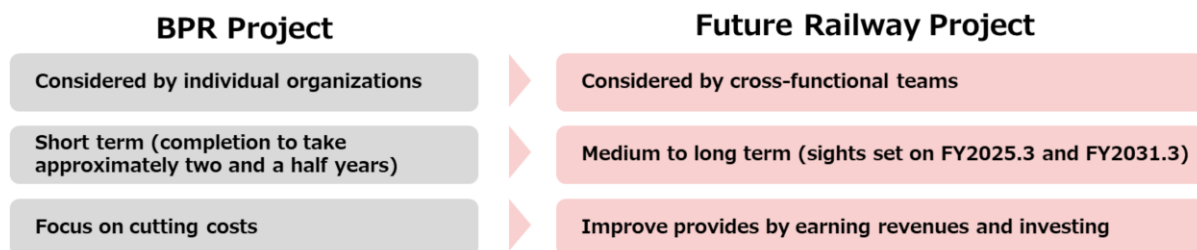
- Starting with the slimmed down railway business that resulted from BPR, JR Kyushu launched the Future Railway Project this spring with the aim of creating the "future of railways" that is a driving force in city-building in Kyushu.
- Under the Future Railway Project, we aim to improve income and expenditures by the fiscal year ending March 31, 2025, during the current medium-term business plan, and then with an eye on the fiscal year ending March 31, 2031.
- Please turn to the next slide.

### 3 The Post-Pandemic World and the Future Railway Project

#### ● Aims of the Future Railway Project



#### ● Differences between BPR and the Future Railway Project



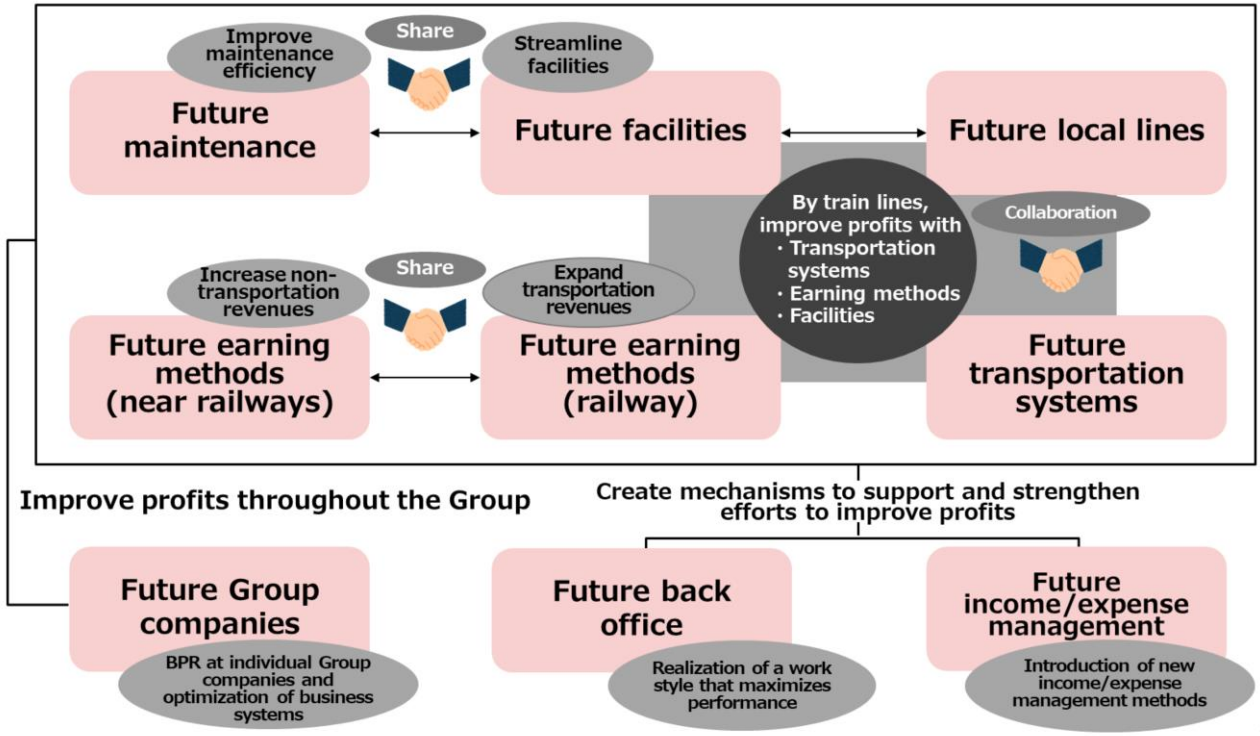
9

- The objective of the Future Railway Project is both defensive and offensive, as it is necessary to build a management foundation that can handle an increase in depreciation. On the defensive side, we aim to prepare for risks in the external environment, such as pandemics and major natural disasters. On the offensive side, we intend to build a foundation that allows us to invest heavily in future growth while improving safety and services.
- We are clarifying the difference between BPR and the Future Railway Project, such as forming new cross-functional teams, charting a growth strategy for the medium to long term, and taking steps to improve income and expenditures by earning revenues and investing.
- Please turn to the next slide.

### 3 The Post-Pandemic World and the Future Railway Project

#### ● Promotion structure for the Future Railway Project

- We have formed cross-functional teams, and cross-organizational studies are underway.



10

- The Future Railway Project consists of nine cross-functional teams that explore cross-organizational initiatives. In addition to a team specializing in the railway business, we are also working broadly in collaboration with Group companies and back offices.
- Next, I will introduce six major initiatives. Please turn to the next slide.

### 3 The Post-Pandemic World and the Future Railway Project

#### ● Specific examples for consideration: Future earning methods (railway)

##### Raise revenues

Maximize lifetime value (LTV) of customers

Railway transportation revenues =

number of people ((1) new + (2) repeat customers) × (3) unit price

##### To date

##### Future Railway

1	Take on the challenge of acquiring new customers and increasing the number of customers	<ul style="list-style-type: none"><li>• Opened Shinkansen</li><li>• Opened new stations</li><li>• Stimulated travel demand and planned campaigns</li></ul>	<ul style="list-style-type: none"><li>• Refine D&amp;S trains</li><li>• Ensure inbound traffic</li><li>• Transition from car-using demographic</li><li>• Urban development based on stations, new station development</li></ul>
2	Cultivate repeat customers	<ul style="list-style-type: none"><li>• Increased service level</li><li>• D&amp;S trains</li><li>• Online reservations, EX Service</li><li>• JR Kyupo</li><li>• JR Kyushu Walking</li></ul>	<ul style="list-style-type: none"><li>• Digital marketing for each stage of life</li><li>• Expand JR Kyushu app and point service</li><li>• Take on challenges of MaaS and subscriptions</li><li>• Enhance plans targeting railway fans</li></ul>
3	Receive appropriate compensation	<ul style="list-style-type: none"><li>• Reevaluated discount tickets</li><li>• Increased limited express surcharges, etc.</li><li>• Yield management</li></ul>	<ul style="list-style-type: none"><li>• Enhance yield management</li><li>• Take on the challenge of creating new value</li><li>• Introduce pricing based on value provided</li></ul>

##### Station system optimization

Agile and efficient operation of station systems

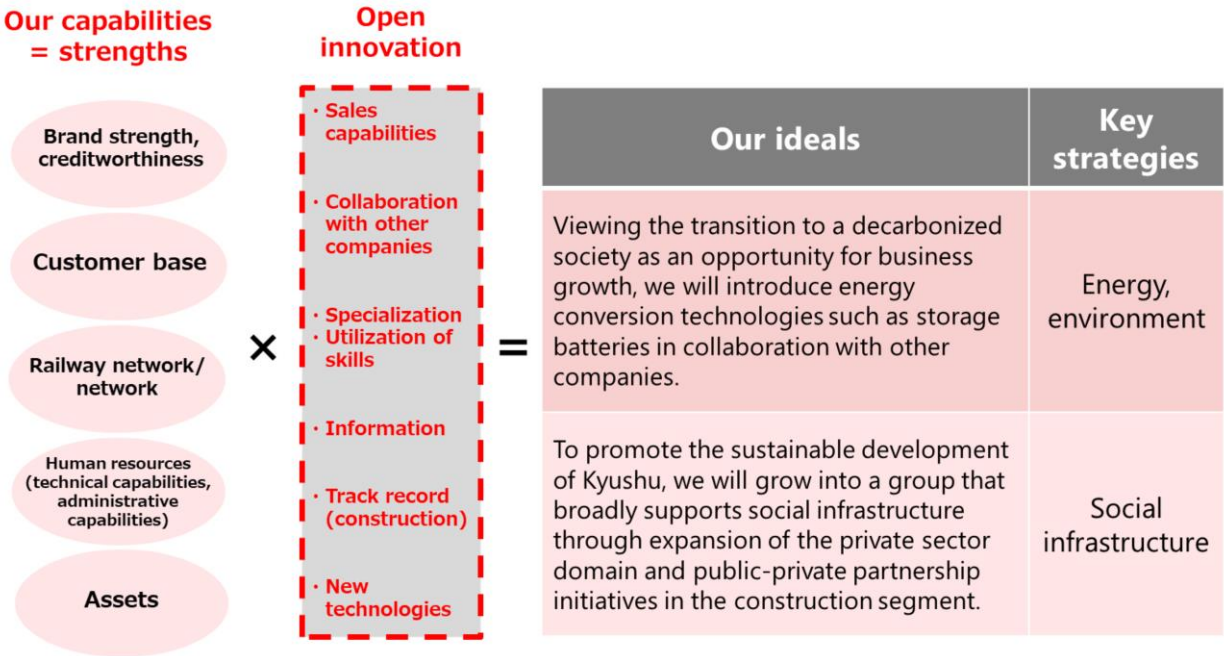
11

- On the topic of future earnings methods for railway operations, we are examining ways to increase revenue and optimize station operations.
- While refining past measures, we will take fresh steps to acquire new customers, encourage repeat customers, and set prices at appropriate levels, with the objective of maximizing the lifetime value of customers.
- Please turn to the next slide.

### 3 The Post-Pandemic World and the Future Railway Project

#### ● Specific examples for consideration: Future earning methods (near railways)

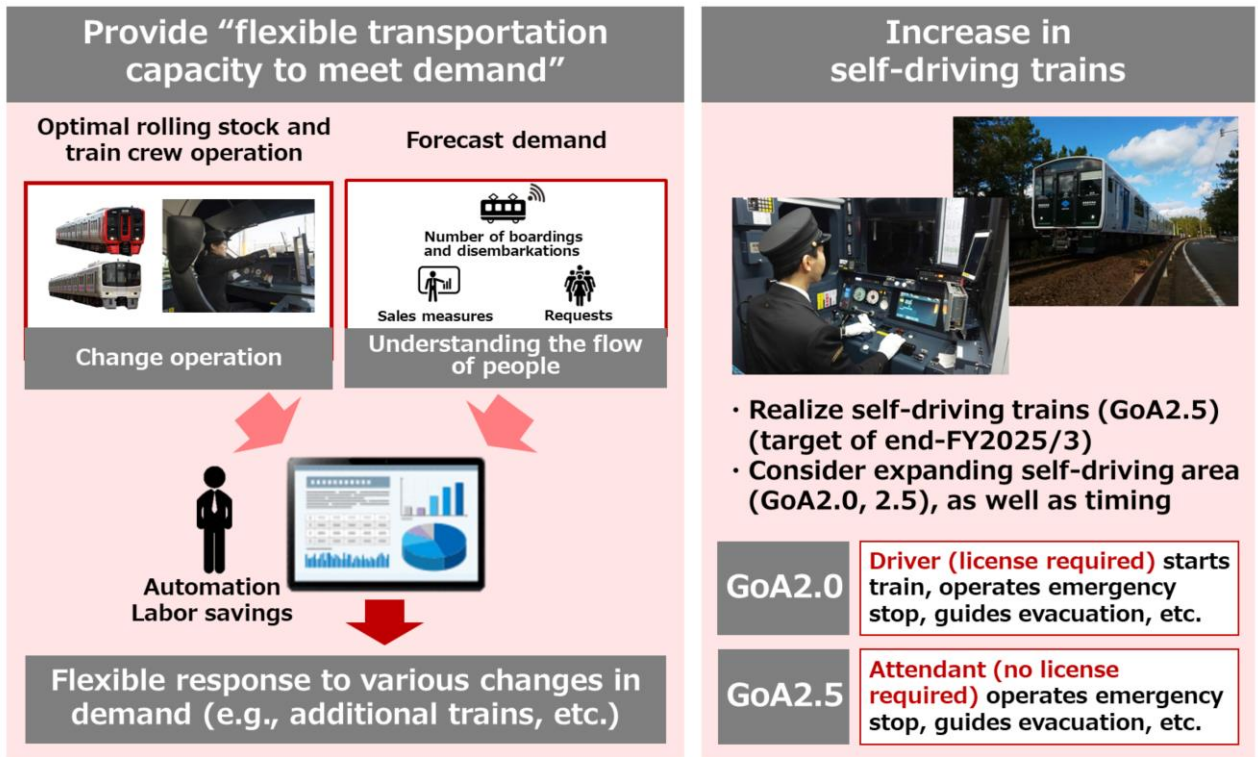
We will work to define key strategies for creating new markets (customers) by leveraging our capabilities and open innovation.



- On the topic of future earnings methods for areas near railways, we will examine ways to generate new value through a combination of open innovation and our strengths in railway operations.
- Our core strategies entail energy & the environment and social infrastructure. We will create growth strategies while coordinating with Group companies and external partners.
- Please turn to the next slide.

### 3 The Post-Pandemic World and the Future Railway Project

#### ● Specific examples for consideration: Future transportation systems



13

- On the topic of future transportation systems, we will examine ways to provide flexible transportation capacity to meet demand and expand self-driving trains.
- We aim to create a framework for transportation services able to flexibly change schedules in response to changes in demand and satisfy customers. We will also expand areas for self-driving trains with drivers or attendants other than drivers.
- Please turn to the next slide.

### 3 The Post-Pandemic World and the Future Railway Project

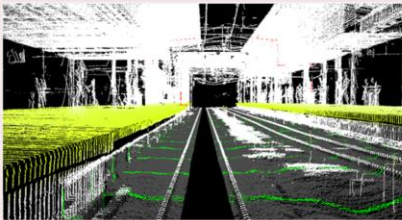
#### ● Specific examples for consideration: Future maintenance

##### Use CBM\* to minimize life cycle costs

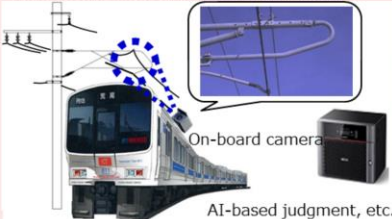
Utilize sensing and monitoring technologies to accurately and frequently monitor rolling stock and ground equipment conditions (data).

⇒ Abnormality detection and deterioration (failure) prediction based on analysis of accumulated data

3D point cloud data of facilities around train lines



Use AI to monitor facilities around train lines



Ascertain the condition of rolling stock (equipment)

Rolling stock center



Transmission



Use AI image analysis to check for loose bolts



##### Improve productivity and safety through mechanization and labor savings

##### Use IoT and AI to improve productivity of inspections



Visual inspection

⇒ Data acquisition by train, drone, etc. x AI-based decision making

##### Use AI to improve safety of in-track work



Train watching operations that require human attention

⇒ Train watching operations that utilize AI

\*Condition-based maintenance

14

- Regarding the future of maintenance, we will introduce technologies for understanding and analyzing data in more detail about the status of rolling stock and facilities, in an effort to minimize maintenance costs over their entire lifecycle.
- As inspections and surveillance currently being conducted with personnel are replaced by machinery and AI systems, we anticipate improvements in productivity and safety.
- Please turn to the next slide.

### 3 The Post-Pandemic World and the Future Railway Project

#### ● Specific examples for consideration: Future facilities

Optimize railway assets with the latest infrastructure and state-of-the-art technology

	To date	Future Railway
Future stations	<ul style="list-style-type: none"><li>• Guidance provided by station staff and signage</li></ul>	<ul style="list-style-type: none"><li>• Provide optimal guidance services using digital methods</li><li>• Provide information using the JR Kyushu app</li></ul>
Future operating facilities	<ul style="list-style-type: none"><li>• High-cost train control system with wired connection</li><li>• Rolling stock powered by electricity or diesel</li></ul>	<ul style="list-style-type: none"><li>• Use wireless technology to streamline train control systems</li><li>• Introduction of rolling stock utilizing next-generation energy technologies (storage batteries, fuel cells, etc.)</li></ul>
Future business facilities	<ul style="list-style-type: none"><li>• Communication by phone, fax, etc.</li></ul>	<ul style="list-style-type: none"><li>• Maximize the use of digital infrastructure</li></ul>

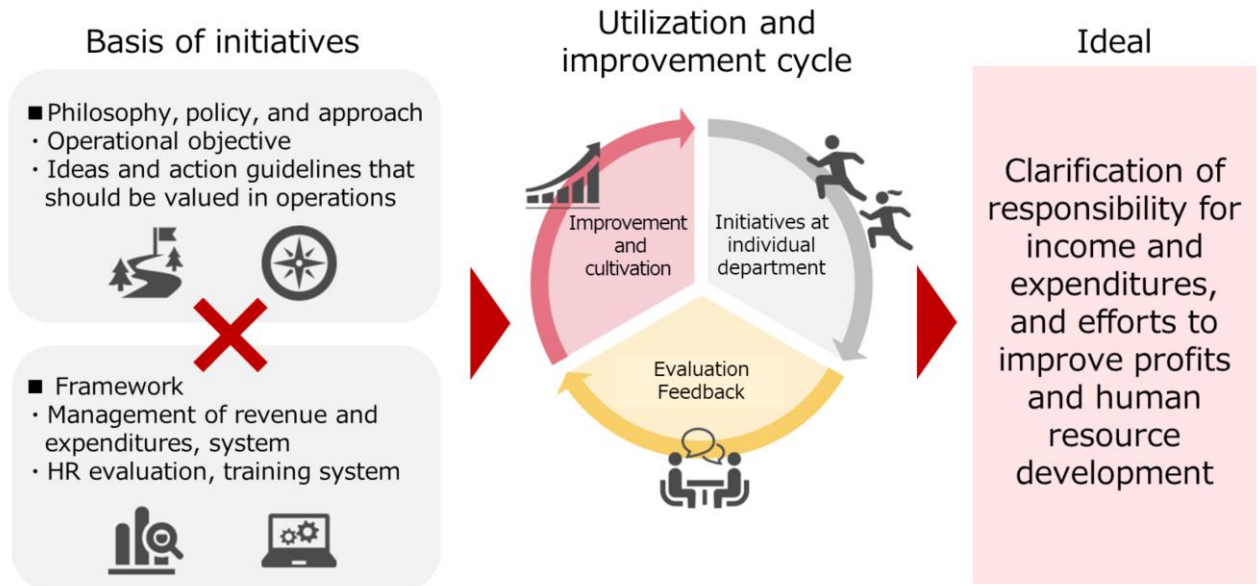
15

- On the topic of future facilities, we aim to optimize railway assets, including stations, operating facilities and business facilities.
- We aim to slim down railway operations while maximizing the use of technologies in wireless, next-generation energy fields and digital platforms.
- Please turn to the next slide.

### 3 The Post-Pandemic World and the Future Railway Project

#### ● Specific examples for consideration: Future management of revenue and expenditures

- Planning to customize "amoeba management" for railways to conduct management accounting
- Aiming for full-scale operation in the next fiscal year or later after identifying issues through trial operation

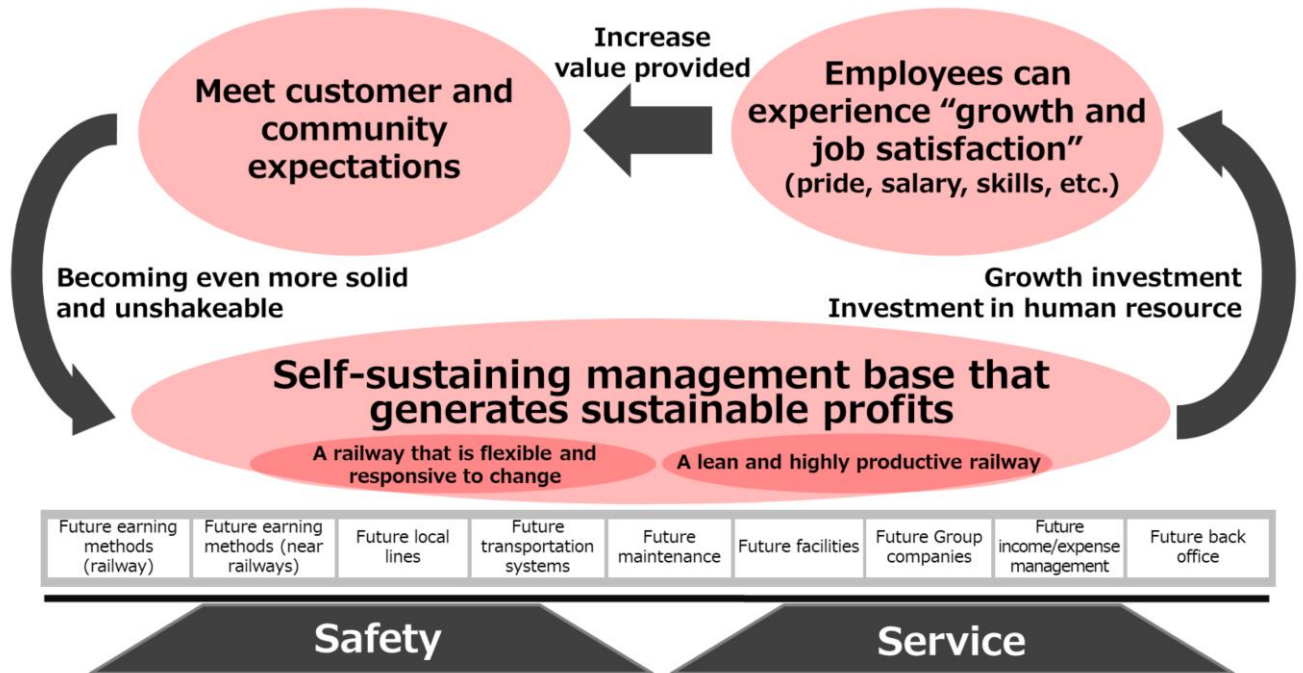


- Lastly, on the topic of future management of revenue and expenditures, we aim to engage in management accounting customized to railway operations, while referring to Kyocera Corporation's "amoeba management"
- Our aim for all employees in railway operations is to improve income and expenditures and develop human resources while visualizing income and expenditures on the front lines.
- Please turn to the next slide.

### 3 The Post-Pandemic World and the Future Railway Project

#### Ideal for the Future Railway

**"A self-sustaining management base and a virtuous cycle of growth"**



17

- Based on these initiatives, JR Kyushu's vision for the Future Railway Project is to attain a self-sustaining management base and virtuous cycle of growth.
- By being a railway that is flexible and responsive to change, and a lean and highly productive railway as its foundation for safety and services, JR Kyushu is keen to build a self-sustaining management base that generates sustainable profits, and increase employee engagement by invest in growth and human resources. We believe this will lead to improvement in the value we provide and better meet the expectations of all stakeholders, including customers and local communities. JR Kyushu will contribute to sustainable development by creating a virtuous cycle for the future.
- This concludes my presentation. Thank you for your attention.