

# Progress Briefing on 2022-2024 New Medium Term Business Plan

May 16, 2023

Mitsui Mining & Smelting Co., Ltd.



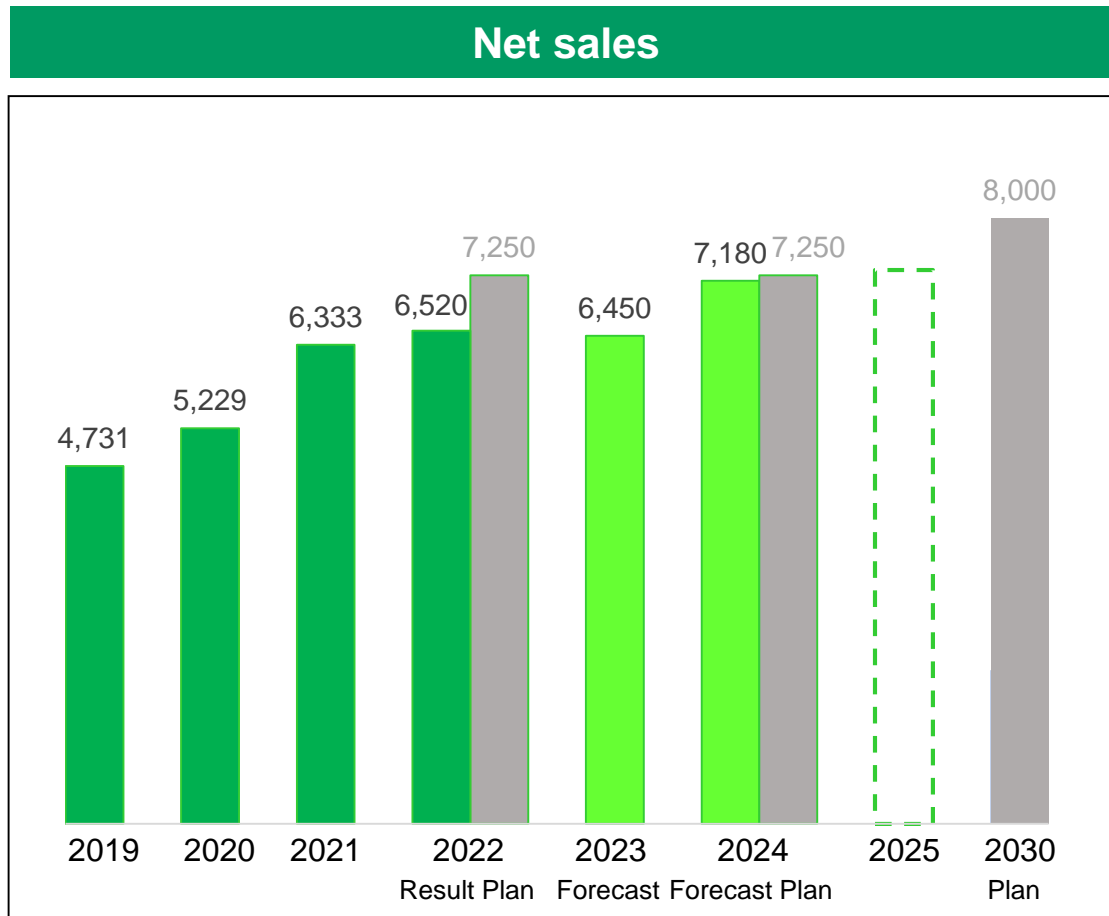
探索精神と  
多様な技術の融合で、  
地球を笑顔にする。



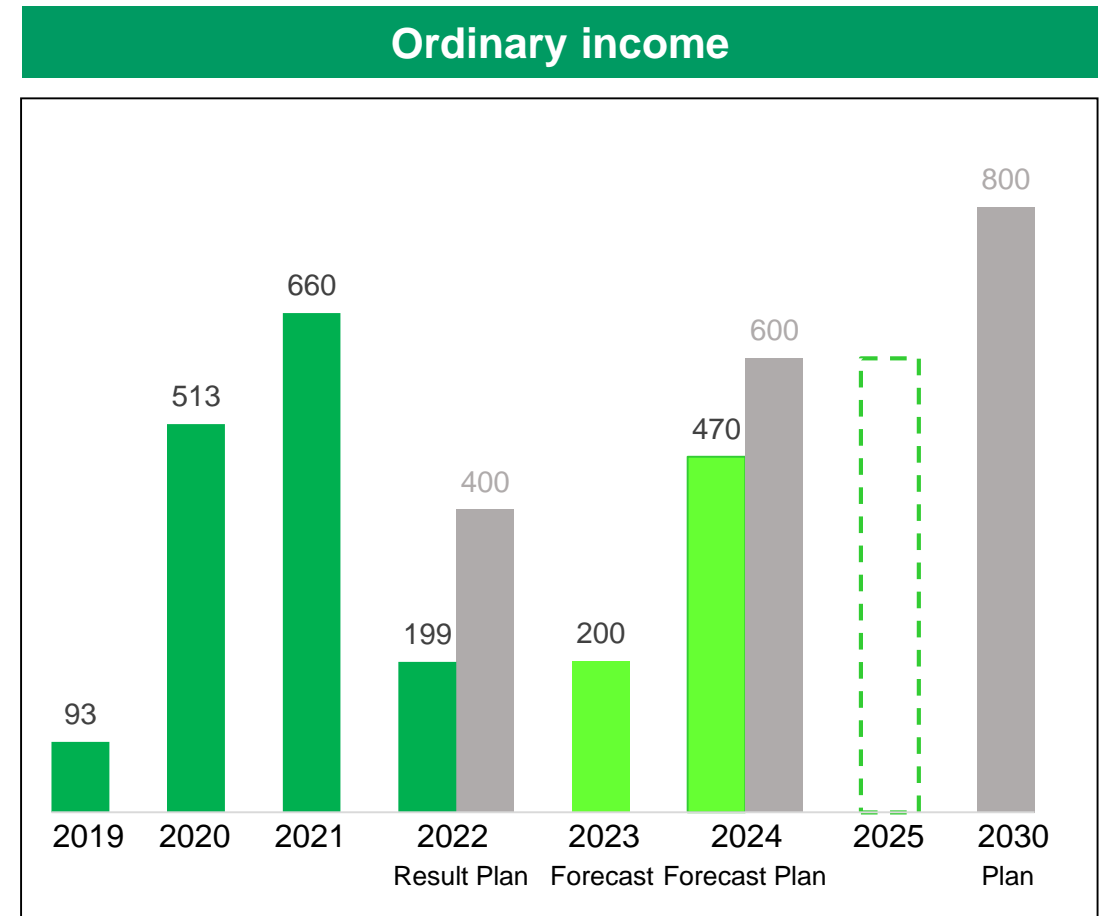
# Financial Index - Net Sales and Ordinary Income

Both net sales and ordinary income are expected to fall short of the 2022-2024 Medium-Term Management Plan.  
Ordinary income is expected to reach the 2022-2024 Medium-Term Management Plan level one year behind.  
However, the 2030 target remains unchanged.

(Unit: 100 m yen)



(Unit: 100 m yen)





# Financial Index - Ordinary Income and Real Profit by Segment

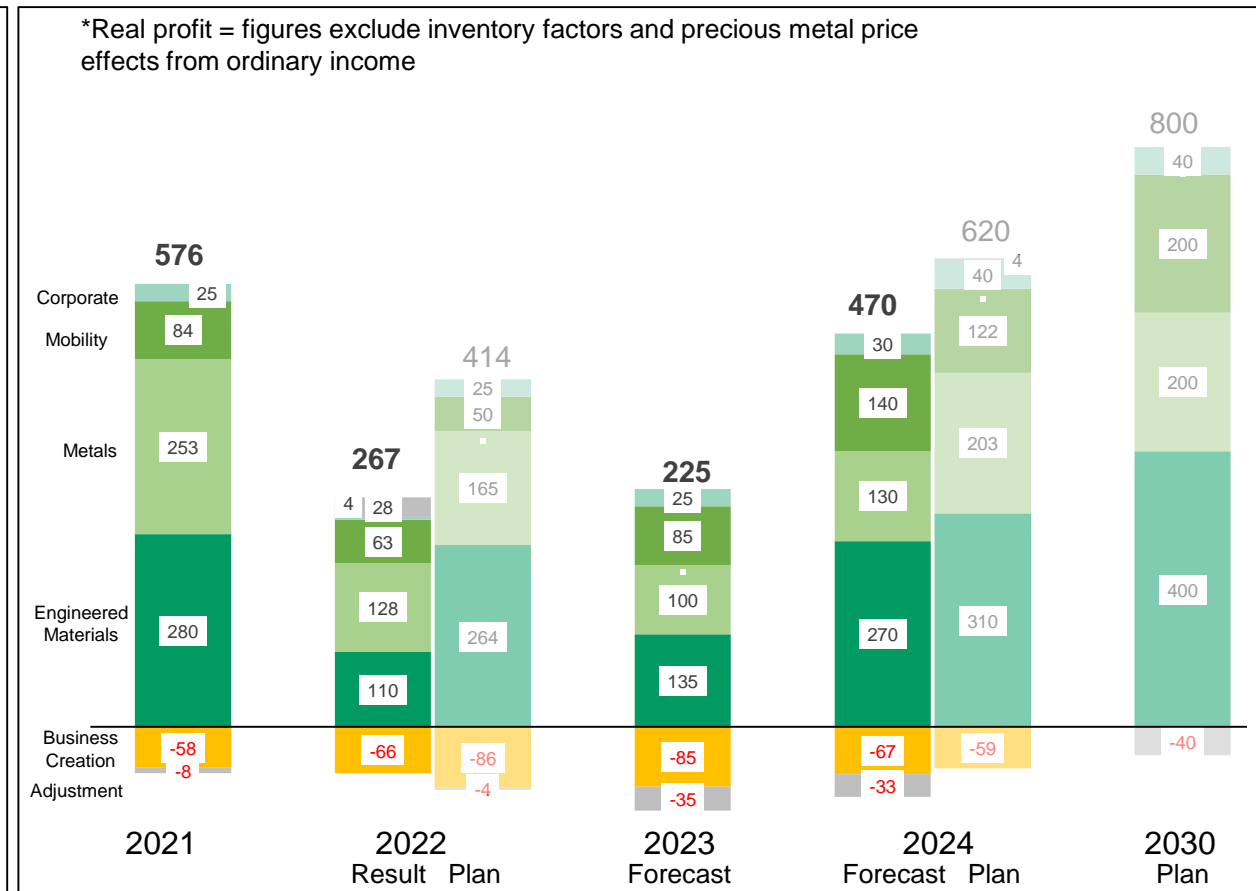
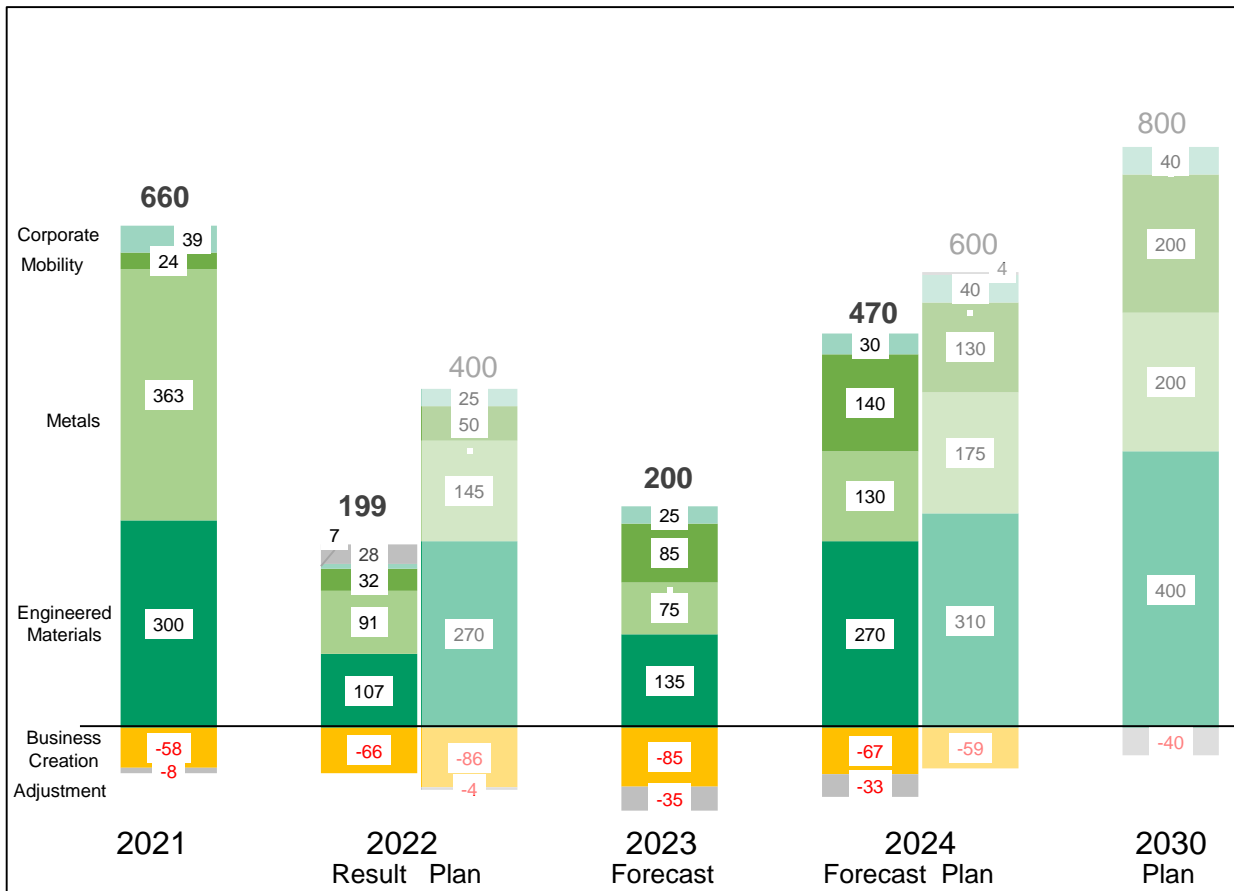
Engineered Materials will continue to be the growth driver, and Metals and Mobility will also be factored into profit growth.

(Unit: 100 m yen)

(Unit: 100 m yen)

## Ordinary income by segment

## Real profit by segment



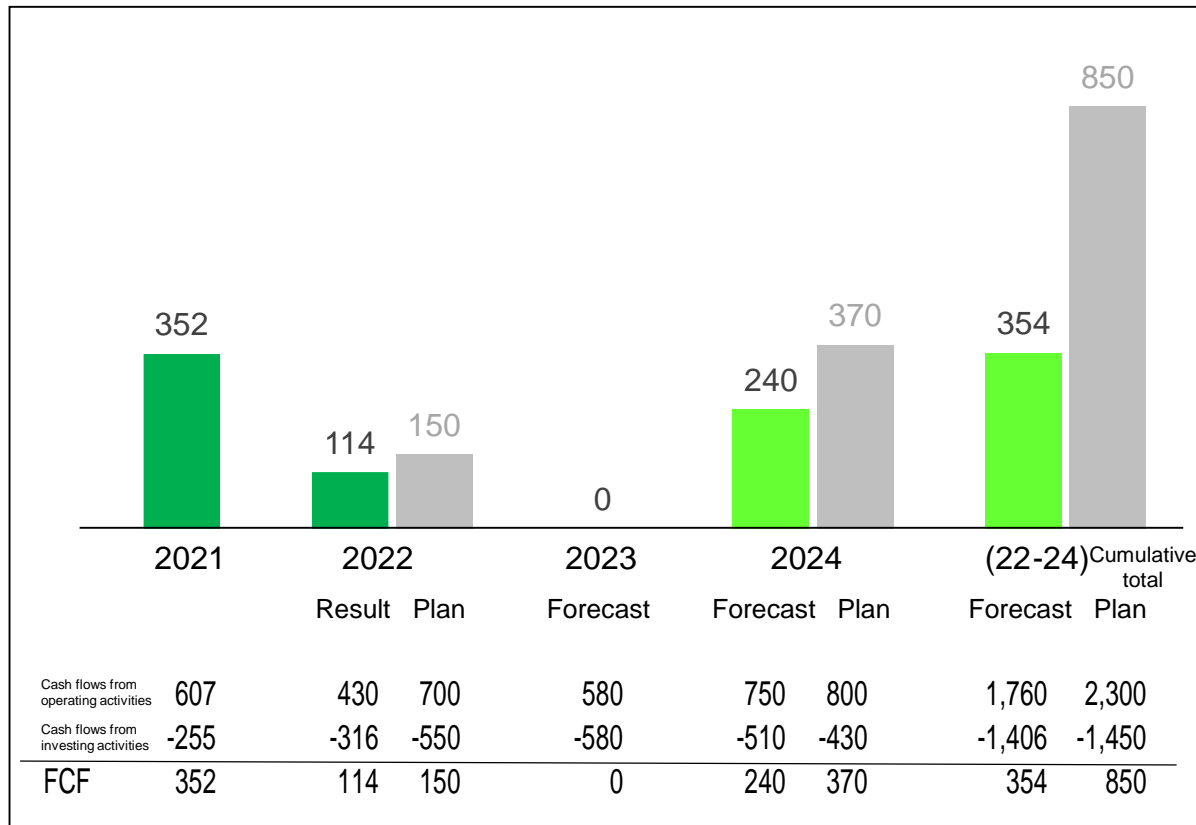


# Financial Index - Cash Flows, ROE, Equity Ratio

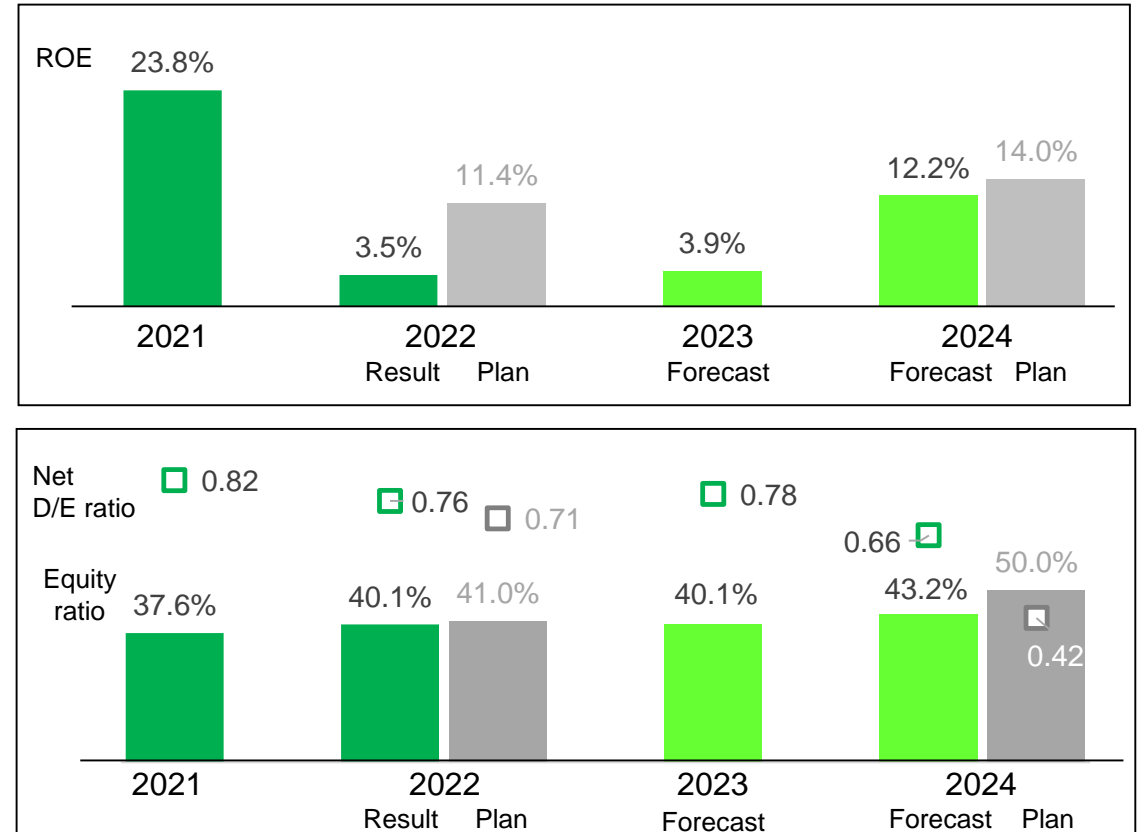
Due to the deterioration of business results compared to the 2022-2024 Mid-Term Plan, the following indicators are expected to fall short of the target of FY2024.

(Unit: 100 m yen)

## Free cash flows (FCF)



## ROE, Equity ratio, Net DE ratio





# Shareholder Return

The dividend policy will continue for the foreseeable future. Interim dividends will be paid from this fiscal year.

## Dividend Policy for the 2022-2024

By placing importance on providing continuous and stable dividends, we will provide dividends at a rate of 3.0% DOE (consolidated dividend on equity)

## Dividend per share forecast

	FY2022	FY2023 (Provisional amounts)		
		Interim	Year-end	Annual
Dividend per share	140 yen	70 yen	70 yen	140 yen

We will revise shareholder return policy in line with progress in improving financial strength



## Our Purpose and Vision

In order to adapt to the era of VUCA, we have established Purpose (Our social reason for existence), which forms the “axis of management decision-making” that is unaffected by any changes and is the “moral compass” for all employees in the 2022-2024 Medium Term Plan. We are implementing a range of initiatives to spread internally and externally, with a focus on Purpose.

### Purpose



We promote the well-being of the world  
through a spirit of exploration  
and diverse technologies.

- In-house newsletter, Purpose training, My Purpose
- Purpose special website launched (Purpose story movie posted)  
URL: <https://www.mitsui-kinzoku.com/purpose/> (Japanese version)
- Transportation advertisements (JR Osaki Station, JR Ageo Station (Saitama Prefecture), Fukuoka Airport)

### Our Group Vision for 2030

Building new businesses  
—and the future—  
with our material intelligence.



In-house newsletter espoir No. 75,  
special issue on Purpose  
Published in January 2023

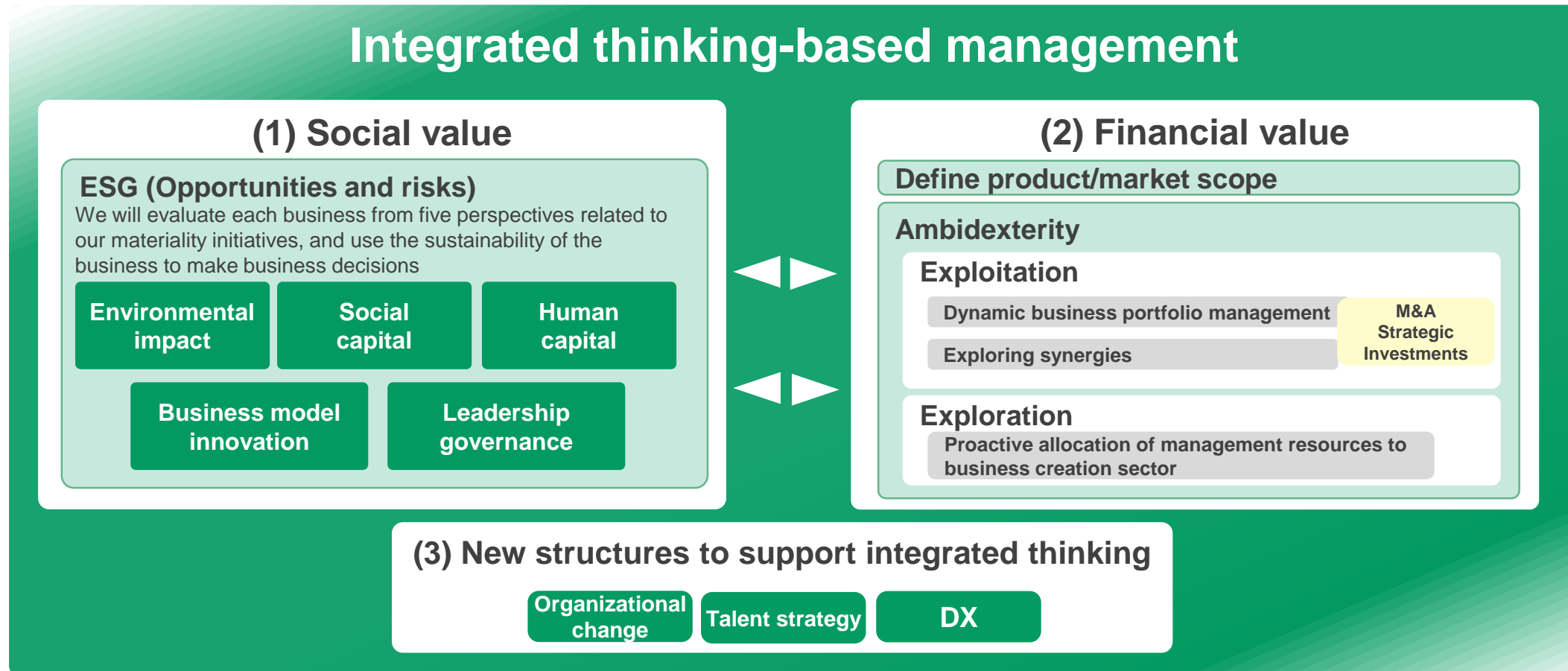


Published in front of the south  
exit ticket gates of JR Osaki  
Station



# Integrated Thinking-based Management

In order to achieve our vision based on Purpose, from April 2022, we conducted full-fledged introduction and promotion of Integrated Thinking Management, which aims to achieve both social and financial value.



### (3) New structures to support integrated thinking

Organizational change

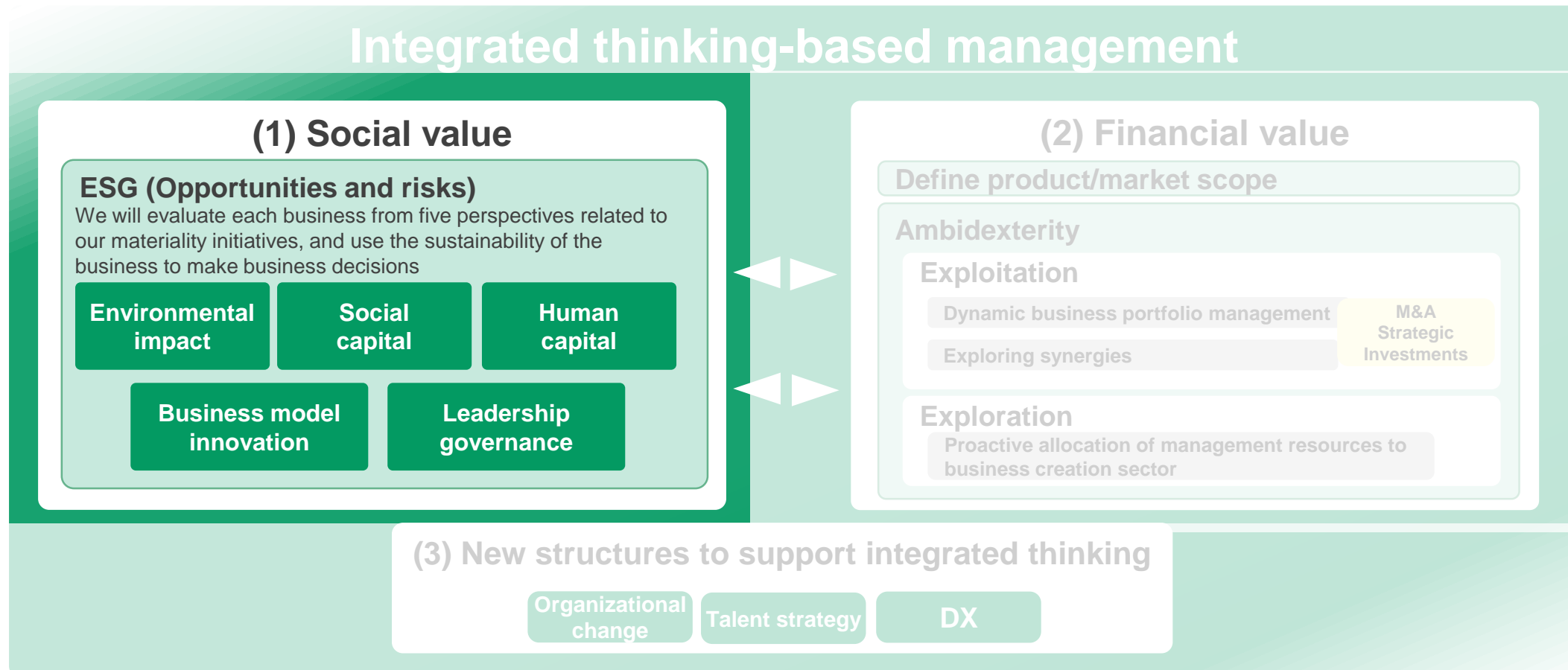
Talent strategy

DX



# Integrated Thinking-based Management

In order to achieve our vision based on Purpose, from April 2022, we conducted full-fledged introduction and promotion of Integrated Thinking Management, which aims to achieve both social and financial value.







Steady progress in initiatives centered on carbon neutrality as well as diversity and inclusion.

Main items	Main progress
<b>Environment</b> <b>(Initiatives to achieve carbon neutrality)</b>	<ul style="list-style-type: none"> <li>• Participation in “GX League Basic Concept” by Ministry of Economy, Trade and Industry (News release on May 15, 2023)</li> <li>• Decision to introduce an internal carbon pricing system (News release on March 23, 2023)</li> </ul>
<b>Human capital/Talent strategy</b>	<ul style="list-style-type: none"> <li>• Promotion of diversity and inclusion</li> <li>• Full-fledged strategic company-wide allocation of human resources</li> <li>• Transition to a job-based personnel system</li> <li>• Certified as 2023 Health &amp; Productivity Management Outstanding Organization (News release on March 10, 2023)</li> </ul>
<b>Governance</b>	<ul style="list-style-type: none"> <li>• Revitalization of the Board of Directors (Chairman of the Board of Directors to be an outside director)</li> <li>• Plan to introduce ESG index-based restricted stock awards (Disclosed by TSE on April 14, 2023)</li> </ul>

👉 Trials underway to visualize future financial effects of non-financial activities

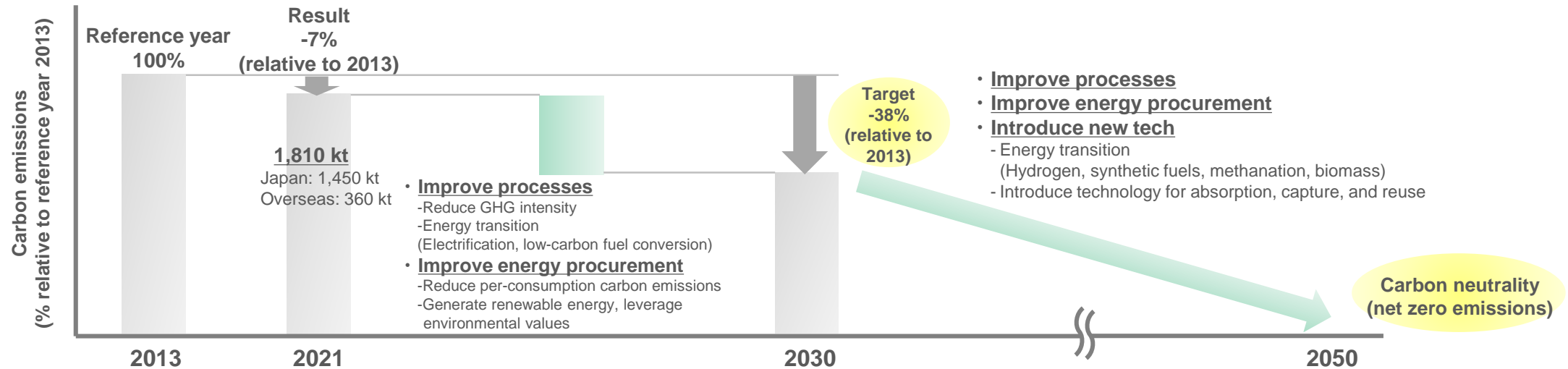
# Medium- to Long-term Carbon Emission Reduction Targets and Initiatives

Social value  
(Environment)

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through a spirit of exploration  
and diverse technologies.



- Reduce carbon emissions by 38% globally by FY2030 (Scope 1, 2 compared to FY2013)
- Aim to achieve carbon neutrality (zero net emissions) by FY2050



## Create projects for reducing carbon emissions

### Implement Carbon Neutral Roadmap

- ◆ Continuous scrutiny of environmental investments (technology assessment, cost reduction)
- ◆ ICP simulation (target, investment amount)

### Scope 3 Monitor carbon emissions

- Under monitoring.
- Finish company-wide monitoring and set target by the end of FY2023

### Use LCA\*1 to identify areas to improve

- ◆ Roll out LCA across organization (Complete by FY2024)
- ◆ Quantify carbon footprint of each product and process

### Use TCFD scenario analysis to formulate strategy

- ◆ Roll out TCFD scenario analysis across organization (Complete by FY2024)
- ◆ Establish technologies and strategies for reducing carbon emissions

## Implement projects for reducing carbon emissions

### Use ICP\*2 as a guide for environmental investment

- ◆ Use ICP to assess profitability of prospective investments in carbon reduction and invest accordingly (**launch in FY2023**)

## Participate in GX

### Address new regulations and new technologies

- ◆ Build a system for emissions trading
- ◆ Gather information and materialize new technologies through collaboration with member companies

# ICP (Internal Carbon Pricing) System

Social value  
(Environment)

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through a spirit of exploration  
and diverse technologies.



## ICP System Overview (News release on March 23, 2023)

In-house carbon price	Scope 1: 30,000 yen/t-CO <sub>2</sub> Scope 2: 20,000 yen/t-CO <sub>2</sub>  *Set a higher carbon price for Scope 1 than for Scope 2 in order to further promote measures for reducing Scope 1, which is more difficult to reduce
Target	Capital and development investments involving changes in carbon emissions
Application method	In-house carbon price is applied to carbon emissions from eligible capital investment and development investment plans, and the cost conversion is used as a reference for investment decisions
Date of introduction	April 1, 2023

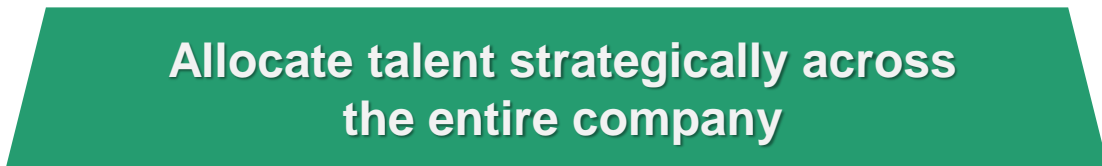
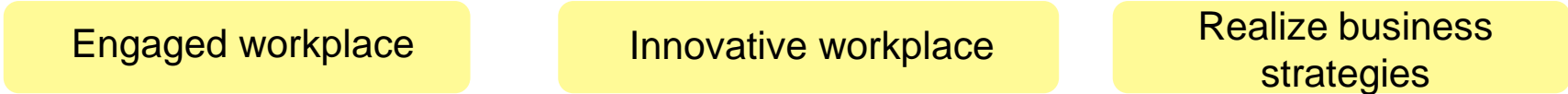
Going forward, we will further raise awareness within the company and promote low-carbon investment and climate change measures through the implementation of the “Company-Wide Roadmap to Carbon Neutrality by 2050,” utilizing the ICP system.



Social value (Human capital)

# Human Capital/Talent Strategy

We are implementing various measures for talent as an organization while at the same time respecting each individual (blue descriptions below).



Initiatives to leverage all types of diversity  
Introduction of KPI on women empowerment into remuneration of directors and officers

Strengthen human resources business partner functions  
Full-scale operation of specialized departments

**Career development support**  
Achieve professional growth and career vision of each employee  
One on one careers advice Enhanced training system

**Job satisfaction**  
Provide a positive work environment that supports focus and productivity of diverse talents  
Conduct employee awareness survey and execute measures

**Utilize human resources information**  
Comprehensive, de-personalized, centralized management  
System installation

**Develop human resources strategy**  
Identify issues with foresight and resolve them quickly  
Dialogue with management and business divisions

[Respect for Individuals]  
Recognize, enhance, and utilize diversity

[Utilization as an organization]  
Create a competitive advantage in terms of human resources

Performance-based talent management (Transition to a job-based human resources system in FY2022)

Respect for human rights

# Health and Productivity Management Promotion System

Social value  
(Human capital)

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through a spirit of exploration  
and diverse technologies.



- Disseminate the Health and productivity management declaration internally and externally
- Certified as a 2023 Health & Productivity Management Outstanding Organization (Large enterprise category)  
(News release on March 10, 2023)

## Health and Productivity Management Declaration

Mitsui Kinzoku Group aims to continue to contribute to society with valuable products. In order to achieve this goal, it is necessary to create a work environment where all employees and their families can maintain both physical and mental health. We become even more vibrant company with higher productivity and performance through keeping our employees and their families healthy, which is a foundation for them to maximize their individuality and abilities. We declare that we will continuously contribute to society by promoting the creation of a more vibrant company through engaging in initiatives to maintain and promote the health of our employees and their families.



- Certified as a Health & Productivity Management Outstanding Organization continuously since 2019
- Based on our achievements in FY2022, we continuously received certification as a 2023 Health & Productivity Management Outstanding Organization (Large enterprise category)

# ESG Index-based Restricted Stock Awards

Social value  
(Governance)

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and diverse technologies.



The Compensation Committee decided to introduce ESG-related indicators for the compensation of Directors (excluding Outside Directors) to ensure that the Company continues to contribute to society and remain essential to it in the future.

- In addition to existing continuous service-type restricted stock awards, the Company has introduced a new ESG index-based restricted stock awards with the achievement of ESG indicators added as a requirement
- Specific ESG indicators are related to greenhouse gas reduction, promotion of job satisfaction and diversity, and compliance

Percentage of stock-based compensation based on consolidated ordinary income of 40 billion yen

Target	Mode of Compensation	Status of ESG indicator achievement and share of equity compensation (total of continuous service type and ESG index-based type) in total compensation		
		Target achieved	Partially achieved	Missed all targets
Directors	Stock-based compensation	15%	10% (Same level as FY2022) ~12.5%	7.5% (Continuous service only, total stock-based compensation will decrease compared to FY22)

(Reference) Ratio of Directors' Compensation: If all ESG items are achieved

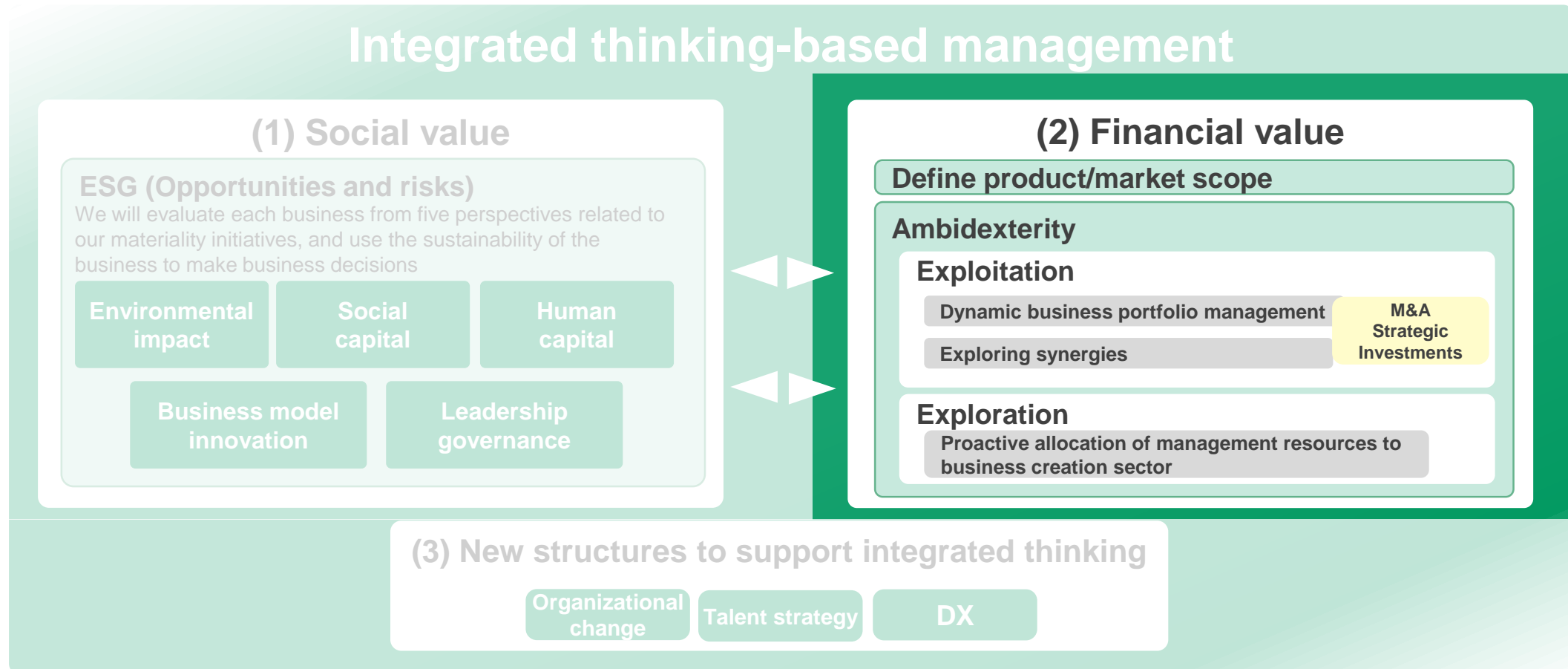
Consolidated Ordinary Income	0 yen or less	20 billion yen	40 billion yen	60 billion yen	80 billion yen or more
Base compensation	78%	65%	53%	48%	40%
Performance compensation	0%	17%	32%	38%	48%
Stock-based compensation	22%	18%	15%	14%	12%

Since the Company's performance-based compensation fluctuates according to the Company's performance, the percentage fluctuates within the range shown on the left



# Integrated Thinking-based Management

In order to achieve our vision based on Purpose, from April 2022, we conducted full-fledged introduction and promotion of Integrated Thinking Management, which aims to achieve both social and financial value.



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▶

# FY2022 Review of Matrix for Dynamic Portfolio Management

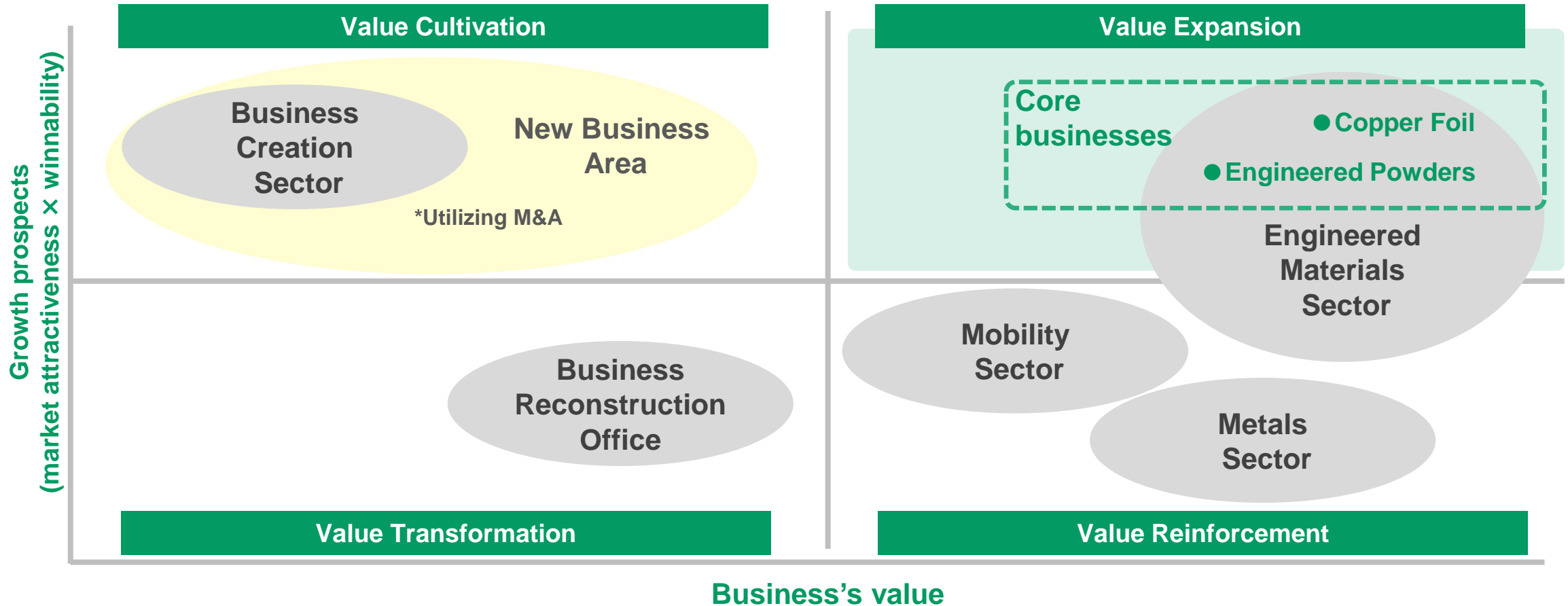
We promote the well-being of the world through a spirit of exploration and diverse technologies.



Financial value

No major changes to the business portfolio looking ahead to FY2030 based on the results of FY2022 review of matrix for dynamic portfolio management.

Value Expansion and Cultivation promote business expansion measures including M&A, while Value Transformation promotes searching for the best owners both internally and externally.







# Capital Investment/Investment (M&A)

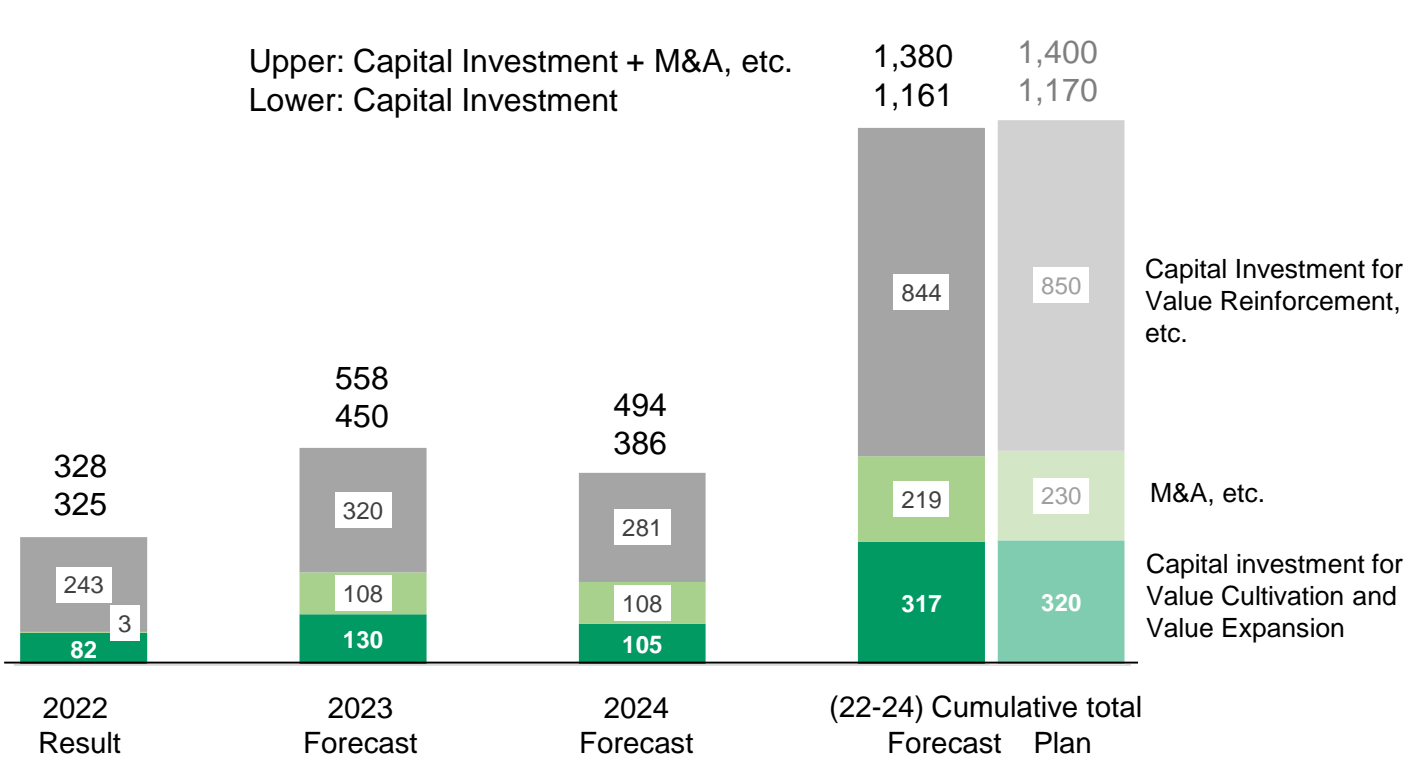
Financial value

Capital investment progressed largely according to plan.

No change in M&A budget (20 billion yen over 3 years from 2022 to 2024) in 2022-2024 Mid-Term Plan as we are currently searching for the best owner.

(Unit: 100 m yen)

## Capital Investment/Investment (M&A)



## Investment Cases for Value Cultivation

<b>Business Creation Sector</b>	<ul style="list-style-type: none"> <li>• Double the production capacity of solid electrolyte A-SOLID<sup>®</sup></li> <li>• Investment to increase production of HRDP<sup>®</sup> (High Resolution De-bondable Panel)</li> </ul>
<b>Copper Foil</b>	<ul style="list-style-type: none"> <li>• Initiatives to increase production of MicroThin<sup>™</sup></li> <li>• New installation of processing machines for development and testing, etc.</li> </ul>
<b>Engineered Powders</b>	<ul style="list-style-type: none"> <li>• Strengthen competitiveness of existing products</li> <li>• Increase production of new products such as NANOBIX<sup>™</sup>, etc.</li> </ul>

Growth investment cases (cumulative 22-24)

- Plan: 55.0 billion yen
- Forecast: 53.6 billion yen

# Business Creation Sector (1) - Summary

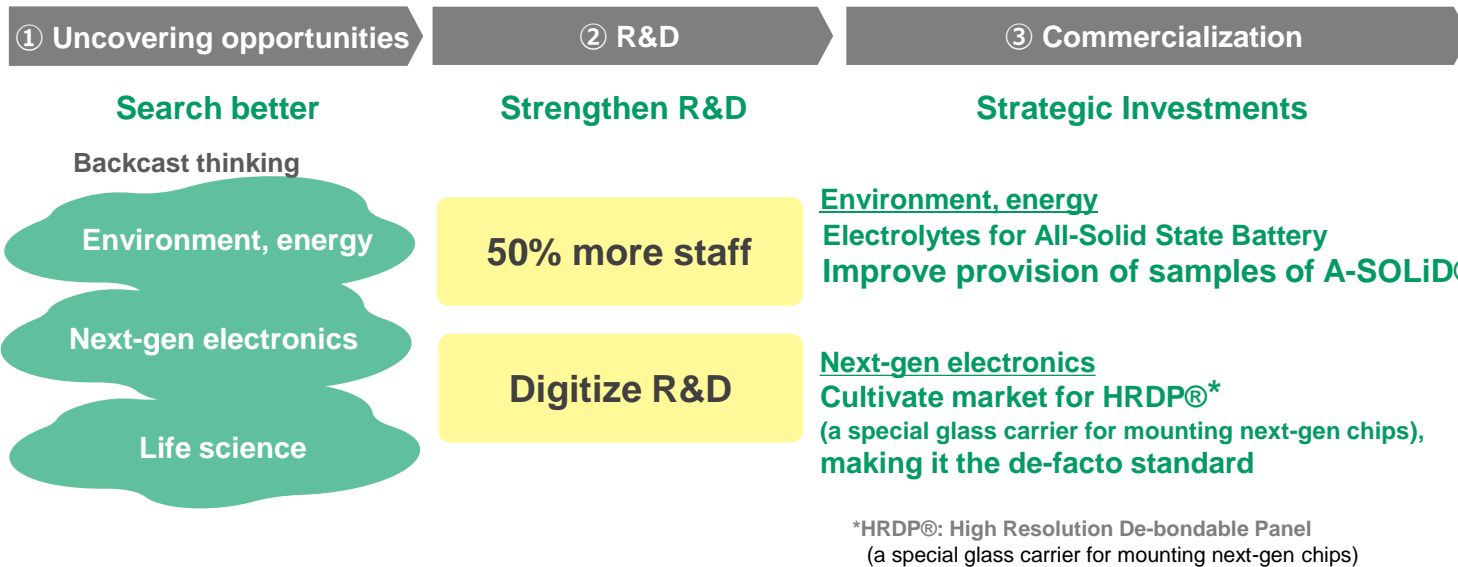
Financial value  
Value cultivation

We promote the well-being of the world  
through a spirit of exploration  
and diverse technologies.



Promoted R&D and commercialization preparations largely as planned such as improving provision of A-SOLiD® and HRDP® samples. In co-creation, made strategic investments in eSep and Helical Fusion (9th investment both in Japan and overseas).

## 2022-2024 Mid-Term Plan Overview



\*Create new markets in collaboration with external partners (customers, startups, universities, business partners)

CVC: 1.6 bn yen during 2019–2021 → 3 bn yen during 2022–2024

\*1 DOE: Design of Experiments We examine our customers' processes and provide value propositions  
\*2 Markets for mid-range (various communication terminals, etc.) and high-end (AI, high-performance computing, networking, etc.) that will expand significantly as their features and initial market adoption cases are recognized  
\*3 Develop and manufacture functional separation membranes made of ceramics  
\*4 Implement nuclear fusion power generation in society

## Main Progress in FY2022

### ③-1 Decided to increase production capacity of A-SOLiD® (February 2023)

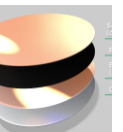
- Full-scale supply of samples for EV All-Solid State Battery (ASSB)
- Progress in product adoption for non-automotive applications (Maxell, Hitachi Zosen, etc.)



A-SOLiD® mass production testing building (Ageo City)

### ③-2 Decided to establish HRDP® second line (May 2023)

- Enhanced DOE<sup>\*1</sup> capacity, started testing at mainstream<sup>\*2</sup> market customers
- Improved quality and productivity and increased production capacity on a fully automated second line



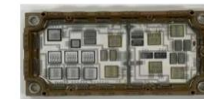
HRDP®

### ③-3 Activated copper paste evaluation for power semiconductor bonding

- Exhibited at PCIM (Germany), APEC (U.S.A.), and other automotive exhibitions in Japan



Sintered copper bonding paste



Power module prototype

### ④-1 Investment in eSep Inc.<sup>\*3</sup> (Kyoto prefecture) (July 2022)

Uncover opportunities in environment and energy business area  
Develop membrane reactors for e-fuel production, etc.

### ④-2 Investment in Helical Fusion Co., Ltd.<sup>\*4</sup> (Tokyo Metropolitan area) (March 2023)

Uncover business opportunities in the nuclear fusion area

# Business Creation Sector (2) – Progress of Next-generation Products ①

Financial value  
Value cultivation

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and diverse technologies.



## Solid electrolyte for All-Solid State Battery A-SOLiD®.

Solid electrolyte A-SOLiD®



All-Solid State  
Battery (ASSB)

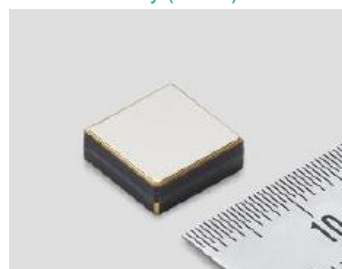


Photo provided by Maxell, Ltd.



Photo provided by LIBTEC

### Features

- Powdered sulfide solid electrolyte essential for All-Solid State Battery (ASSB)
- Features high ionic conductivity due to argyrodite-type crystal structure and exhibits excellent battery properties



### Business stage

Electric Vehicle  
(EV)  
applications

R&D stage  
Each company accelerates  
development

Industrial  
applications

Early stage of  
market formation

### Topics

- Maxell, Ltd. commercialized ceramic package type all solid-state battery using our product A-SOLiD®
- Increasing development of all solid-state batteries for EVs and increasing supply of samples to multiple companies in Japan and overseas
- Decided to double production capacity of the mass production testing facility (In the premises of Corporate R&D Center, Ageo city, Saitama prefecture)\*

\*News release on February 7, 2023 Decision to Enhance Production Capacity of the Mass Production Testing Facility for A-SOLiD®, a Solid Electrolyte for All-Solid-State Batteries

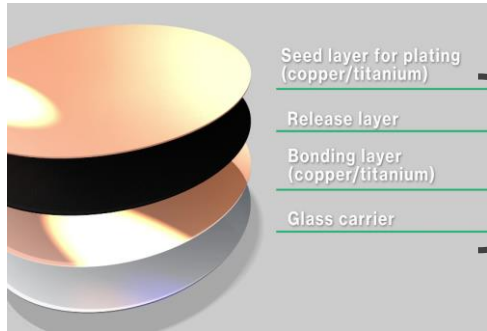
# Business Creation Sector (3) – Progress of Next-generation Products ②

We promote the well-being of the world  
through a spirit of exploration  
and diverse technologies.



Financial value  
Value cultivation

HRDP® - a special glass carrier for mounting next-gen chips -



Product Structure

Functional  
layer  
thickness  
0.65 μm

## Features

- Specialty carriers that enable high production efficiency with thinner and higher density, which are essential for next-generation semiconductor packages
- Contribute to customers' process yield maximization in next-generation semiconductor package manufacturing

## Enhance functionality of DOE\*1

- Propose specific measures to address important customer issues
- Verify customer quality requirements



Molding equipment



Stripping equipment

## Topics

- Responding to mass production for domestic composite chip module manufacturers and major overseas mounting manufacturers. Aim to gain further adoption from early market customers.
- Started selecting carrier materials that are essential for the introduction of organic interposers\*3 that enable heterogeneous integrated packages.\*2
- DOE facility started operation in February 2023 to handle testing of customer base connected to the mainstream market.\*4
- Decided to invest in the second production line in cooperation with GEOMATEC to prepare for quality and capacity for mass production to meet the customer's 2025 roadmap.

\*1 DOE: Design of Experiments We examine our customers' processes and provide value propositions

\*2 Next-generation packaging technology that provides design and manufacturing flexibility by densely mounting various chips of different technologies, functions, and sizes in a single package

\*3 One of the materials that electrically connects the package substrate to multiple chips, a material that plays an important role in packaging technology

\*4 Markets for mid-range (various communication terminals, etc.) and high-end (AI, high-performance computing, networking, etc.) that will expand significantly as their features and initial market adoption cases are recognized

# Engineered Materials Segment – Progress of 2022-2024 Mid-Term Plan

Financial value

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and diverse technologies.



## Vision for 2030

In FY2030, net sales of 180 billion yen, real profit of 40 billion yen, at least 70% of newly launched products, and at least 50% sales ratio of environmentally friendly products

## Progress of major strategies of 2022-2024 Mid-Term Plan

	Major strategies of 2022-2024 Mid-Term Plan	Evaluation	Progress
Copper Foil	<ul style="list-style-type: none"> <li>Fully prepared for the expansion of markets and applications for MicroThin™</li> <li>① Enter new markets ② Maximize utilization of supply capacity</li> </ul>	✓	<ul style="list-style-type: none"> <li>① Increased adoption of HDI MSAP (Modified Semi Additive Process)</li> <li>② Progress of transfer from PKG-MT to Malaysia</li> </ul>
Engineered Powders	<ul style="list-style-type: none"> <li>Maximize profits from existing products (expand sales of copper powders for electrical materials and abrasives)</li> <li>Launch new products (copper powders for 3D printers, rare metal solutions, etc.)</li> </ul>		<ul style="list-style-type: none"> <li>Existing products did not reach target due to external factors</li> <li>New product launches are on track (✓)</li> </ul>
PVD Materials	<ul style="list-style-type: none"> <li>Maintenance of good margins, overhaul of production to reduce costs and to cultivate future products</li> </ul>	✓	<ul style="list-style-type: none"> <li>Price correction and cost reduction progressed as planned</li> <li>New product development is on track</li> </ul>
Ceramics	<ul style="list-style-type: none"> <li>Expand sales of new products (e.g., next-gen cutters)</li> </ul>	✓	<ul style="list-style-type: none"> <li>Steady progress in sales expansion for next-gen cutters, 3D ceramic moldings, etc.</li> </ul>

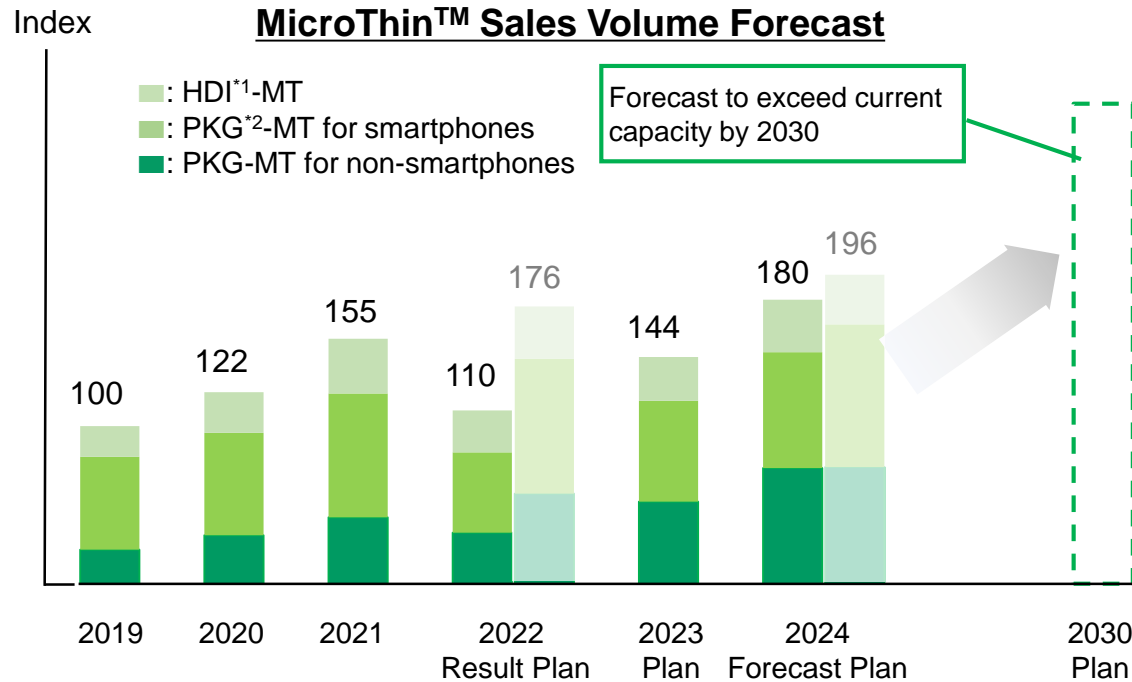
# Copper Foil (1) - MicroThin™ Sales Volume Forecast and Production Capacity

Financial value  
Value expansion

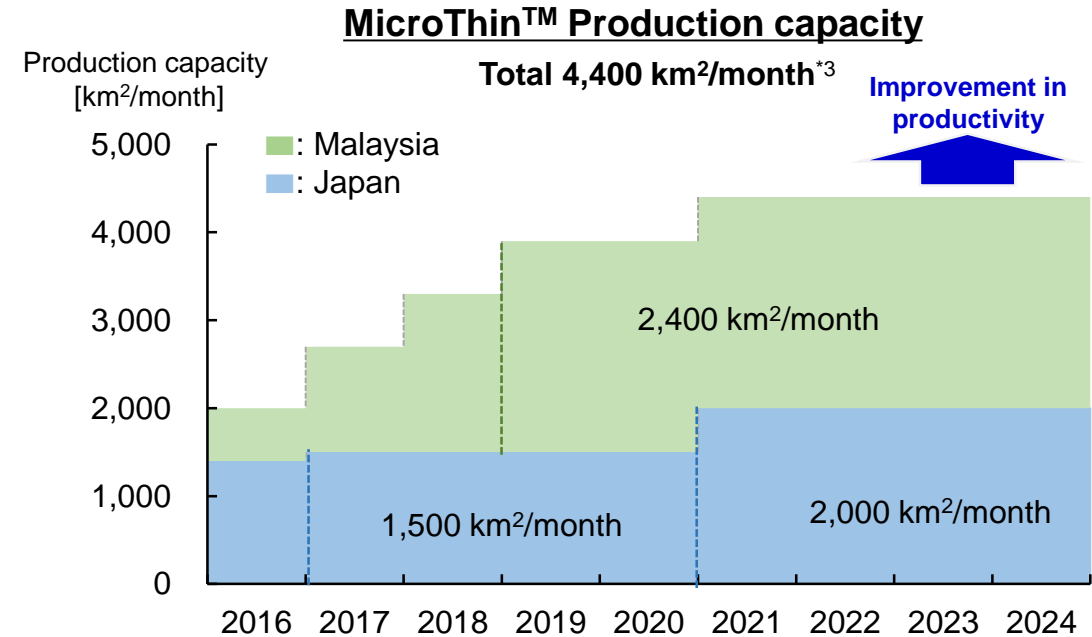
We promote the well-being of the world through a spirit of exploration and diverse technologies.



Although the FY2024 sales volume of MicroThin™ did not reach the 2022-2024 Mid-Term Plan, the growth story toward 2030 remains unchanged. The existing production capacity is sufficient to cater to present demand. Still, we will continuously work to reinforce production capacity in preparation for future growth in demand until 2030. If growth is expected to exceed capacity, plan and execute an increase in production.



- MicroThin™ for PKG  
Forecast increase in PKG-MT's non-smartphone ratio due to business expansion in non-smartphone field by higher capacity/higher speed communication, etc.
- MicroThin™ for HDI  
Promote adoption of MSAP by Chinese smartphone manufacturers (currently three companies)



- Improve productivity through smart factory promotion first, then consider investment for increasing production
- Continue and promote transfer of production from PKG-MT to Malaysia (making maximal use of production facilities)

\*1: High Density Interconnected: High-density mounting wiring substrate  
\*2: Package: IC Package Substrate \*3: Current production capacity

# Copper Foil (2) – Reinforcement of the Product Development Structure

Financial value  
Value expansion

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through a spirit of exploration  
and diverse technologies.



We are implementing measures such as speed up product development by installing a processing machine for development tests, reinforcement of marketing in Greater China, and opening a website to recruit co-creation partners to further leap forward and develop the copper foil business.

## Speed up product development

### New installation of a processing machine for development tests (press release on January 10, 2023)

Installation location	Ageo Operation Center
Expected completion	End of FY2023
Features	<ul style="list-style-type: none"> <li>• A machine designed to significantly increase the degree of freedom of tests to enable a wide variety of tests to be implemented ⇒ <u>Enables development of high-end copper foil having additional functions</u></li> <li>• Early delivery of copper foil in sizes that facilitate evaluation by customers themselves ⇒ <u>Speeding up of evaluations by customers</u></li> </ul>
Main products targeted for development	<ul style="list-style-type: none"> <li>• Copper foil for semiconductor package PCBs</li> <li>• Copper foil for high-frequency, high-speed PCBs</li> <li>• Copper foil for module PCBs</li> <li>• Copper foil for fields beyond circuit materials</li> </ul>

Connect to development into new businesses that match society's needs with new environmentally friendly products and deepening of existing businesses

## Reinforcement of marketing

### Upgrading and expansion of marketing bases, and reinforcement of the marketing structure in Greater China

China	Installation of the South China (Shenzhen) base (completed) Reinforcement of personnel at the East China (Shanghai) base (in progress)
Taiwan	Installation of a marketing base (decided)

Conduct marketing campaigns centered on semiconductor-related manufacturers

### Launch of website to recruit co-creation partners to develop new applications for copper foil business (News release on April 3, 2023)

- The keyword is “Beyond together, Copper Foil.”
- We are looking for partners we can collaborate with to generate the market for new applications of copper foil.

[Copper Foil Division, “Beyond together, Copper Foil.” Website]  
URL: <https://em.mitsui-kinzoku.com/douhaku>

# Engineered Powders (1) - Sales Performance and Forecast for Copper Powders

Financial value  
Value expansion

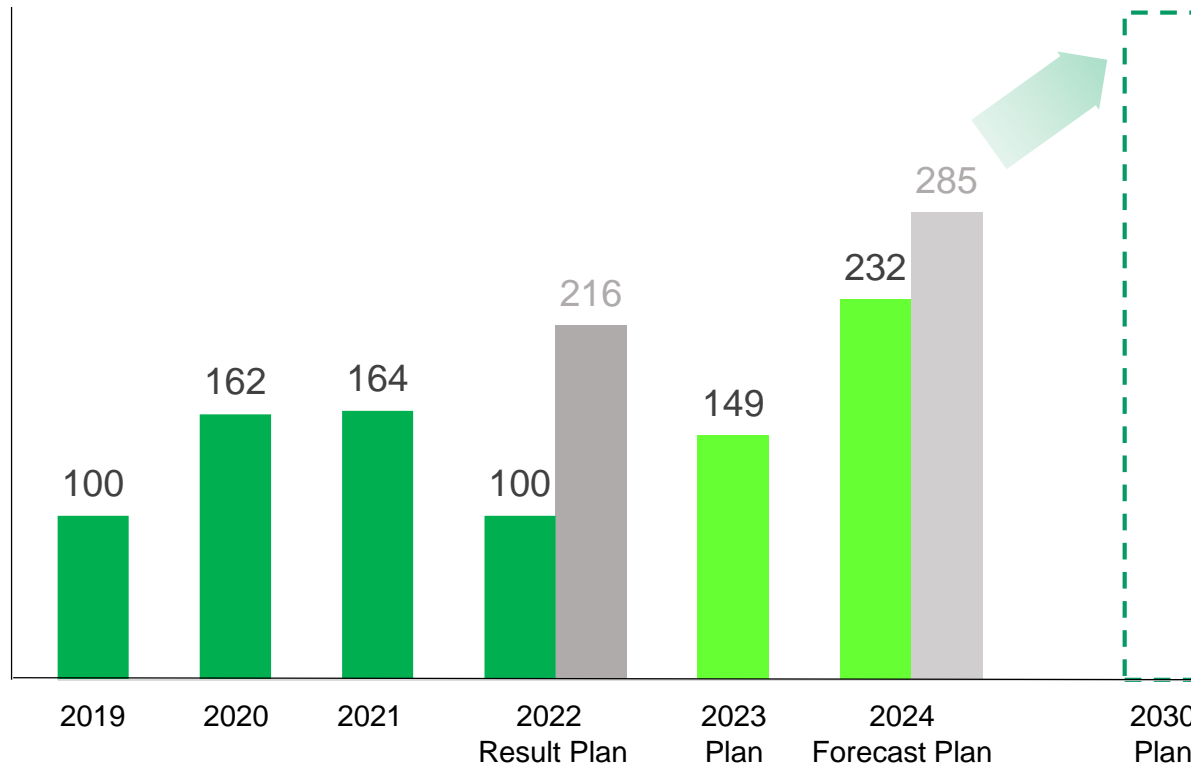
We promote the well-being of the world through a spirit of exploration and diverse technologies.



Our copper powders business will expand on a long-term basis despite unachieved sales volume target set by 2022-2024 Mid-Term Plan due to the slowdown in the Chinese market (lockdowns, etc.).

We will steadily proceed to implement our major strategies, expand sales to major clients, and commercialize new products.

Index



- FY22**

[Market] Large-scale production cutbacks by MLCC manufacturers due to the slowdown in the Chinese market (lockdowns, etc.)  
Prolonged inventory adjustment due to the backlash of accumulated MLCC inventory in FY21

[Our company] Copper powders for MLCC Global share of 30%, equivalent to FY21
- FY23 and beyond**

[Market] Market conditions are expected to bottom out in FY22 and recover from FY23  
Estimated CAGR (FY21/FY24) of 4%  
(completion of inventory adjustment in FY22 → Market recovery based on actual demand in FY23)

[Our company] Follow-up in the MLCC market expected to expand and ISS expansion

  - Expansion of our share in the market by making the most of our technological capabilities
  - Reinforcement of overseas marketing
- Steadily promote the launch of new products in addition to expanding sales of existing products to achieve growth for 2030**



# Engineered Powders (2) - Status of New Product Development

Financial value  
Value expansion

We promote the well-being of the world  
through a spirit of exploration  
and diverse technologies.



The development of Abrasive for SiC wafers (NANOBI<sup>TM</sup>) and Copper Chromium Alloy Powder for 3D Printer is progressing steadily with news releases for FY2022.

## Abrasive for SiC wafers – NANOBI<sup>TM</sup>

Nature of product

- A two-pack abrasive consisting of manganic oxide base abrasive grain liquid and oxidant liquid for SiC wafers

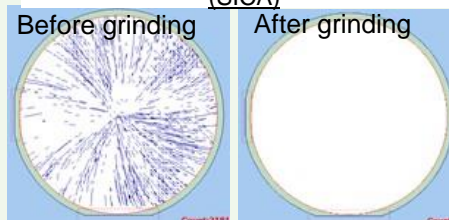
Abrasive for SiC wafers



Features

- Compared to existing silica abrasive/alumina abrasives,
- Capable of grinding SiC wafers faster with less damage
- Easier to remove the abrasive grains after grinding SiC wafers

Observation image of an SiC wafer (SICA)



Status

- Production capacity will be reinforced in stages up to 50 tons/year or more during FY2023 to make the most of the growth in demand for NANOBI<sup>TM</sup> (News release on January 10, 2023)
- Further demand growth is expected in the future as SiC semiconductors become more widespread

## Copper Chromium Alloy Powder for 3D Printer

- This copper powder allows for 3D printing with copper, which was previously considered difficult

Photo of the copper powder



Compared to similar copper powder for 3D printers,

- Our copper powder for 3D printers is superior in its capability to realize final products having a high level of conductivity, strength, and heat radiation
- It excels in fine 3D printing with low-energy lasers

3D modeling example (heat exchanger)



- Our copper-chromium alloy powder for 3D printers has been adopted by 3D System, a leading 3D printer company (News release on February 7, 2023)
- Ongoing joint development with 10 or more customers (mostly overseas customers)
- Promotion of new customer acquisition by proactively participating in domestic and overseas exhibitions

# Metals Segment – Progress of 2022-2024 Mid-Term Plan

Financial value  
Value reinforcement

We promote the well-being of the world  
through a spirit of exploration  
and diverse technologies.



## Vision for 2030

We are indispensable in efforts to build a sustainable society We have a recycling network underpinned by our distinctive characteristics, and we use it to provide new metals and minerals for renewable energy

## Progress of major strategies of 2022-2024 Mid-Term Plan

	Major strategies of 2022-2024 Mid-Term Plan	Evaluation	Progress in FY2022	Initiatives in FY2023
Head Office	<ul style="list-style-type: none"> <li>Build an advanced recycling network leveraging our unique and diverse smelting assets</li> </ul>	✓	<ul style="list-style-type: none"> <li>Completed definition of digitalization requirements for smelter equipment management as well as operational data sharing and utilization</li> <li>Fundamental study on the use of alternative fuels to reduce carbon emissions</li> </ul>	<ul style="list-style-type: none"> <li>Development of facilities management system and start of operation data system</li> <li>Start demonstration tests for alternative fuel utilization</li> </ul>
Zinc & lead	<ul style="list-style-type: none"> <li>Leverage existing assets to expand waste processing business</li> </ul>	✓	<ul style="list-style-type: none"> <li><b>Increase in revenue from disposal of low-concentration PCBs and other wastes</b></li> </ul>	<ul style="list-style-type: none"> <li>Address waste disposal needs associated with the return of manufacturing to Japan</li> </ul>
	<ul style="list-style-type: none"> <li>Improve margins for increased smelting of metals produced from complex raw materials</li> </ul>	✓	<ul style="list-style-type: none"> <li>Conducted new trial at Hachinohe Mukai complex raw materials mine</li> </ul>	<ul style="list-style-type: none"> <li>Acquire new overseas contracts</li> </ul>
	<ul style="list-style-type: none"> <li>Increase inventory and smelting of new lead/zinc raw materials to make profit</li> </ul>	✓	<ul style="list-style-type: none"> <li><b>Improve lead blast furnace utilization rate by shortening shutdown time,</b> Improve Sn extraction yield by handling impurities</li> </ul>	<ul style="list-style-type: none"> <li>Standardize impurity management</li> <li>Raw materials collection and marketing</li> </ul>
Copper & precious metals	<ul style="list-style-type: none"> <li>Improve margins from increased smelting of profitable raw materials</li> </ul>	✓	<ul style="list-style-type: none"> <li>In-house processing of some raw materials</li> </ul>	<ul style="list-style-type: none"> <li>Improve yield through complementary functions among copper, lead, and zinc smelters</li> </ul>
	<ul style="list-style-type: none"> <li>Reduce costs by improving operations and investing more judiciously</li> </ul>	✓	<ul style="list-style-type: none"> <li>Control fixed repair costs through more judicious capital investment</li> </ul>	<ul style="list-style-type: none"> <li>Reduce depreciation and repair costs through stable operations and investment optimization</li> </ul>
Mineral resources	<ul style="list-style-type: none"> <li>Explore new mining opportunities in Huanzala and Pallca</li> </ul>	✓	<ul style="list-style-type: none"> <li>Confirmed the prospect of securing profitability in the preliminary economic assessment</li> </ul>	<ul style="list-style-type: none"> <li>Begin feasibility study to verify reserves and mining costs in the actual mining sites</li> </ul>

# Metals Segment (1) - Industrial Waste and Recycled Raw Materials Processing

Financial value  
Value reinforcement

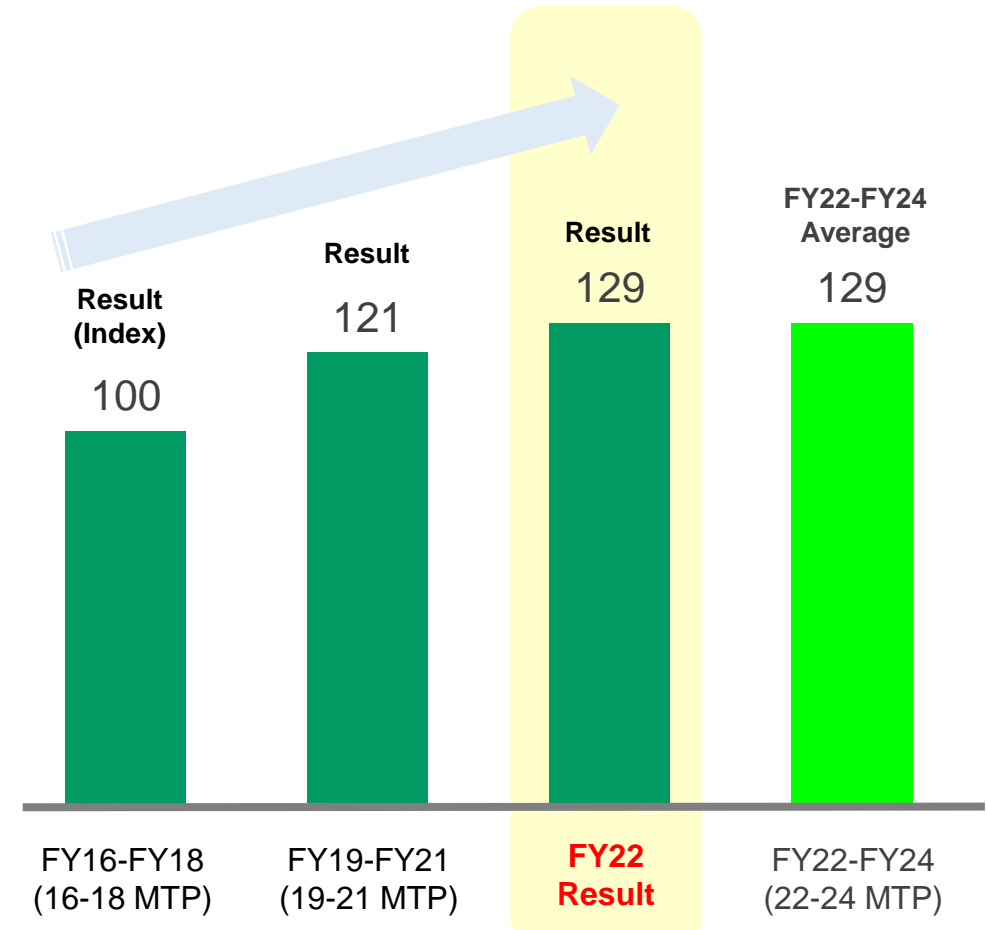
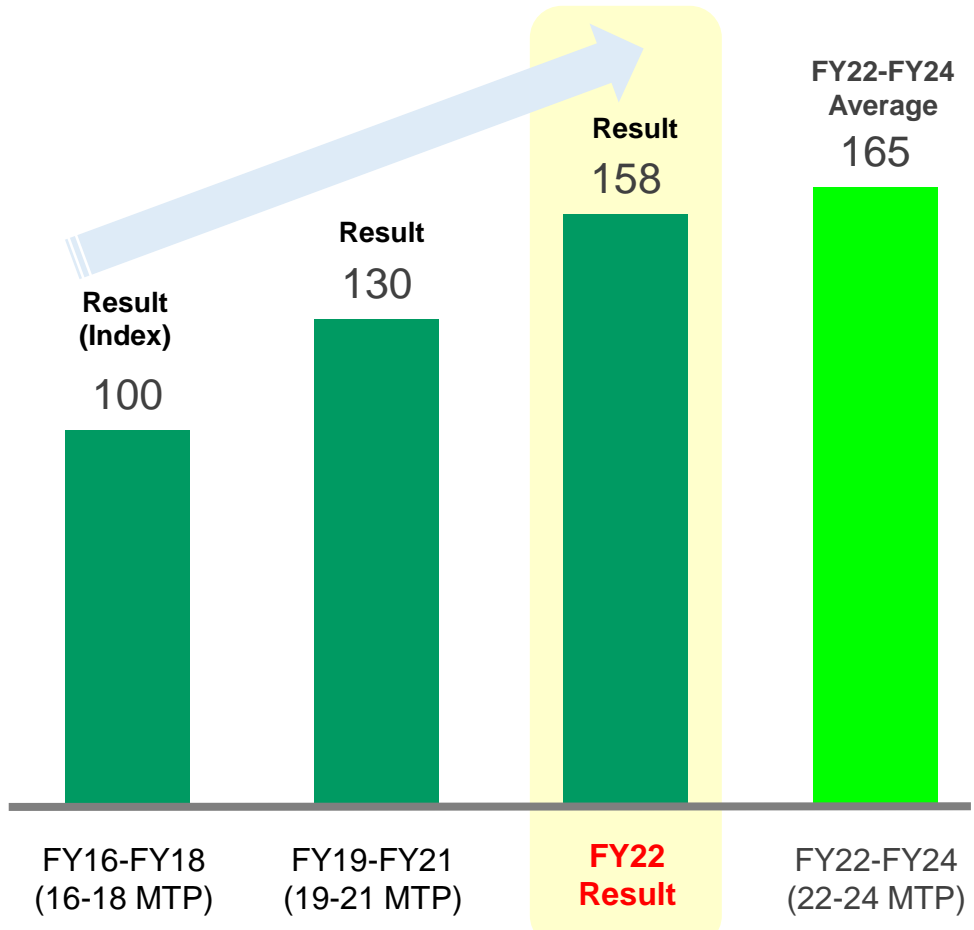
We promote the well-being of the world  
through a spirit of exploration  
and diverse technologies.



Achieved certain results in the processing business by utilizing existing assets. Steady in processing both zinc smelting industrial waste and lead-based recycled raw materials.

- Increased smelting of zinc smelting industrial waste

- Increased smelting of lead-based recycled raw materials



# Metals Segment (2) - Initiatives to Achieve Carbon Neutrality

Financial value  
Value reinforcement

We promote the well-being of the world through a spirit of exploration and diverse technologies.



Metals business accounts for 83% of domestic emissions, 55% of which are from Scope 1. We will work on improving processes and introduction of new technology to realize CN by 2050.

		Measures for FY2030		Measures for FY2050	
<b>Improve processes</b>  (Technology-established or implementable measures)	Energy conservation and higher efficiency	Improve efficiency by updating outdated facilities	<ul style="list-style-type: none"> <li>■ Improve heat exchange efficiency, including sulfuric acid heat exchangers</li> </ul>	<div style="text-align: center; border: 1px solid black; padding: 20px;">                         Continuous initiatives after FY2030                     </div>	
		Promote utilization of waste heat	<ul style="list-style-type: none"> <li>■ Capture steam from waste heat and use in existing power generation facilities</li> </ul>		
		Improve electricity intensity	<ul style="list-style-type: none"> <li>■ Demand response utilizing digital technology in electrolysis plants (Keidanren's Challenge Zero Innovation Case)</li> <li>■ Identify and realize energy conservation projects</li> </ul>		
<b>Introduce new tech</b>  (Measures under development through internal and external collaboration)	Shift energy sources	Utilize renewable energy	<ul style="list-style-type: none"> <li>■ <b>Substitute coal with biomass fuels</b> Conduct testing of actual equipment using biomass pulverized coal to replace 20% of coal</li> <li>■ New hydroelectric power plant</li> </ul>		
		Utilize low emission factor energy	<ul style="list-style-type: none"> <li>■ <b>Reduce coke consumption in ISP smelting by utilizing alternative fuels</b> (Keidanren's Challenge Zero Innovation Case) Research on Zn re-oxidation effect by hydrogen at a development center</li> </ul>		
	Carbon absorption, capture, and reuse	CCUS utilization, etc. Explore new technologies	<div style="text-align: center; border: 1px solid black; padding: 10px;">                         Sowing Seeds for Future                     </div>	<ul style="list-style-type: none"> <li>■ <b>Ferro coke utilization</b> Introduce zinc reduction method with iron (Technical guidance and research by Tohoku University)</li> <li>■ <b>Develop carbon capture technology</b> Planning Hachinohe field test with modules in the first half of next fiscal year</li> <li>■ Participate in the Carbon Recycling Fund in Hiroshima Prefecture and the Hachinohe Area New Zero Emission Liaison Council</li> </ul>	

Energy conservation based on existing technologies and realization of energy transition

Search for breakthroughs by leveraging company-wide technological synergies

# Mobility Segment – Progress of 2022-2024 Mid-Term Plan

Financial value  
Value reinforcement

We promote the well-being of the world  
through a spirit of exploration  
and diverse technologies.



## Vision for 2030

Pioneer of a mobility society that continues to identify and create values to be chosen. New products sales ratio of more than 50%, ordinary income of 20 billion yen, and zero recall

## Progress of major strategies of 2022-2024 Mid-Term Plan

	Major strategies of 2022-2024 Mid-Term Plan	Evaluation	Progress
Head Office	<ul style="list-style-type: none"> <li>Explore and realize business synergies (short/medium/long term)</li> <li>Develop and promote new business in response to changes in the business environment</li> </ul>	✓	<ul style="list-style-type: none"> <li>Developing best practices for improving processes, ICT, equipment, etc.</li> <li>Promoting sales expansion by utilizing sales channels and market information</li> </ul>
Catalyst	<ul style="list-style-type: none"> <li>Maintain and strengthen technical development capabilities for differentiation</li> <li>Enhance manufacturing efficiency in production, development, asset compression, etc.</li> <li>Create a winning scenario from a medium- to long-term perspective by leveraging our strengths</li> </ul>	✓	<ul style="list-style-type: none"> <li>Introduced and started operation of Materials Informatics</li> <li>Development, manufacturing, and financial DX in progress</li> <li>Medium term: Prior development to comply with new regulations, focusing on catalysts for motorcycles</li> <li>Long term: Collaborate with Business Creation Sector to develop environmentally friendly products</li> </ul>
Mitsui Kinzoku ACT	<ul style="list-style-type: none"> <li>Aim to transform into a system supplier by focusing on the development and sales expansion of electric system products</li> <li>Strengthen cost competitiveness and quality by deepening global optimum production and smart factory</li> </ul>		<ul style="list-style-type: none"> <li>Received orders for electric sliding door system products for derivatives of existing models as planned.</li> <li>Developing and expanding sales of electric door system products and products for EVs</li> <li>Accelerating business restructuring mainly in China and Japan in response to lower sales and profit in FY2022 due to changes in the market environment (vs. 22-24 MTP)</li> </ul>
Die-Casting	<ul style="list-style-type: none"> <li>Business restructuring and generation of appropriate profits</li> </ul>		<ul style="list-style-type: none"> <li>Cost improvement and shift to high value-added products are steady, but it is necessary to accelerate response to increased energy and raw material costs</li> <li>Creating and strengthening technology and sales synergies through the integration of Mitsui Kinzoku Die-Casting and Kamioka Components</li> </ul>

# Catalyst - Trends in Sales Volume for Motorcycles and Automobiles

We promote the well-being of the world through a spirit of exploration and diverse technologies.

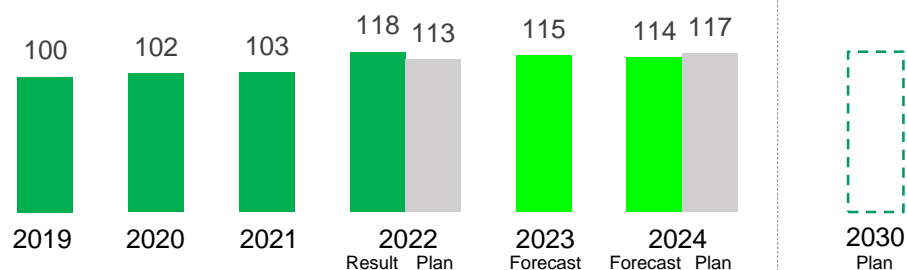


Financial value  
Value reinforcement

In FY2023, sales of catalysts for motorcycles are expected to increase in Southeast Asia and South America, and sales of catalysts for automobiles are also expected to increase due to new orders and GPF\* sales. In the long run, aim to create new businesses that contribute to CN based on exhaust gas catalyst technology, and collaborate with the Business Creation Sector develop environmentally friendly products.

## Sales results and forecasts of motorcycle catalysts

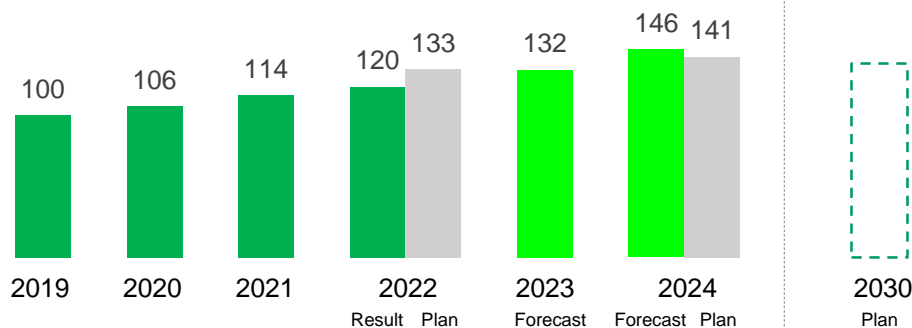
(Let 2019 be 100)



- Sales volume in 2022
  - Sales in Southeast Asia and South America increased over plan
- Sales volume in 2023 onwards
  - Continued strong performance in Southeast Asia and South America. Market expected to remain strong until 2030
- Future Strategy
  - Maintain market share by complying with new regulations in each country and by complying with precious metal regulations (50% global market share)

## Sales results and forecasts of four-wheeled vehicles catalysts

(Let 2019 be 100)



- Sales volume in 2022
  - Sales down from plan due to shortage of semiconductors
- Sales volume in 2023 onwards
  - Increased sales through new orders and GPF\* sales. In the mid- to long-term, the market will shrink due to accelerated electrification
- Future Strategy
  - While continuing to develop technologies to meet the next regulations of each country and to save precious metals, we will select and focus on development themes in order to create new environmentally friendly products

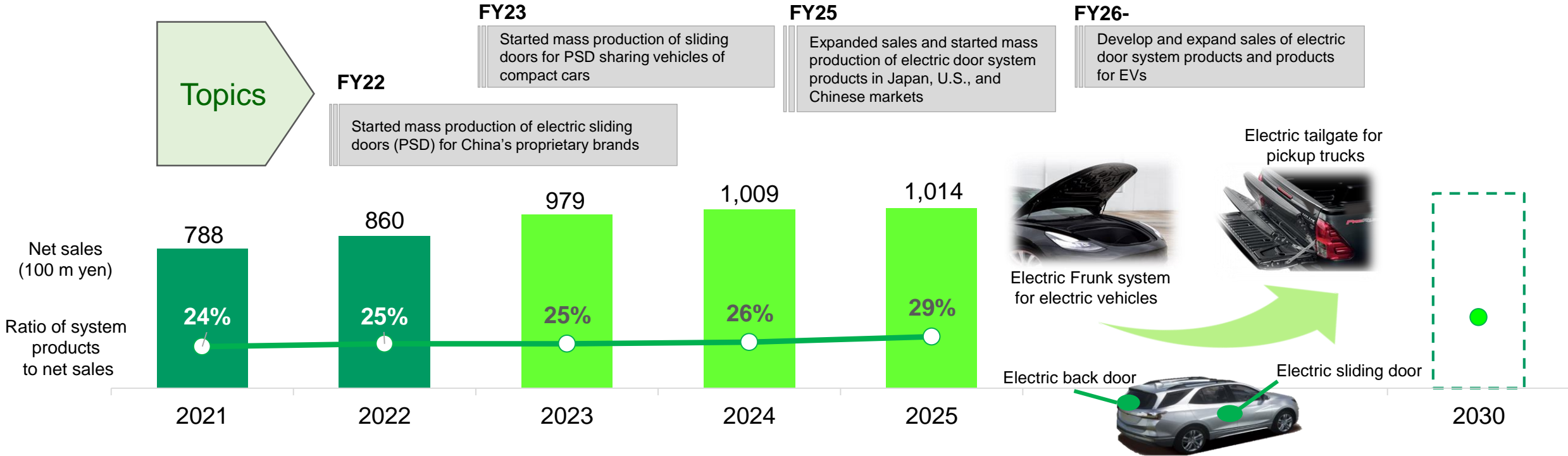


# Mitsui Kinzoku ACT – Expand Sales of Electric Door Systems

Financial value Value reinforcement

In addition to business structure reforms, increase the sales composition of high-value-added electric door system products in response to the expansion of electrification and automation of doors.

## Expand sales of electric door system products and products for EVs



## Promote business structure reform in response to lower sales/profit results (China, Japan)

- China: Expand local electrical/electronic product development resources in parallel with the EV shift as well as implement organizational changes in line with this expansion
- Japan: Thorough reform of head office functions and organization (development/production technology/quality control) for transformation into an electric door system supplier

# Mitsui Kinzoku Die-Casting – Absorption-type Merger between Wholly Owned Subsidiaries

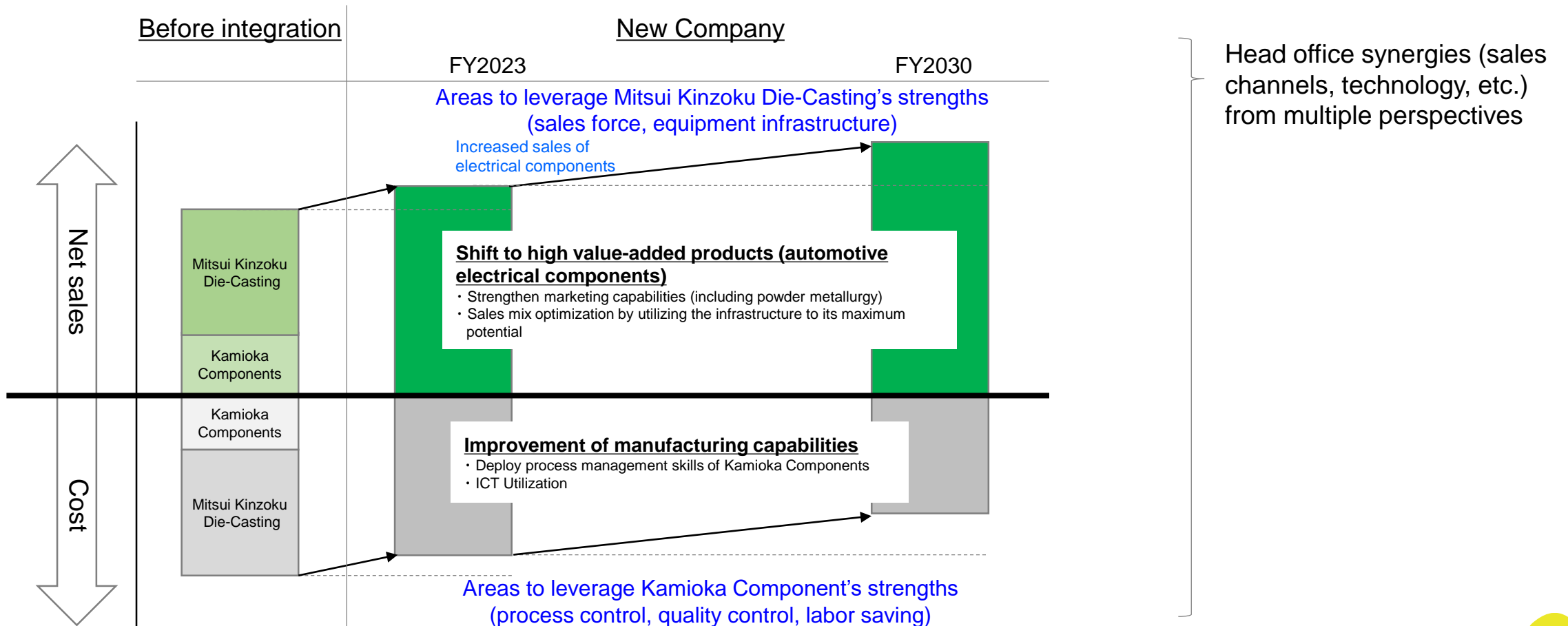
Financial value  
Value reinforcement

We promote the well-being of the world  
through a spirit of exploration  
and diverse technologies.



Decision to integrate Mitsui Kinzoku Die-Casting and Kamioka Components for the following purposes as head office synergies.  
(News release on February 7, 2023)

- To Build a foundation for sustainable growth of the metal parts business by combining and mutually complementing the management resources of Mitsui Kinzoku Die-Casting and Kamioka Components.
- To win in the attractive growth market for mobile electrical components through manufacturing.

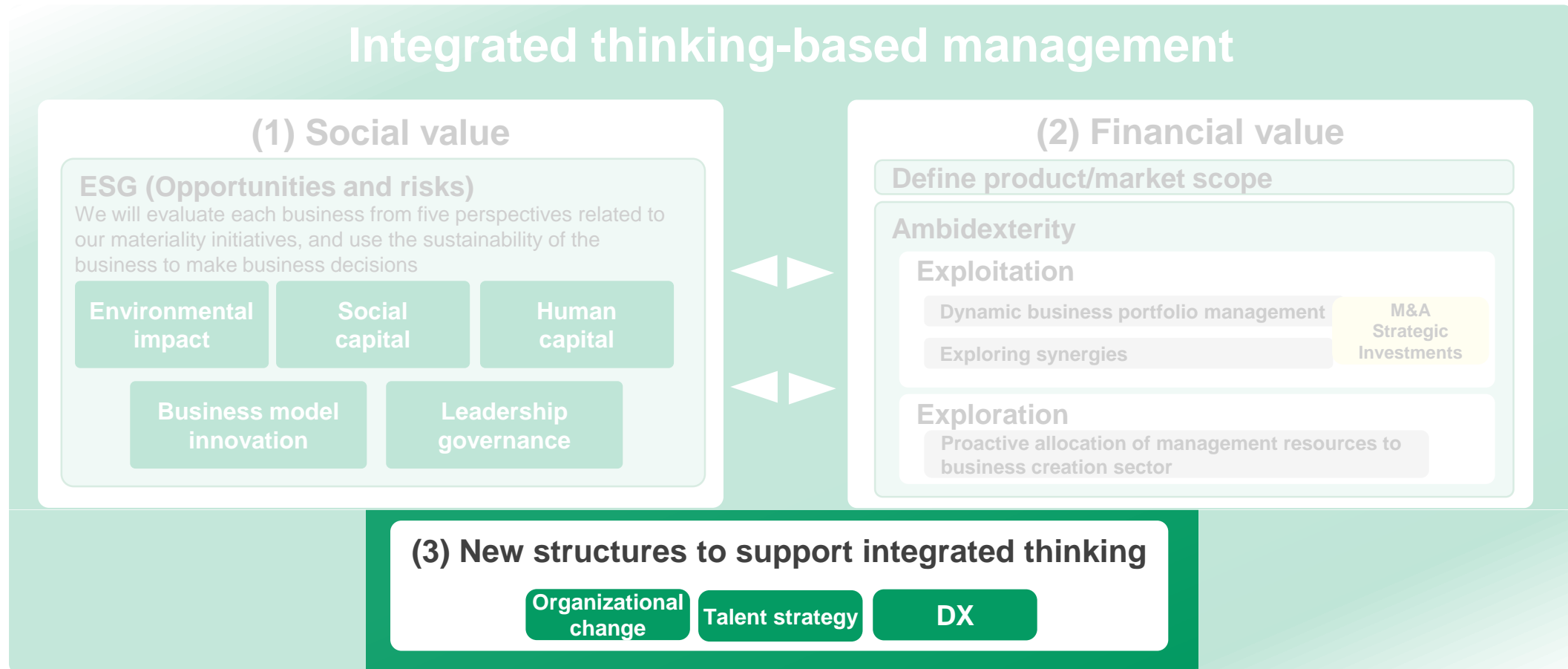






# Integrated Thinking-based Management

In order to achieve our vision based on Purpose, from April 2022, we conducted full-fledged introduction and promotion of Integrated Thinking Management, which aims to achieve both social and financial value.



### (3) New structures to support integrated thinking

Organizational change

Talent strategy

DX

# Digital Transformation

New structures to support integrated thinking

We promote the well-being of the world through a spirit of exploration and diverse technologies.



Enhance competitiveness by promoting the three DX strategies of R&D, Manufacturing, and Business reform through reinforcement of the digital infrastructure.

	Main items	Vision for 2030	Major strategies for 22-24 MTP	Specific results
Digital Technology Utilization	R&D	Industry's shortest R&D cycle time	<ul style="list-style-type: none"> <li>Finalize model for reducing R&amp;D cycle time to 1/3</li> <li>Build data infrastructure and operational infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>Finished building data infrastructure</li> <li>Started building model</li> </ul>
	Manufacturing	World-class manufacturing	<ul style="list-style-type: none"> <li>Digitize model refineries to stabilize their operations</li> </ul>	<ul style="list-style-type: none"> <li>Digitization in progress centered on equipment asset management system</li> </ul>
	Backoffice reform	Resources used efficiently and effectively	<ul style="list-style-type: none"> <li>Visualize themes for streamlining backoffice operations</li> <li>Roll out SAP S/4HANA</li> </ul>	<ul style="list-style-type: none"> <li>Completed company-wide transition to S/4HANA</li> <li>Built visualization infrastructure and created reports</li> </ul>
Digital Infrastructure	Infrastructure, security, governance	Digital tech used confidently and safely	<ul style="list-style-type: none"> <li>Build network for cloud computing</li> <li>Strengthen global security</li> <li>Expand system controls</li> </ul>	<ul style="list-style-type: none"> <li>Started introduction of new network</li> <li>Completed implementation of SOC* globally</li> <li>Implemented expanding system controls</li> </ul>
	Talent management	Digital talent team across organization	<ul style="list-style-type: none"> <li>Provide digital content training</li> </ul>	<ul style="list-style-type: none"> <li>Started training, increased the number of students progressively</li> </ul>

\*SOC: Security Operation Center



Certified as a "DX Certified Business Operator" by the Ministry of Economy, Trade and Industry (News release on April 5, 2023)



# Appendix



## Performance Trends (2019-2024)

	2019-2021 Mid-Term Plan			2022-2024 Mid-Term Plan				
	FY2019 Result	FY2020 Result	FY2021 Result	FY2022 Result	FY2023 Forecast	FY24 Forecast	22-24 MTP FY2022	22-24 MTP FY2024
<b>Net sales</b>	473.1 billion yen	522.9 billion yen	633.3 billion yen	652.0 billion yen	645.0 billion yen	718.0 billion yen	725.0 billion yen	725.0 billion yen
<b>Ordinary income</b>	9.3 billion yen	51.3 billion yen	66.0 billion yen	19.9 billion yen	20.0 billion yen	47.0 billion yen	40.0 billion yen	60.0 billion yen
<b>Real profit</b>	20.8 billion yen	38.6 billion yen	57.6 billion yen	26.7 billion yen	22.5 billion yen	47.0 billion yen	41.4 billion yen	62.0 billion yen
<b>Profit attributable to owners of parent</b>	1.6 billion yen	44.8 billion yen	52.1 billion yen	8.5 billion yen	10.0 billion yen	32.8 billion yen	29.0 billion yen	44.0 billion yen
<b>Free cash flows</b>	1.3 billion yen	11.2 billion yen	35.1 billion yen	11.4 billion yen	0	24.0 billion yen	15.0 billion yen	*85.0 billion yen
<b>Capital investment</b>	34.0 billion yen	28.2 billion yen	27.5 billion yen	32.5 billion yen	45.0 billion yen	38.6 billion yen	46.0 billion yen	*117.0 billion yen
<b>ROE</b>	0.9%	24.6%	23.8%	3.5%	3.9%	12.2%	11.4%	14.0%
<b>Equity ratio</b>	30.7%	33.4%	37.6%	40.1%	40.1%	43.2%	41.0%	50.0%
<b>Net D/E ratio</b>	1.22	1.09	0.82	0.76	0.78	0.66	0.71	0.42
(Assumption)								
<b>Zinc (\$/t)</b>	2,405	2,420	3,254	3,332	3,000	2,900	3,700	3,000
<b>Exchange (Yen/\$US)</b>	108.8	106.1	112.4	135.5	130.0	135.0	120.0	120.0

\*Figures in parentheses are three-year totals



## Caution Concerning Forward-looking Statements

Statements contained in these materials regarding forecasts of future events are qualified by various risks, both existing and unknown, and uncertainties, which may have a material impact on the actual business conditions and operational activities. Consequently, please be aware that actual performance may differ substantially from forecasts and business plans indicated herein because of various unforeseeable factors.

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Regarding latent risks which might impact forecast results and other uncertainties, some items are included in the “Business and Other Risks” section of our financial statements or our website. However, please recognize that these are just a summary rather than a comprehensive list of all possible items relating to latent risks and uncertainties.

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