KAITEKI Value for Tomorrow

APTSIS25 Step 1 Medium-term Management Plan

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List of Abbreviations

MCHC: Mitsubishi Chemical Holdings Corporation
MCC: Mitsubishi Chemical Corporation
MTPC: Mitsubishi Tanabe Pharma Corporation
LSII: Life Science Institute, Inc.
NSHD: Nippon Sanso Holdings Corporation
TNSC: Taiyo Nippon Sanso Corporation

carboNXT: carboNXT GmbH
CFK Valley State Recycling : CFK Valley State Recycling GmbH & Co. KG
C.P.C.: C.P.C. Srl
DEV: Diamond Edge Ventures, Inc.
Gelest: Gelest, Inc.
JPP: Japan Polychem Corporation
LSIM: LSI Medience Corporation
MCAT: Mitsubishi Chemical Analytech Co., Ltd.
Medicago: Medicago, Inc.
SIC: Science and Innovation Center
Shinryo: Shinryo Corporation
UMBM: Changshu UM Battery Materials Co., Ltd.

AIST: National Institute of Advanced Industrial Science and Technology
ARPChem: Japan Technological Research Association of Artificial Photosynthetic Chemical Process
Audi: Audi AG
aveni: aveni S.A.
BIKEN: BIKEN Co., Ltd.
ENEOS: ENEOS Corporation
HySUT: The Association of Hydrogen Supply and Utilization Technology
JH2A: Japan Hydrogen Association
JST: Japan Science and Technology Agency
Kashima Oil: Kashima Oil Co., Ltd.
Kirin Holdings: Kirin Holdings Company, Limited
Lenovo: Lenovo Corporation
LIBTEC: Consortium for Lithium Ion Battery Technology and Evaluation Center
Linde: Linde AG
Mazda: Mazda Motor Corporation
NEDO: New Energy and Industrial Technology Development Organization
NTT: Nippon Telegraph and Telephone Corporation
PHCHD: PHC Holdings Corporation
Praxair: Praxair, Inc.
Refinverse: Refinverse, Inc.
SABIC: Saudi Basic Industries Corporation
Toyota: Toyota Motor Corporation
Ube Industries: Ube Industries, Ltd.

ABS: acrylonitrile butadiene styrene
AI: artificial intelligence
ALS: amyotrophic lateral sclerosis
ArF: argon fluoride
CCC: cash conversion cycle
CFRP: carbon fiber reinforced plastic
CF-SMC: carbon fiber-sheet molding compound
CVC: corporate venture capital
DX: digital transformation
EB: electron beam
EUV: extreme ultraviolet
EV: electric vehicle
GaN: gallium nitride
GHG: greenhouse gas
GX: green transformation
ICT: information and communication technology
IOWN: Innovative Optical and Wireless Network
KV30: KAITEKI Vision 30
LCA: life cycle assessment
Li: lithium
LIB: lithium-ion battery
MAA: methacrylic acid
MI: materials informatics
MMA: methyl methacrylate
MOE: Management of Economy
MOS: Management of Sustainability
MOT: Management of Technology
Muse cell: Multilineage-differentiating stress enduring cell
PBS: poly butylene succinate
PCM: prepreg compression molding
PCR: post consumer recycling
PE: polyethylene
PET: polyethylene terephthalate
PIR: post industrial recycling
PMMA: polymethyl methacrylate
PoC: proof of concept
PVOH: polyvinyl alcohol
RNA: ribonucleic acid
RPA: robotic process automation
SCAAT: super critical acidic ammonia technology
SCM: supply chain management
SGDs: Sustainable Development Goals
Si: silicon
VLP: virus-like particle

Agenda

1. *APTSIS* 20 Review

2. *APTSIS 25* in View of Environmental Stance and Pandemic

3. *APTSIS 25 Step 1*
   - 3-1 Measures to Bolster Foundations
     - 3-1-1 Measures to Bolster Management Foundations
     - 3-1-2 DX Strategies
     - 3-1-3 Measures to Bolster Business Foundations: Business Model Reforms
     - 3-1-4 Measures to Bolster Business Foundations: R&D Initiatives for Next-generation Businesses and CVC Strategies
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   - 3-6 Sustainability Management

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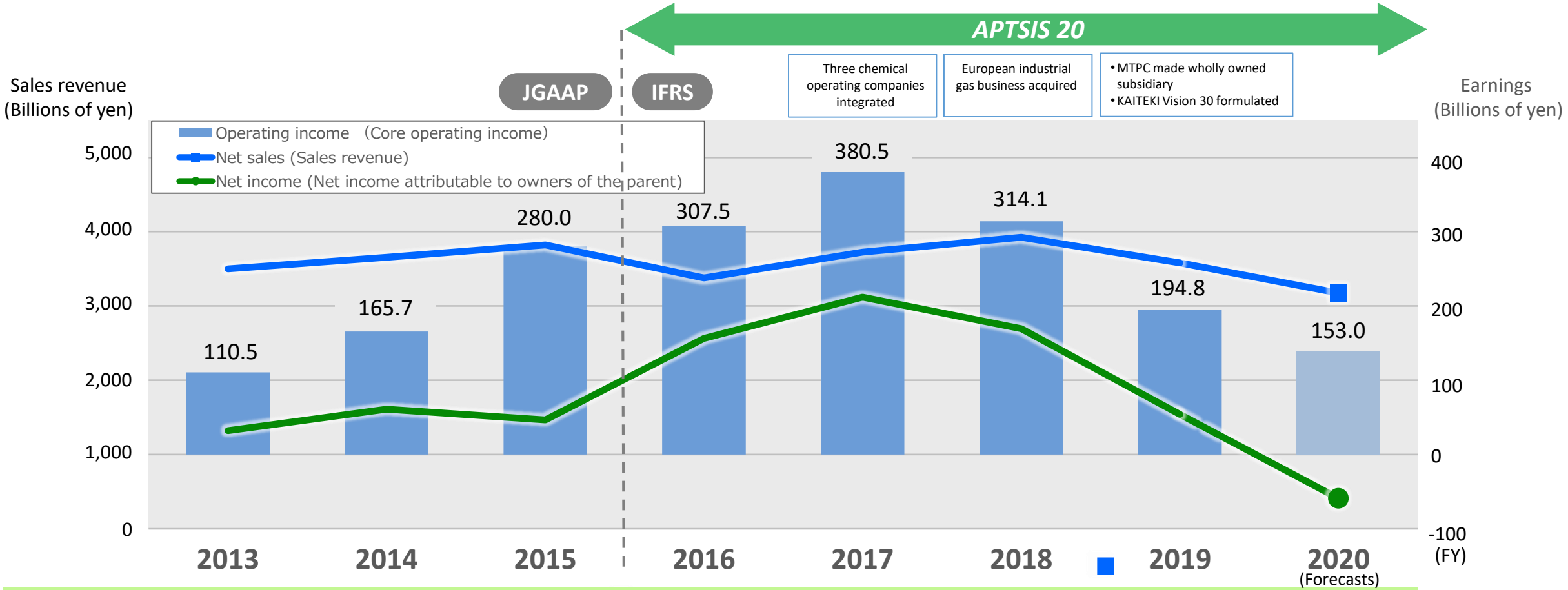
1. Operating Results

- After reaching initial 380 billion yen target in fiscal 2017, earnings worsened from fiscal 2018 owing to absence of Gilenya™ royalties, economic slowdown, US-China trade friction, impact of COVID-19 pandemic, and other factors
- Special factors in the Health Care segment lowered net income in fiscal 2019 and 2020



	2013	2014	2015	2016	2017	2018	2019	2020
Extraordinary loss*	17.3	56.3	110.6	32.1	27.3	37.8	66.0	92.4 (1st Half)
ROE (%)	3.7	6.4	4.8	15.1	17.8	12.7	4.2	-

*Since there is no classification for extraordinary gains and losses under IFRS (fiscal 2016-), impairment loss, loss on sale and disposal of fixed assets, loss on sale of shares in affiliates, provision for loss on liquidation of business, environmental expenses, and provision for loss on litigation were aggregated in a simplified manner.

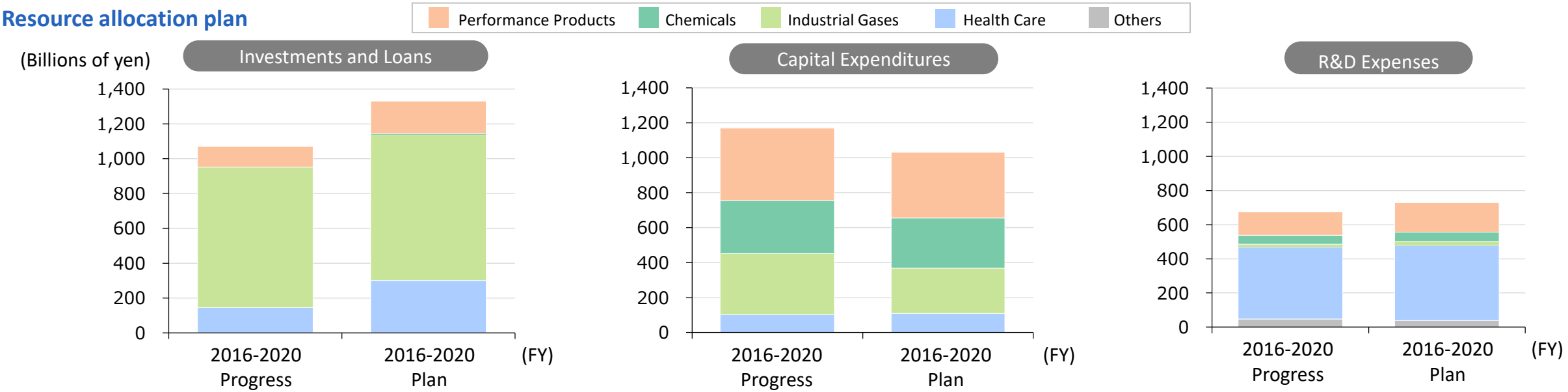
1. Investment and Loan Plans

- **Performance Products: 140 billion yen in capital expenditures for growth and 120 billion yen in investments and loans**
- **Industrial Gases: 1.1 trillion yen in investments and loans over five years, primarily through major acquisitions**
- **Health Care: 140 billion yen in investments and loans against limit of 300 billion yen**

Priority Businesses for Investment

Performance Products	New markets	High-performance films	Information, electronics and display	
		Food ingredients	Advanced polymers	
	New technologies	High-performance engineering plastics	Performance chemicals	Carbon fiber and composite matemicals
Industrial Materials	Overseas development	Industrial gases	MMA	
Health Care	Development in North America	Ethical pharmaceuticals	VLP vaccine	
	New markets	Regenerative medicine		

Resource allocation plan



1. Priority Management Measures under *APTSIS 20*

Performance Products

Reinforce portfolio management
- Accelerate portfolio reforms
- Deploy focus market growth strategies

Industrial Materials

Reinforce business foundations
- MMA, Industrial gases:
  Maintain and expand global share
- Petrochemicals:
  Shift to high-performance materials and optimize productivity

Health Care

Ethical pharmaceuticals
- Cultivate healthcare and medical ICT businesses
- Strengthen pipeline

Life science
- Commercialize regenerative medicine
- Cultivate healthcare and medical ICT businesses

Generate integration benefits and synergies from new MCC

Strengthen global market access and marketing (including by setting up regional headquarters)

Swiftly commercialize next-generation businesses (through R&D, open innovation, and DX)

Deepen KAITEKI Management and reform work styles

+

Reinforce Foundations

1. *APTSIS 20* Review: Performance Products

- **Made 260 billion yen in capital expenditures and growth investments and loans**
- **Demand for automotive applications dwindled amid economic slowdown and US-China trade friction**
- **Failed to expand sales of semiconductor materials**

Accelerating portfolio transformation

- Implemented structural reforms in ABS resins, recording media, polymer flocculants, and light metal products

Driving growth strategies in priority markets

- Implemented growth strategy for polymer compounds
- Reinforced battery material business foundations
  - Established JV with Ube Industries
  - Developing new natural graphite-based anode materials
- Acquired European semiconductor gas business to strengthen semiconductor precision cleaning operations
- Invested to expand production facilities and boost capacity in optical films and polyester films
- Secured advanced technologies from Gelest in silicon chemicals and realization of a semiconductor manufacturing process in advanced technology node
- Building business model for luxury vehicle carbon fiber composite materials

Growth strategy impacts

- Demand sluggish for lighter and battery-related materials owing to sluggish automobile sales and EV penetration delays
- Overseas expansion of packaging materials slowed owing to circular economy
- Unable to build biomedical application business
- Failed to expand sales of semiconductor materials

Synergies and growth through three chemical operating companies

- Generated 25 billion yen against target of 35 billion yen

1. *APTSIS 20* Review: Industrial Materials

- **Structurally reformed carbon chemical business to reinforce underpinnings**
- **Accelerated global development of industrial gas business**
- **Constructed an Alpha technology-based MMA plant in Saudi Arabia, with world-leading annual capacity of 250k metric tons**

Business impacts of environmental changes

- Spreads contracted owing to supply and demand imbalances
  - ▶ MMA and carbon chemicals
- Domestic market shrank from demand structure changes
  - ▶ Carbon (metallurgical coke)

Structural reforms

- Withdrew from Indian and Chinese terephthalic acid businesses
- Unification of ethylene production facilities
- Sophistication of product mix by increasing PE performance
- Expanding wide-area cooperation in utilities

Global market share expansion

- MMA: Constructed an Alpha technology-based plant through JV with SABIC
- Industrial gases: Expanded US and European businesses through Linde, Plaxair, and other acquisitions

1. *APTSIS 20* Review: Health Care

- **Absence of Gilenya™ royalties owing to ongoing arbitration proceedings**
- **Launched Radicava™ in the US**
- **Delay in development of MT-2271 (VLP vaccine for seasonal influenza prevention) and ND0612**
- **Progress in clinical trials on a Muse cell-based formulation (CL2020)**

Pipeline reinforcement

- Obtained POC in 10 late-stage products (4 internationally and 6 domestically)

US developments

- Launched Radicava™, but sales did not grow
- Recorded an impairment loss owing to development delays for MT-2271 and ND0612

VLP vaccine for COVID-19 (MT-2766)

- Received development funding from Canadian Government and initiated 2/3 phase clinical trials of VLP vaccine candidate for COVID-19 prevention in North America

Regenerative medicine

- Conducting clinical trials on CL2020 for ischemic stroke, acute myocardial infarction, epidermolysis bullosa, and spinal cord injury
- Established Tonomachi CPC (cell processing center) and created mass cell culture techniques

Life science

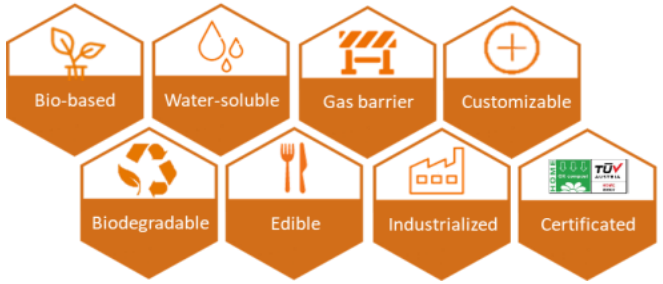
- Reorganized LSIM (completed strategic capital partnership with PHCHD)

1. *APTSIS 20* Review: Reinforce Foundations

- **Exceeded targets in structural reforms, subsidiary and affiliate reductions, and corporate rationalization**
- **Established global management system**
- **Launched CVC activities**

- Implemented 320 billion yen in business structural reforms
- Saved 22 billion yen from corporate rationalizations
- Cut 240 subsidiaries and affiliates
- Established RHQs to build global management system
- Constructing SIC research buildings
- Created structure to digitize processes, apply MI at worksites, and digitally optimize SCM
- Established DEV and launched CVC activities

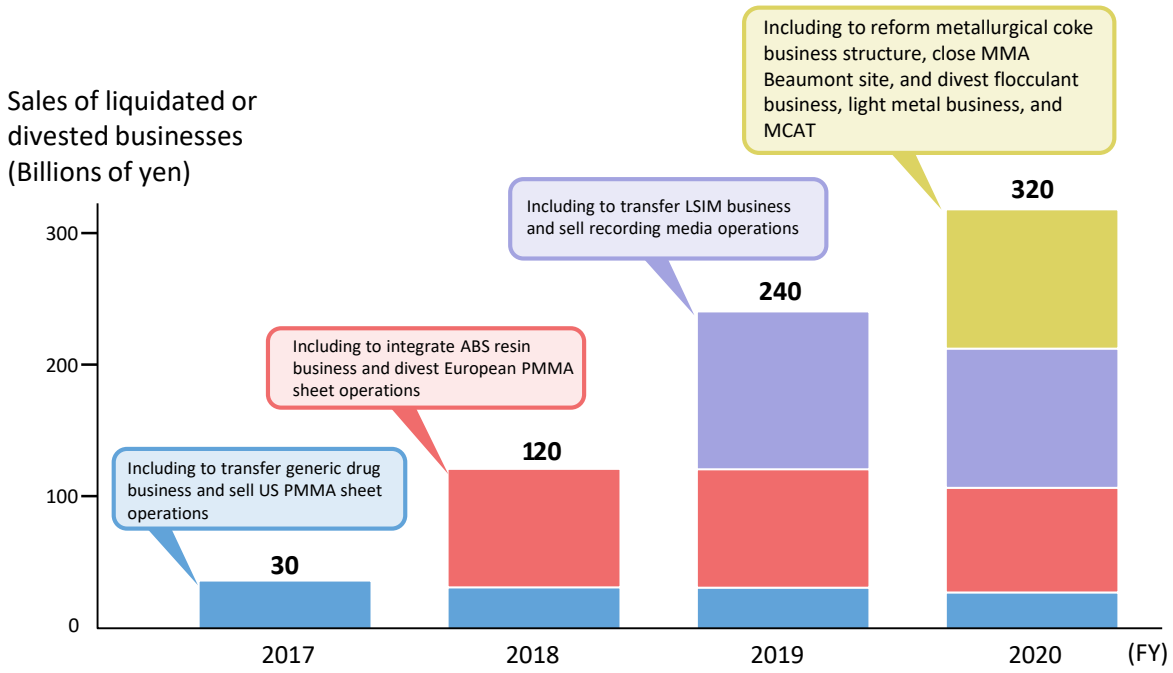
Lactips



Biodegradable and water-soluble polymer derived from milk protein (casein)

Accelerating global expansion by leveraging MCC's manufacturing technologies and market channels to tackle global waste plastic issues

Invested in February 2020



Business structural reforms (FY2017 – FY2020)

Photorealistic images of interior and exterior of SIC research buildings

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2. Major Global Socioeconomic Changes

■ US-China friction and COVID-19 have transformed landscape

Politics and diplomacy

- Conflict between totalitarianism and democracy
- Nationalism rising and international cooperation fraying
- Growing geopolitical risks from fragmentation
- Swifter setting of carbon neutral targets and tighter regulations

Economy and business

- Diversifying supply networks to hedge risks
- Switching to remote interactions through e-commerce
- Mass progress in reforming work styles and boosting operational efficiency
- Accelerating GX and DX

Individuals and society

- Societies increasingly valuing environment
- People increasingly seeking safety and security
- More opportunities to enjoy services virtually
- Remote activities becoming commonplace
- Growing health consciousness

2. Global Economic Growth Outlook

World economy

Varying recovery paces to pre-COVID-19 levels

- China: Has already recovered
- US: Should recover by end-2021 through additional economic and other measures
- EU and Japan: Relatively cautious outlook for consumption and investment, with recovery possible after 2022

Medium-term management plan stance on operating climate

Although upbeat on prospects for turnarounds in some industries and start of vaccinations, markets also note spread of infections through COVID-19 variants, so outlook remains uncertain.

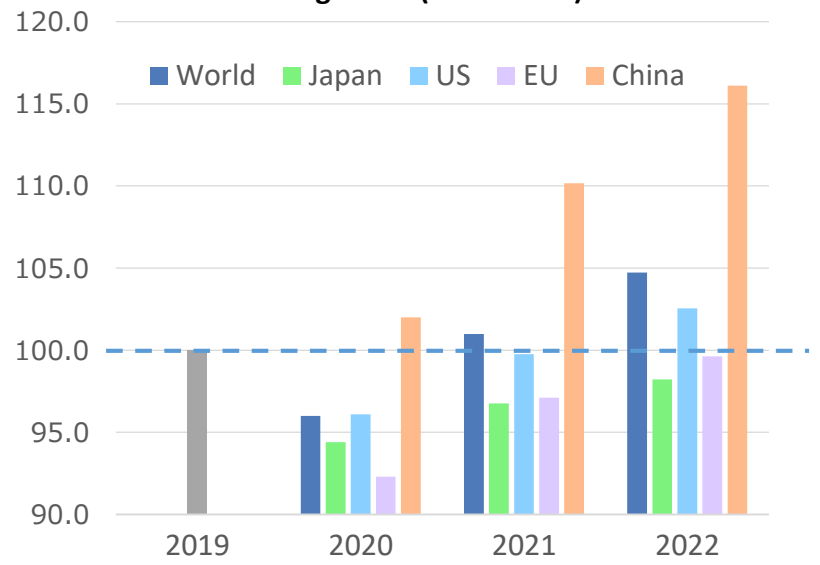
Forex forecast
¥105/US$、¥125/euro

Overall prospects likely to remain unclear

Crude oil (Brent): 55.0 US$/bbl
Naphtha (domestic standard): ¥40,000/kl

While supply-demand balance should gradually improve, with crude oil prices rising, higher US shale oil production presents downside risks

Real GDP growth (2019 = 100)



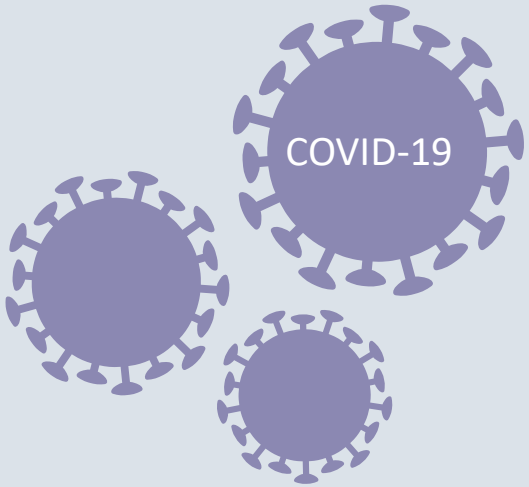
(Based on Bloomberg consensus forecasts)

Automobiles:	**Chinese market driving recovery**
Semiconductors:	**Shifts to new work practices and lifestyles boosting communications equipment demand**
Food packaging:	**While demand for eating out has fallen sharply, more people are eating at home**
Steel:	**Domestic demand has peaked**
Healthcare:	**Ongoing post-pandemic growth from aging population and medical technology progress**

2. *APTSIS 25* in View of COVID-19

■ Dual-step approach

Start



Impact analysis

- Pandemic impact and global trends
- Global economic recovery scenario based on COVID-19 impact
- Impact by business area

Planning perspectives

- Reinforce business foundations (streamline operations and overhaul human resources system reforms)
- Business strategies
  - Accelerate reorganization and restructuring of at-risk businesses
  - Growth strategies in light of the impact of COVID-19
- Healthcare business growth strategies

Step 1: FY2021–FY2022
(during COVID-19)

Step 2: FY2023–FY2025
(after COVID-19)

2. Principle Management Measures in *APTSIS 25 Step 1*

KAITEKI Vision 30

Management foundations

- Streamline management and rationalization
- Human resources system and work style reforms
- Organizational restructuring and global management

Business foundations

- Business model reforms
- Next-generation business initiatives and CVC

Business strategies

Business portfolio strategies

- Reorganize and restructure risk businesses
- Secure footholds in fields where growth is accelerating amid changing social needs
- Healthcare business growth strategies

DX Strategies

Financials

- Core operating income, ROE, and resource allocation

Sustainability management

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Rationalize and Reform Work Styles

- **Save 22 billion yen by rationalizing and 180 billion yen overall by paring assets**
- **Embrace new world of work**

Rationalize and pare assets

- Save 22 billion yen by rationalizing business infrastructure
- Pare assets by 180 billion yen through asset efficiency measures
  - Lower cross-shareholdings: 65 billion yen
  - Improve CCC: 40 billion yen
  - Reduce assets: 75 billion yen

Reduce office space

- Consolidate decentralized offices around Nihombashi and Osaki at Palace Building (saving around 15 billion yen over 10 years)
- Design office layout for maximum attendance rate of 60% (in fiscal 2021)
- Eliminate approval seals and paper from business processes so employees do not need to go to office
- Expand satellite offices so employees can work where and when they want

Digitize to improve work efficiency

- Enhance productivity and overhaul operations
  - Reform business model by emphasizing customer-centric digital supply chain
  - Automate production, deploy robots, and digitize facilities management to create smart factories
  - Accelerate R&D with materials informatics, optimization prediction, and other digital technologies

1) MCC Business Process and Human Resources System Reforms

- **Save more than 5 billion yen, mainly by streamlining back-office processes and supply chain**
- **Attract diverse talent through job-specific and performance-based pay**

Business process reforms

- Logistics and supply chain: Cut delivery costs substantially by integrating logistics sites and using digital technology
- Back-office processes: Consolidate and streamline operations at head office and other sites, shift to shared operations, and automate back-office processes for manufacturing
- Leveraging external assessments in stepping up facilities management: Pursue more selective capital investments and optimize repair costs and facilities procurement
- Optimize plant purchasing in terms of auxiliary materials costs and general production materials
- Allocate personnel optimally to streamline production

Human resources system reforms

- Create corporate culture in which all unite in quest for growth selection
- Shift to job-based setup offering better treatment and remuneration transparency
- Bolster human resources by identifying and developing talented employees worldwide
- Individualize support through self-directed career development and one-on-one and career design interviews
- Safeguard mental well-being, step up recruitment, and build human resources networks to secure and retain diverse workforce

2) Reorganize MCC

Build organizational structure matching KV30 drive to address social issues

Domains	Divisions	Sectors
Basic Materials	Carbon Chemicals	• Olefins & Aromatics • Chemical Derivatives • (JPP)
	Carbon Products	• Carbon Products
MMA	(Mitsubishi Chemical Methacrylates)	• (Asia, Europe, USA)
Polymers & Compounds	Polymers	• Performance Polymers • Acetyl Polymers • Sustainable Polymers
	Coating & Additives	• Coating Materials • Additives & Fine
Films & Molding Materials	Films	• Packaging • Industrial Films • Polyester Films
	Molding Materials	• Carbon Fiber • Advanced Materials • Alumina & Fiber
Advanced Solutions	Amenity Life	• Aqua & Infrastructure • Life Solutions
	Information & Electronics	• Semiconductor • Electronics • Battery Materials

Major related growth business areas

- GHG reduction
- Carbon cycle
- Food and water supply
- Digital society infrastructure
- Human interface

3) Reform Global Management at MCC

- Consolidate companies* within same countries and regions and maintain measures to bolster MCC brand
- Enhance efficiency by sharing and consolidating resources to reinforce overall business capabilities
- Ensure consistent and transparent internal controls and governance and foster synergies and communication

→ Build regional headquarters-based management structure that drives global growth

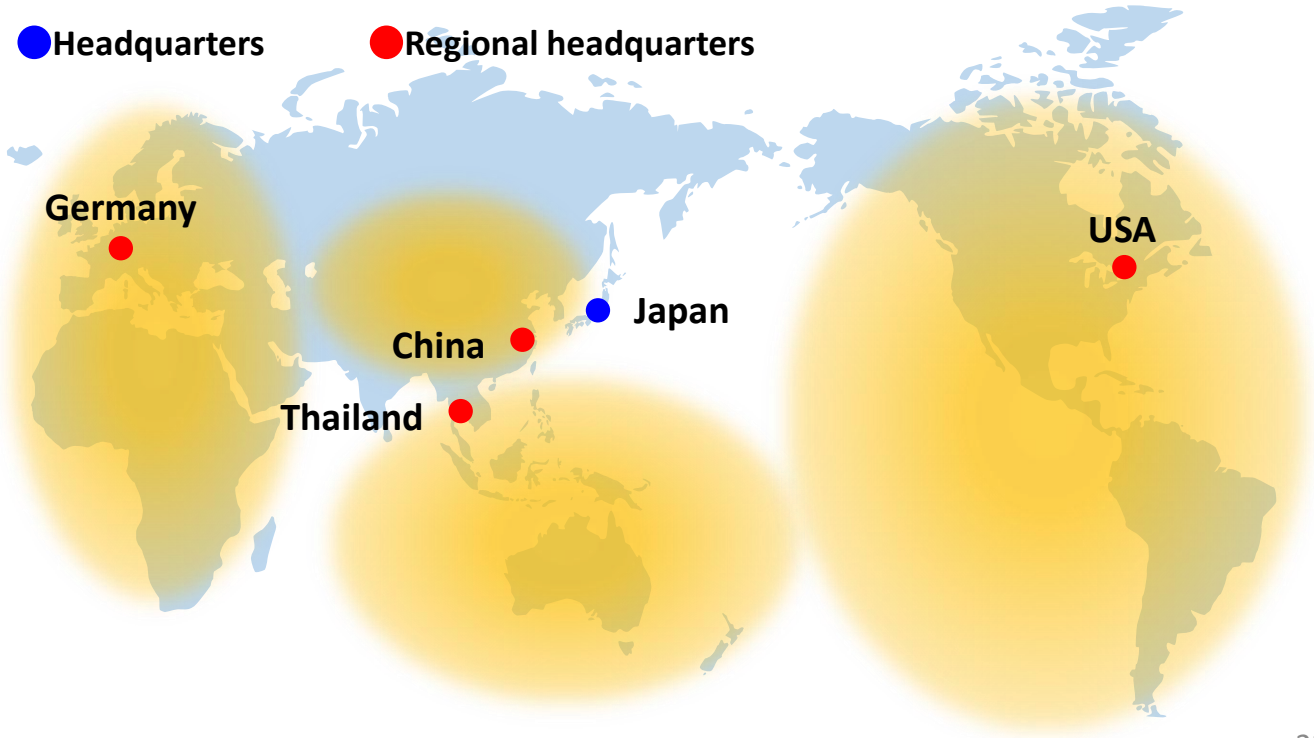
One MCC

Regionally

- Formulate and execute strategies
- Support business and profit growth
- Strengthen marketing in priority fields
- Systematically allocate, train, and recruit human resources

etc.

* Integrated Group companies in Thailand and Singapore in 2020 and in the US, UK, Germany, and Taiwan in April 2021



4) Strengthen Global Management at NSHD

- **Build prominent position in industrial gas industry**
- **Initiatives**
  - **Accelerate decision-making by delegating authority and better allocating business resources to growth regions and markets**
  - **Clarify business execution responsibilities and results and set up global governance system**
  - **Reinforce groupwide capabilities by sharing regional strengths and accelerate synergies**

Organization chart

(Figures in parentheses are sales revenues for FY2020, in billions of yen)

NSHD

Gas Business in Japan	TNSC Group (360)
Gas Business in the US	Matheson Group (200)
Gas Business in Europe	Nippon Gases Group (170)
Gas Business in Asia & Oceania	Asia/Oceania Region Group Companies (100)
Thermos Business	Thermos Group (25)

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Grand Design for DX

Grand design aims to materialize KV30

KV30

KAITEKI Vision 30

DX vision

- A compass to promote companywide measures

Transformation for new value creation toward a sustainable future through collaboration between humans and digital technology

- Be top runner in materials and healthcare innovation
- Create new customer value through solutions
- Design and spread value of sustainability
- Exemplify human creativity

DX initiatives

- Seven key initiatives essential to realize our vision

Investment: 24 billion yen

Digital R&D	Smart factories	Digital supply chain from the starting point of customers	Business model trans-formation / as-a-Service model	Sustain-ability value assessment	Data-driven manage-ment for rapid decision making	Transfor-mation into agile way of work / organization
34	147	29	15	• Swiftly identify end-to-end environmental and social value • Develop infrastructure to support data-driven management		

- Number of projects, etc.

DX infrastructure

- Common infra-structure for synergy creation

Technology | Promotion structure | Talent

Agenda

1) Strengthen Solution Provision Structure

■ Further expand carbon fiber composite materials business in mobility field and provide total solutions including in chemical materials recycling

Strengthen carbon fiber composite materials business (*Step 1*)

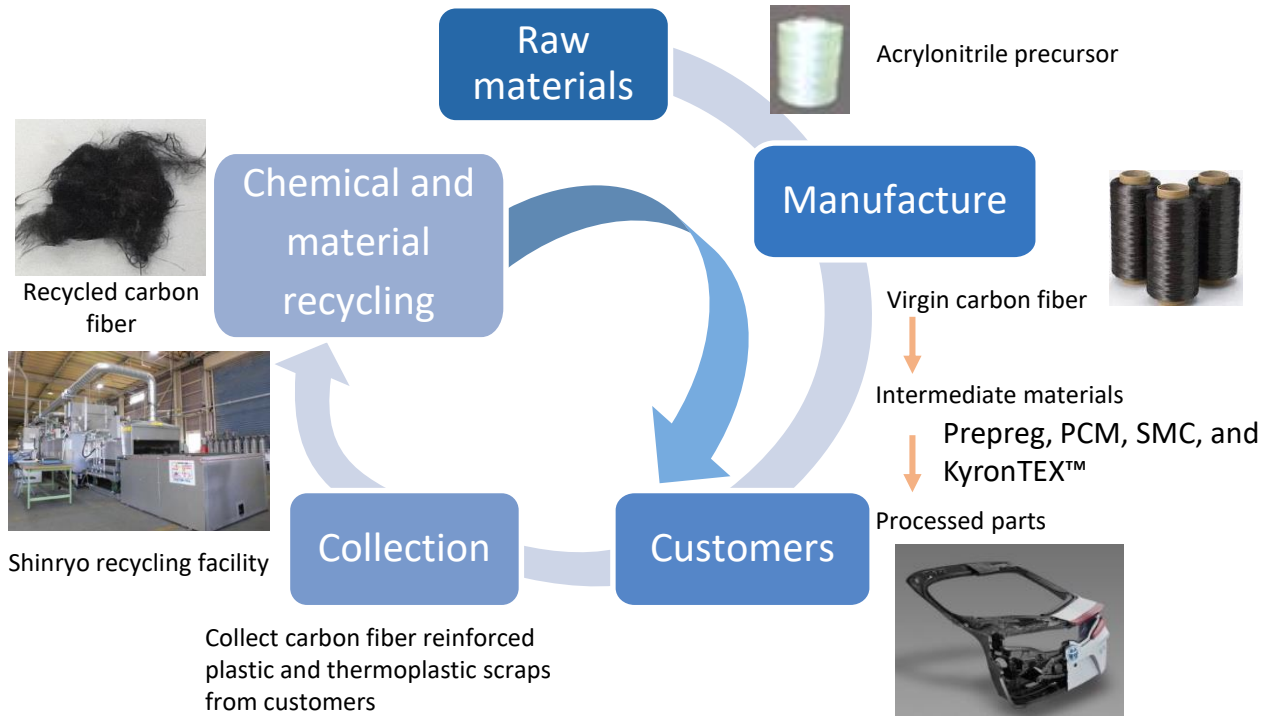
- Strengthen business centered on prepreg compression and CF-SMC
- Set up CF-SMC site adjacent to Italian subsidiary C.P.C. to build structure for providing integrated solutions for parts design, molding, painting, and assembly

Photo courtesy of Audi

Left: Toyota's GR Yaris employs CF-SMC
Right: Roof of Audi RS 5 Coupe incorporates carbon fiber-reinforced plastic

Build recycling business model (*Step 2*)

- Cultivate technologies of Shinryo, CFK Valley Stade Recycling, carboNXT, and Minger Group, all now part of Group, to build recycling business model for carbon fiber composite materials and engineering plastics that help lower CO_2 emissions

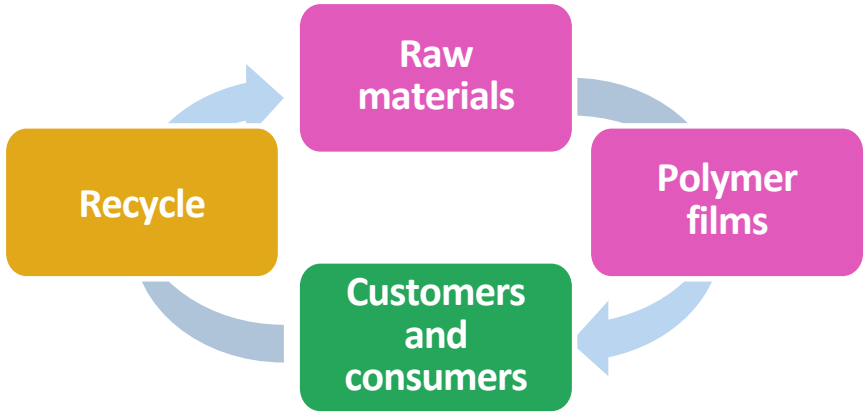


2) Chemical and Material Recycling

■ Help create circular economy for plastics by managing supply chain with customers and consumers

Engage in post-industrial and post-consumer recycling

- Reduce environmental impact through chemical and material recycling technologies
- Strengthen collaboration with ENEOS to build chemical refinery
- Leverage capital and business alliance with Refinverse to create waste plastics collection system



Design and supply easily recyclable products

- Use materials informatics to develop new resins
- Develop advanced monomaterial films
- Apply compatibilizing agent and other multilayer separation techniques

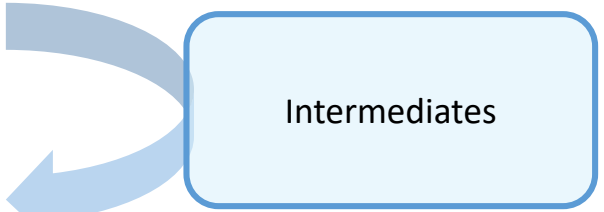
Biaxially oriented polyester film

Heat-shrinkable film

Develop chemical recycling technology

- Draw on joint project with Kirin Holdings to chemically recycle PET bottles
- Seek innovative startup partners for corporate venture capital activities

PET bottles

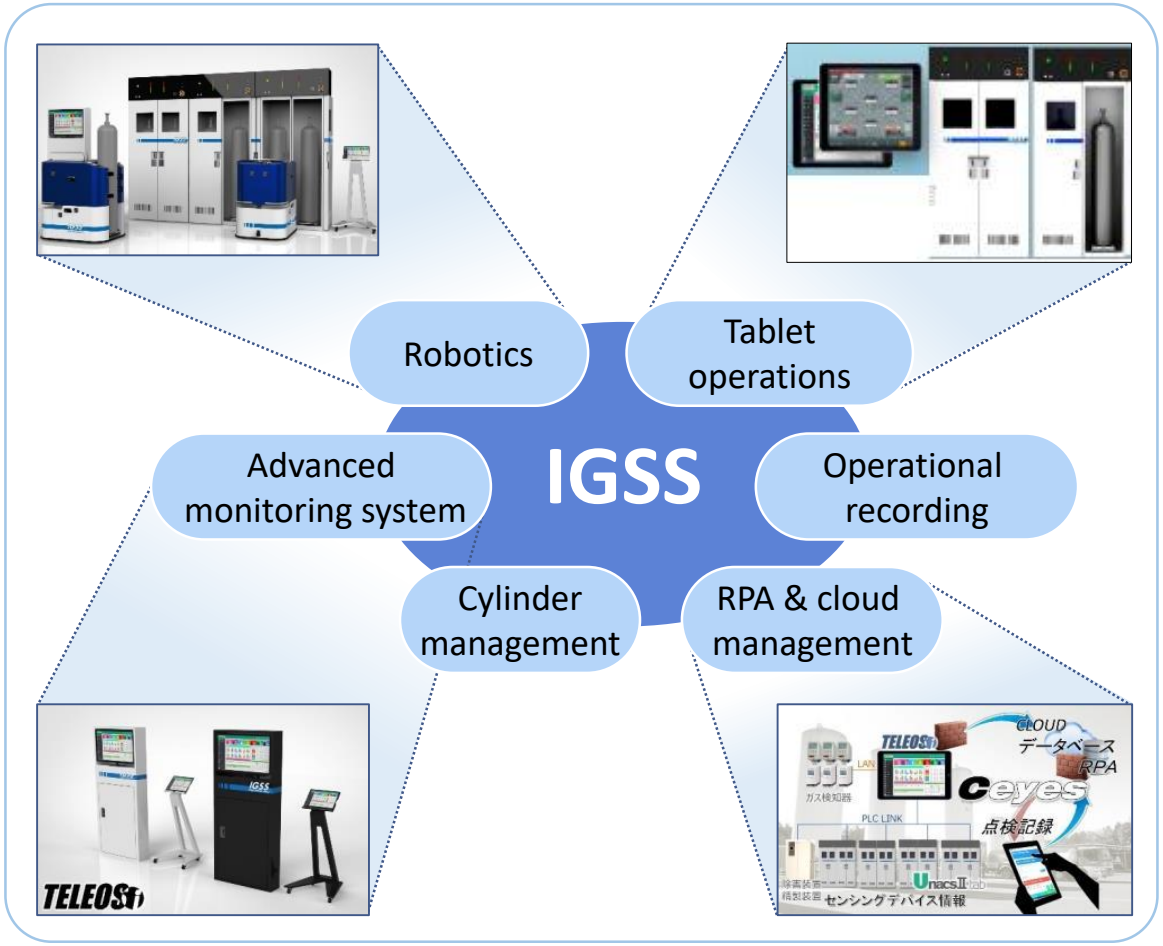


3) Intelligent Gas Supply System (IGSS)

- **Develop system that materializes smart factories**
- **Cultivate diverse applications through customization and packaged services**

Drive DX among customers and through production sites and logistics

- Build IGSS that integrates cylinder transportation and management, routine inspections, and monitoring system
- Drive DX to run plants remotely and optimize operations to cut costs by improving efficiency and saving labor
- Streamline and save labor by ordering online



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R&D Initiatives for Next-generation Businesses

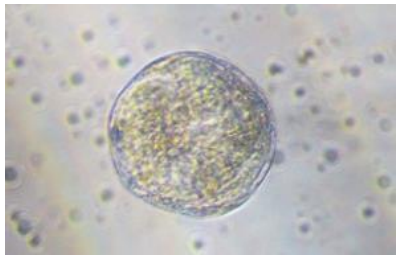
■ Noteworthy R&D focuses that could deliver value in *Step 2* growth businesses and next-generation businesses

Growth business areas	Solutions	Examples of R&D themes
GHG reduction	• Lighter mobility • Electrification solutions • Distributed energy management	• **Strong, lightweight materials** • **Next-generation battery materials** • **Thermal management materials**
Carbon cycle	• Bioplastic solutions • Chemical and material recycling • CO_2 capture and utilization • Hydrogen society	• **Biomass plastics** • **Plastic recycling technology** • **Artificial photosynthesis** • **Carbon-free hydrogen stations**
Food and water supply	• Decentralized food and water systems • Alternative food and taste solutions	• **High-performance packaging materials** • **Food preservation gas**
Digital society infrastructure	• Next-generation high-speed communication solutions • Semiconductor solutions • Next-generation display solutions	• **Next generation communication related materials** • **Advanced semiconductor materials** • **Next-generation display materials**
Human interface	• Symbiosis of human and robot solutions	• **Antibacterial and antiviral materials** • **Non-contact materials**
Medical advances	• Regenerative medicine • Preventive carae • Precision medicine	• **Muse cells** • **Cell culture materials** • **VLP vaccine** • **Genetic medicine** • **Phenotype medicine**

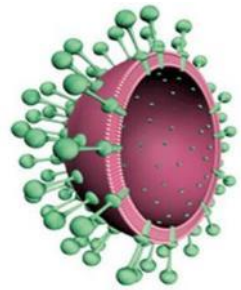
Lightweight materials for mobility

Carbon-free hydrogen station

High-performance packaging materials



Muse cells
(Photo courtesy of Dr. Mari Dezawa)



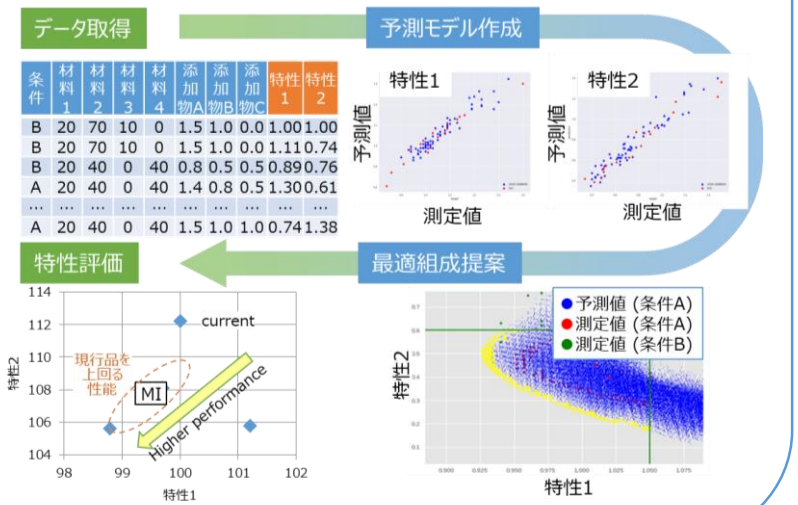
VLP vaccine

Streamlining R&D with Digital Technology and Open Innovation

■ **Streamline R&D by leveraging digitized R&D including material design that utilize MI, further promotion of open innovation and by employing quantum computing**

Initiatives to strengthen R&D

Develop MI-based materials



条件	材料1	材料2	材料3	材料4	添加物A	添加物B	添加物C	特性1	特性2
B	20	70	10	0	1.5	1.0	0.0	1.00	1.00
B	20	70	10	0	1.5	1.0	0.0	1.11	0.74
B	20	40	0	40	0.8	0.5	0.5	0.89	0.76
A	20	40	0	40	1.4	0.8	0.5	1.30	0.61
...	...	...	...	...	...	...	...	...	...
A	20	40	0	40	1.5	1.0	1.0	0.74	1.38

Construct SIC research building

- Deploy advanced digital infrastructure enabling big data and AI usage

Use quantum computers

- Participate in University of Tokyo Quantum Innovation Initiative Council
- Help implement quantum technologies, including quantum computers, in society

Step up open innovation

- Boost cooperation with NEDO, AIST, and universities
- Add value by combining internal and external technologies

Enhance CVC activities (see page 33)

Reorganize R&D

- Market-centric R&D structure that accommodates short product lifecycles

CVC Strategy

- **Plan MCHC Group-wide 10-year, $200 million fund, expanding to explore new fields**
- **Starting Frontier Fund along with Platform Fund and Therapeutics Fund, to comprehensively cover MCHC Group areas of interest**

Mitsubishi Chemical Holdings

	MCHC Current Markets	MCHC New Markets
	Platform Fund	**Frontier Fund** (New)
Duration	FY2021 - FY2030	
	Extension of current fund	New fund
Purpose	**Business Expansion**	**Pioneer New Fields**
Investment area	Current and adjacent fields to realize KV30	Frontier fields to expand KV30
Description	Investment to support expansion of current business via startup engagement	Investment to cultivate new fields for creation of future business pipeline
Target outcome	New revenue for current Bus	New revenue for future MCHC
Fund size	US$150 million (10 years)	US$50 million (10 years)

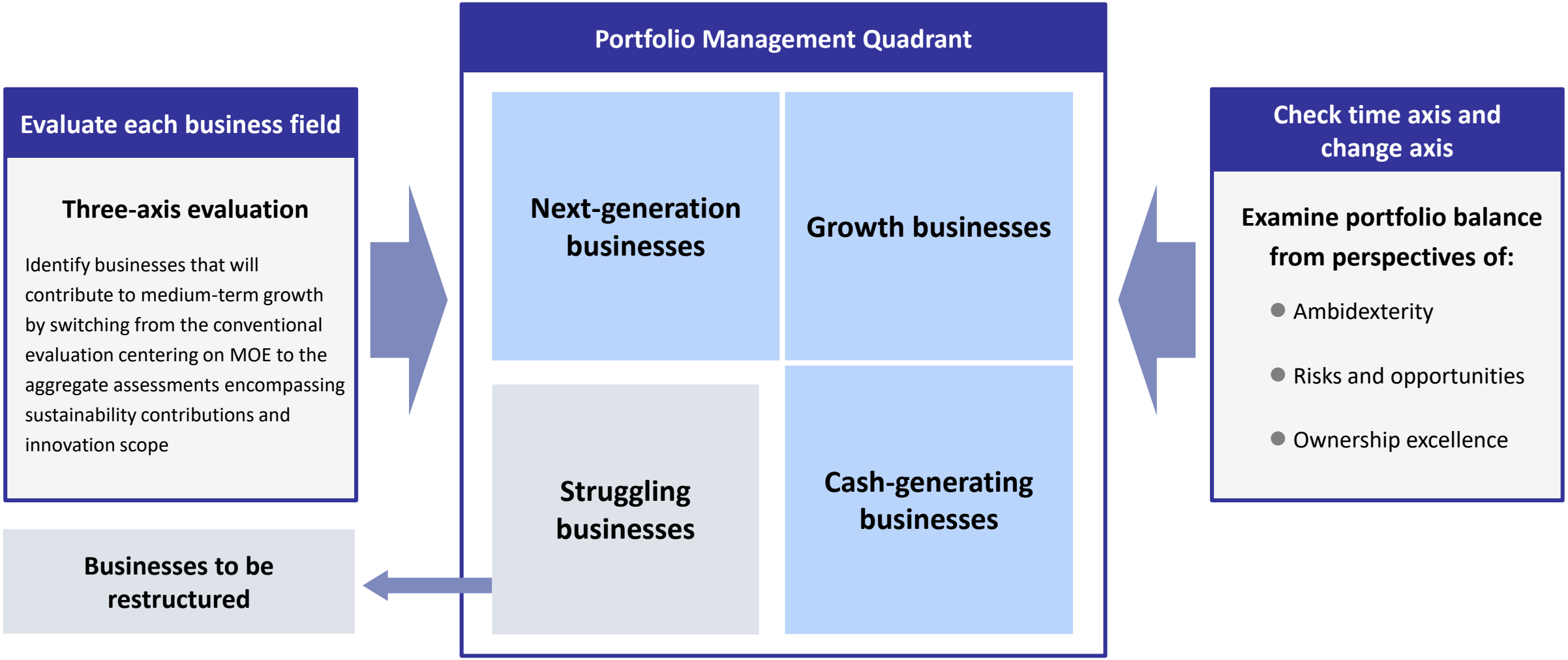
Mitsubishi Tanabe Pharma — **Therapeutics Fund (MP Healthcare)**

Agenda

3-2 Basic Portfolio Reform Policies

- **Shift to quadrant portfolio management based on three-axis* evaluation**
- **Implement Portfolio management based on changes in social needs and future business risks**

*MOS, MOT, and MOT



Agenda

Carbon Chemicals (Strengthen Petroleum Refinery Alliances)

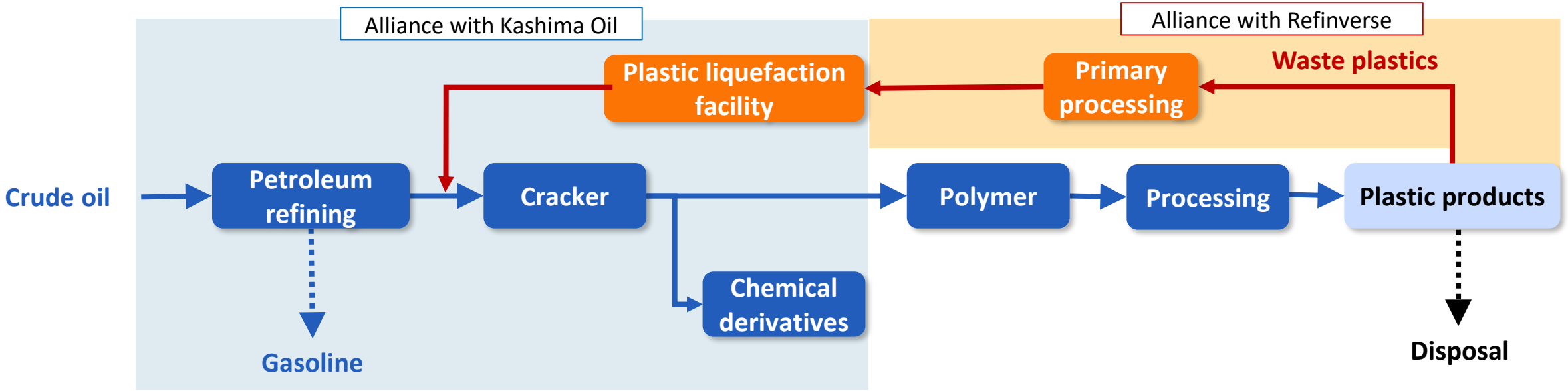
- Strengthen competitiveness by optimizing Kashima Oil and MCC's Ibaraki operations
- Realize chemical recycling of waste plastics by using naphtha crackers and other refinery and petrochemical facilities
- Formed capital and business alliance with Refinverse to create waste plastic collection system

Integrate and optimize operations

- Crack butane and other fuels to create petrochemical raw materials
- Optimize naphtha quality and explore exchanges of utilities and infrastructure

Explore chemical recycling of waste plastics

- Set up plastic liquefaction facilities for waste plastics
- Invested in Refinverse to get waste plastics as raw materials



Coke

■ Shift from domestic to overseas focus

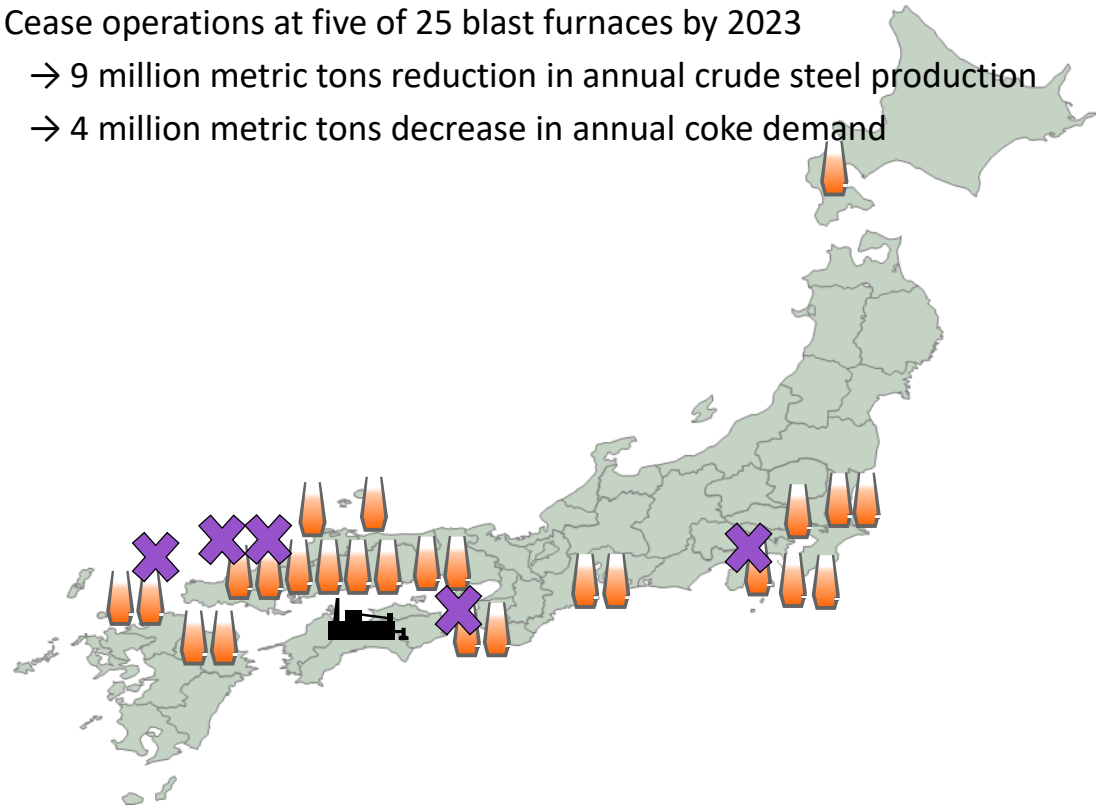
Domestic steel industry consolidation

Reduce domestic blast furnace capacity

Cease operations at five of 25 blast furnaces by 2023

→ 9 million metric tons reduction in annual crude steel production

→ 4 million metric tons decrease in annual coke demand

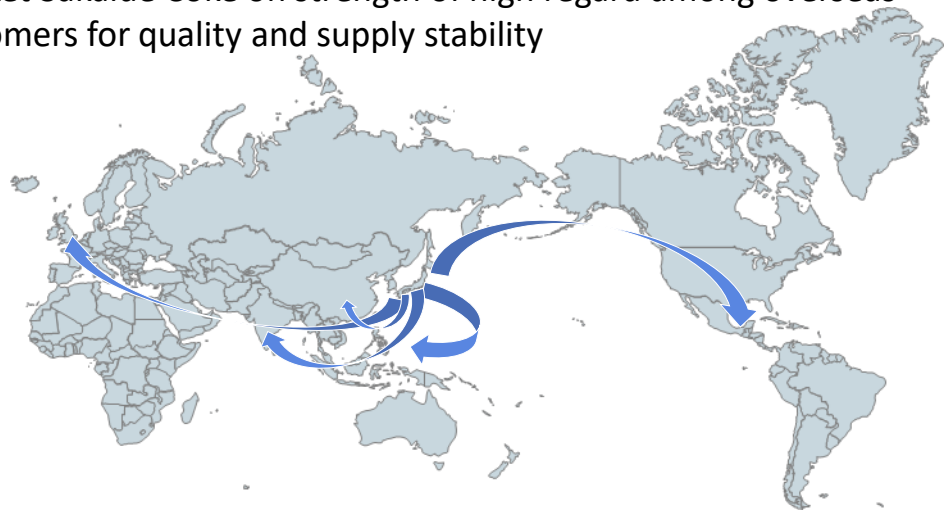


Coke business reforms

- Reduce number of coke ovens at Kagawa Plant from 323 to 250 to optimize operations
- Double export shipping lines to two

Global expansion

- Market Sakaide Coke on strength of high regard among overseas customers for quality and supply stability



MMA

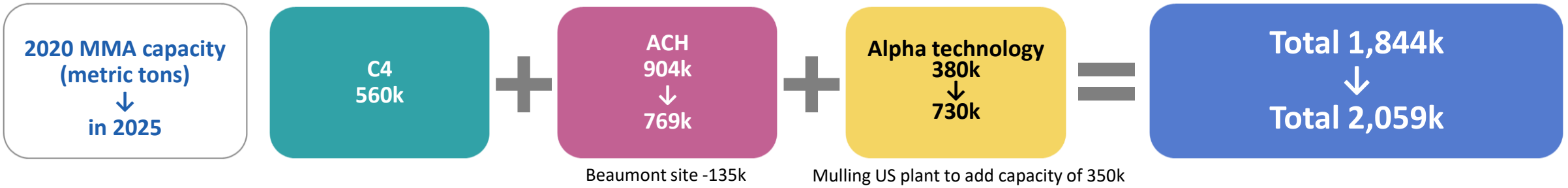
- **Digitize processes and relocate headquarters functions to globalize business infrastructure**
- **Looking to build US plant that would be world's largest to produce MMA employing proprietary Alpha technology**

Strengthen global management

- Maintain global supply chain management system using mathematical optimization technology
- Consolidate relevant headquarter functions in Singapore and rename major subsidiaries as Mitsubishi Chemical Methacrylates to unify MMA operations, effective April 2021

Push ahead with US project

- Acquired property in Geismar, Louisiana, to construct third Alpha technology-based MMA monomer plant
- To be world's largest such facility, with annual capacity of 350k metric tons
- Looking to finalize investment decision in mid-2022 and start operations in 2025

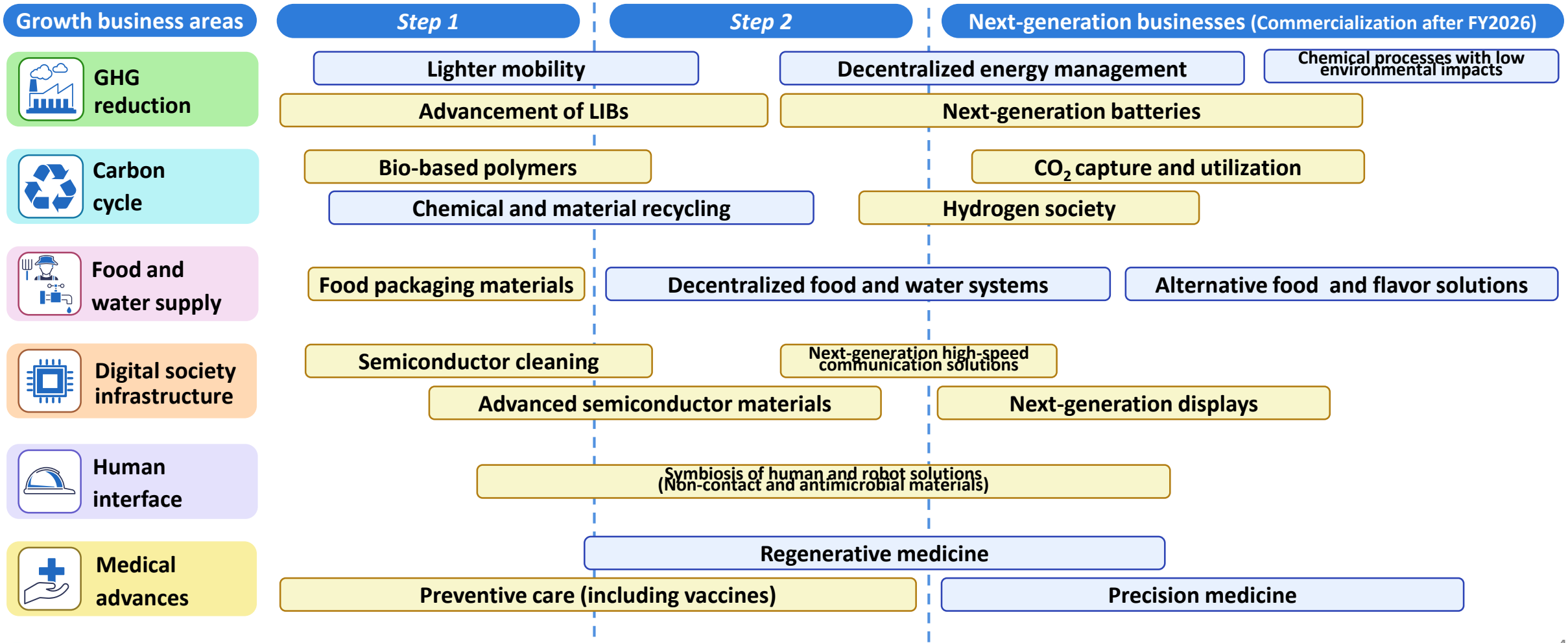


Agenda

3-4 Growth Business Areas under KV30

- Anticipating demand expansion in growth business areas specified under KV30 during and after COVID-19 pandemic
- Accelerate innovations to commercialize businesses
- Strengthen businesses during *Step 1* and commercialize during *Step 2*

: Fields where demand expands due to COVID-19



Strengthen Pipeline

- Expand portfolio by combining central nervous system and immuno-inflammation research infrastructure and modalities
- Increase precision medicine R&D spending and launch more products after fiscal 2025

Research infrastructure and modalities

Central nervous system

Drug discovery from validated genes

Target gene verification

NeuroDiscovery Lab

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Modalities

- Gene
- Nucleic acid
- RNA target small molecule

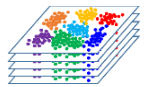
Immuno-inflammation

Phenotypes analyzed drug discovery by stratification of patient group

Analysis of clinical specimen and patient data

Keio University

Keio Research Park



Bio informatics

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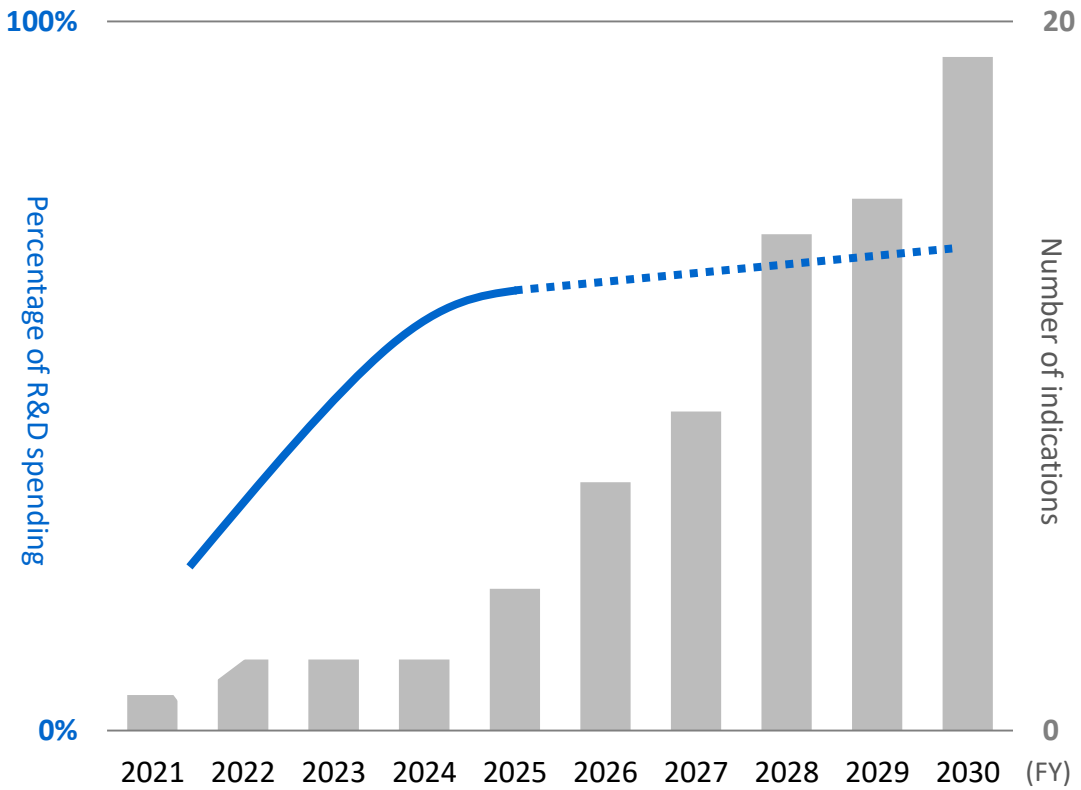
Modalities

- Small molecule
- Middle molecule
- Antibody

Precision medicine launches



Regenerative Medicine

■ Advance development and commercialization of Muse cell-based regenerative medicine products, aiming to file in fiscal 2021 and obtain approval in fiscal 2022

Initiatives for multiple indications

- Looking to start clinical trials for amyotrophic lateral sclerosis, as well as acute myocardial infarction, ischemic stroke, epidermolysis bullosa, and spinal cord injury

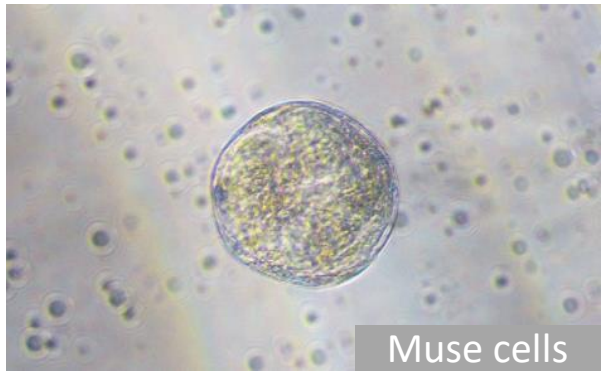


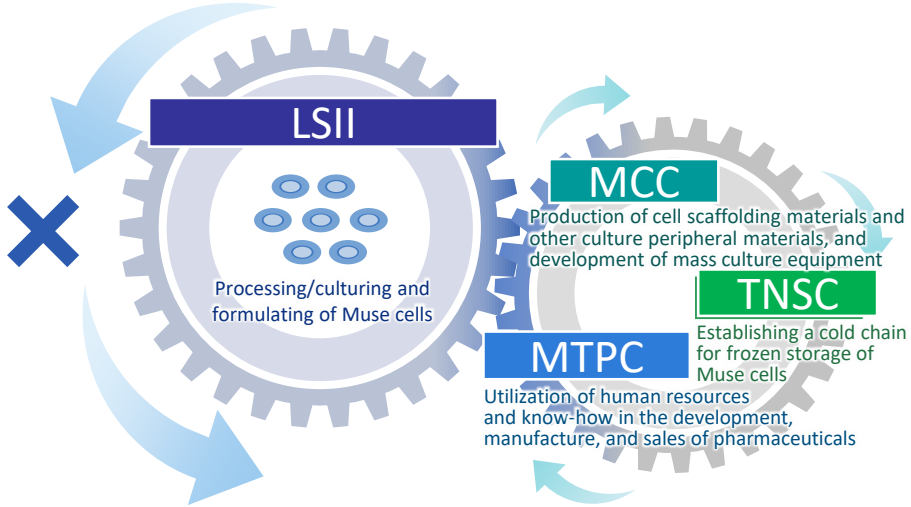
Photo courtesy of Dr. Mari Dezawa (Tohoku University)

Projected number of patients receiving Muse cell treatment

Linkage for commercialization

- Establish collaborative structure to drive commercialization through proprietary cell manufacturing technologies and alliances with companies below and research institutions

Academia, research institutes, and other external organizations



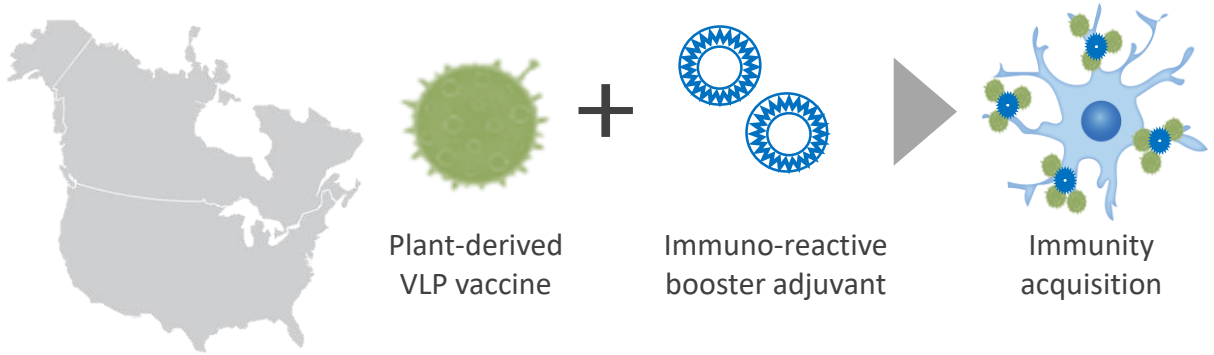
Overseas expansion

- Start consultations with US authorities to prepare for clinical trials
- At the same time, seek development and other partners (consider such licensing approaches such as licensing to megapharmas and joint development and marketing)

Progress in Vaccine Business

- Help prevent infectious diseases by developing VLP vaccines and adjuvants
- Continue efforts to prevent infectious diseases in children and adults and maintain stable vaccine supplies in Japan
- Generate more than 100 billion yen in vaccine business sales by fiscal 2025

Medicago initiatives



VLP vaccine for COVID-19 (MT-2766)

Launch in 2021 in North America

Seasonal flu VLP vaccine (MT-2654)

Launch in 2024 in North America

Collaboration with BIKEN Group

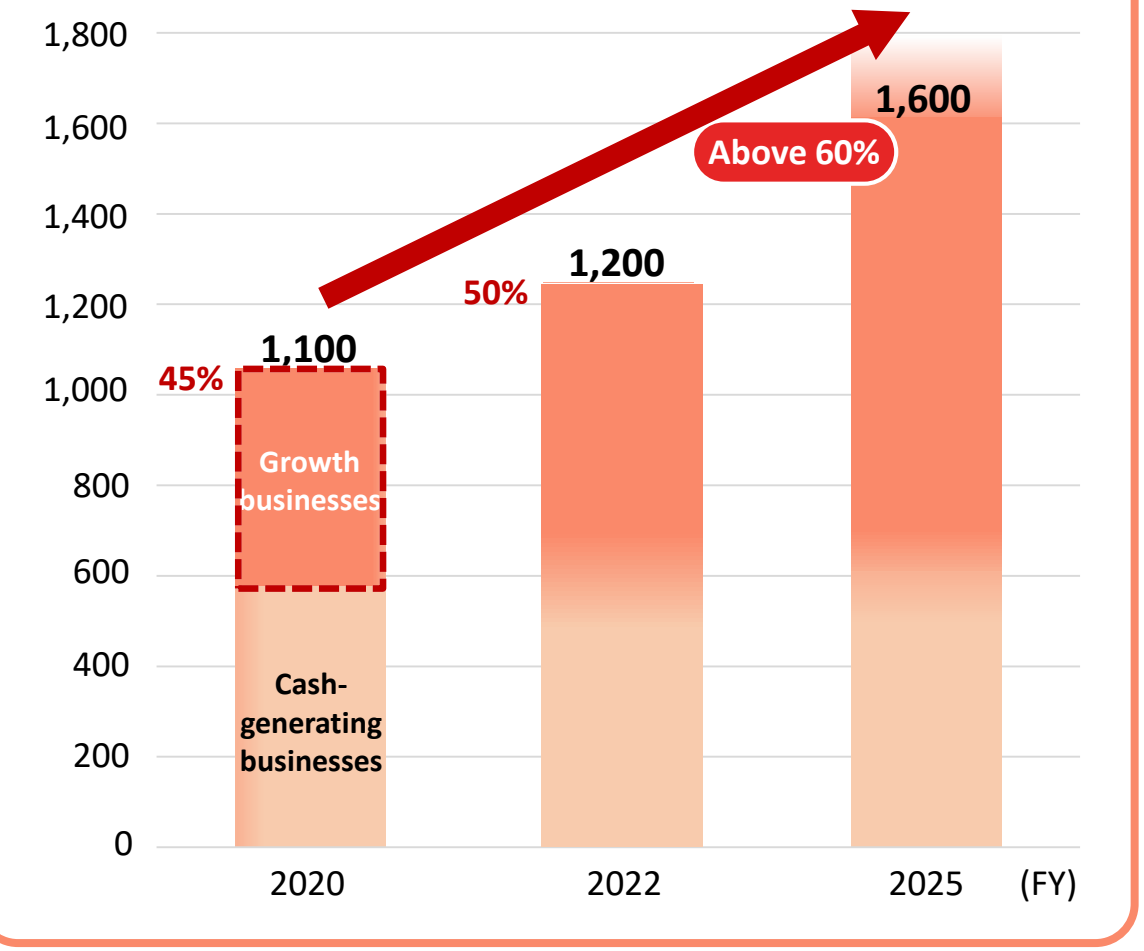
Enhancing productivity reinforcement of BIKEN

Pediatric combined vaccine (MT-2355)	**Launch in 2025**
Varicella vaccine	Raise awareness of shingles

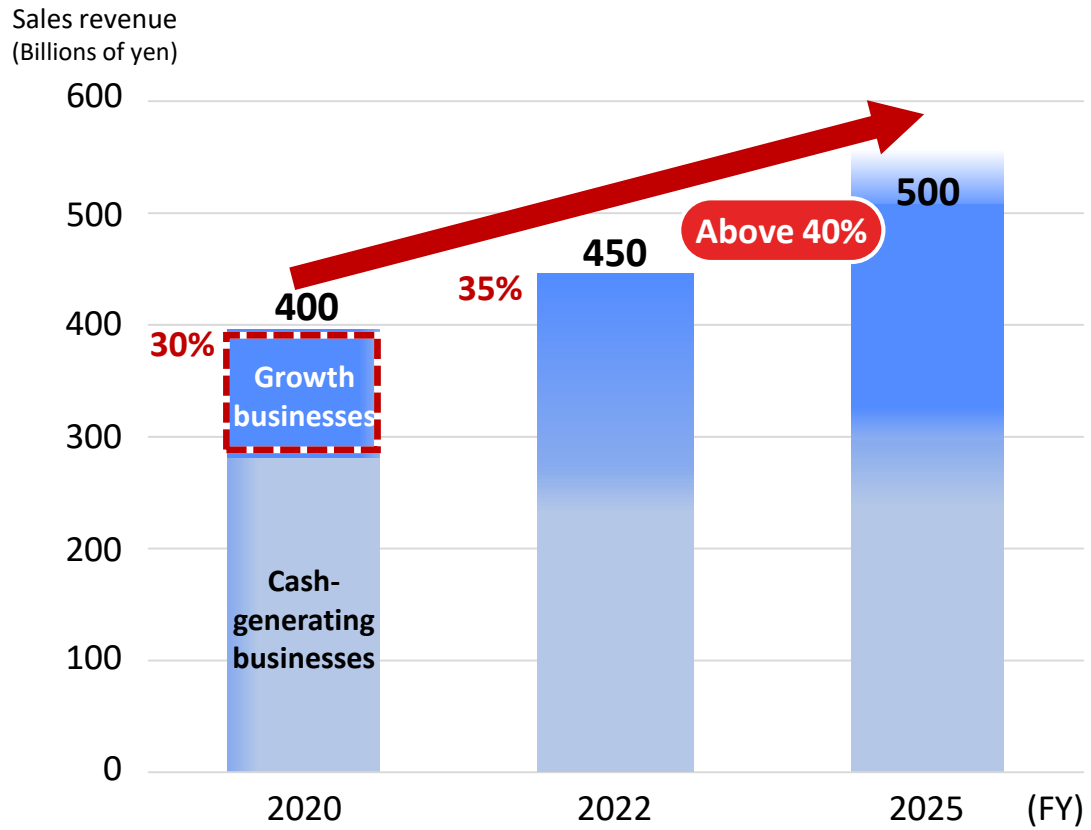
3-4 Performance Products and Health Care Growth Business Expansion Goals

■ Targets based on strategy of social needs and Health Care growth challenges

Performance Products



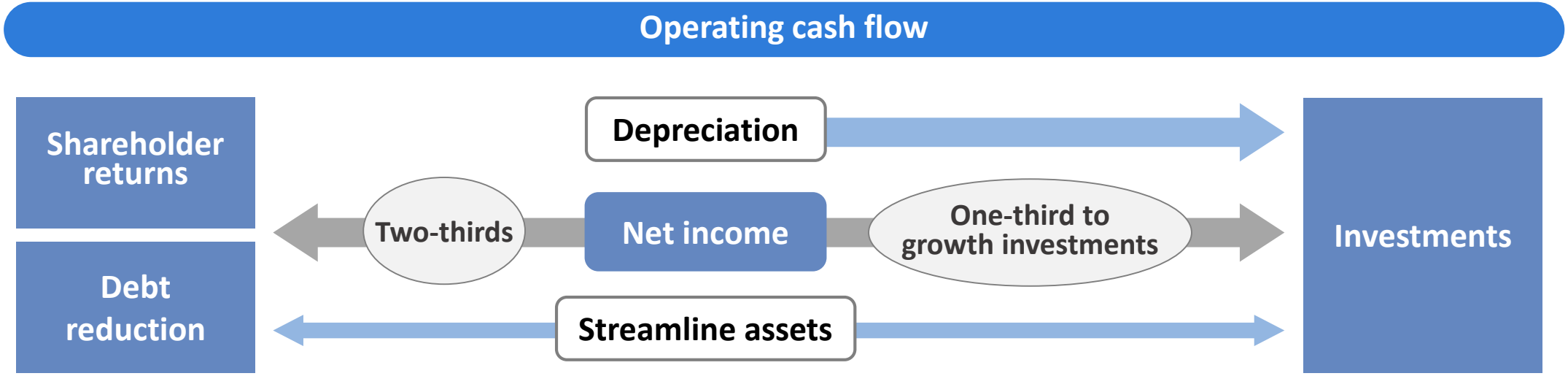
Health Care



Agenda

3-5 Financial Strategies

- Increase corporate value by balancing shareholder returns, financial position improvements, and growth business investments
- Pursue ROE of at least 8% under *Step 1*
  - Shareholder returns: Annual cash dividends of 24 yen per share consistent with basic policy (medium-term consolidated dividend payout ratio of 30%)
  - Allocate one-third of net income to growth investments



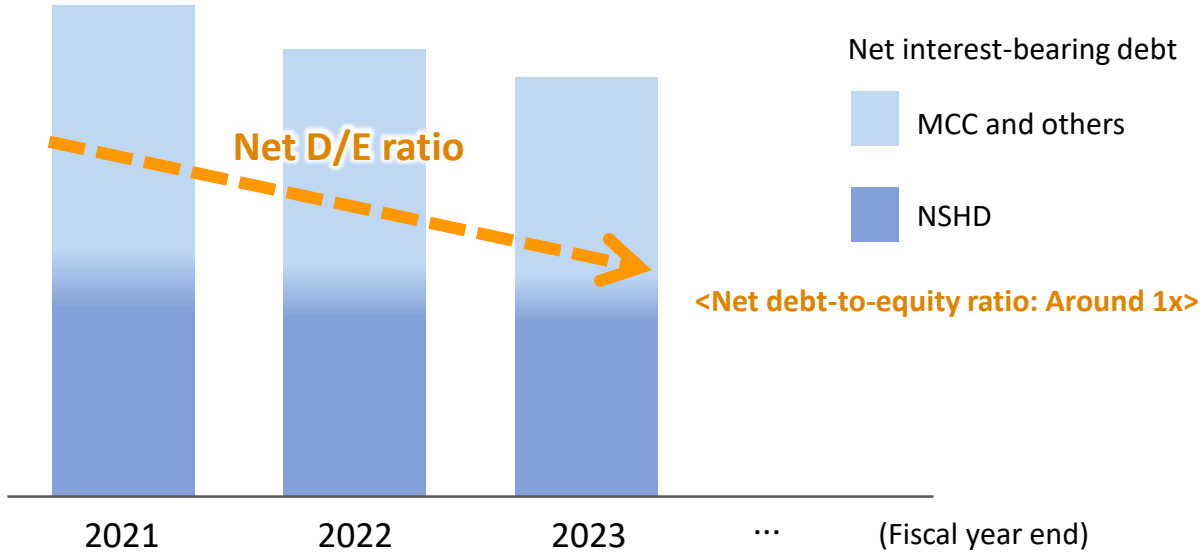
- Unwind cross-shareholdings
- Improve CCC
- Reduce cash and deposits

3-5 Measures to Improve Financial Position

Keep improving financial position and aim to swiftly restore net debt-to-equity ratio to 1x level

- **Steadily reduce interest-bearing debt**
  - NSHD: Repay hybrid bonds in line with repayment terms, for adjusted net debt-to-equity ratio* of around 1x (as of end of March 2023)
  - Other than NSHD: Keep improving asset efficiency (including by enhancing cash conversion cycle and reducing cross-shareholdings)
- **Undertake 180 billion yen in financial structural reforms over two years of *APTSIS 25 Step 1* through measures to improve asset efficiency**

Steadily reduce interest-bearing debt



*Adjusted net debt-to-equity ratio = Net debt after adjusting for equity component of hybrid funded debt / (Equity attributable to owners of the parent + equity debt)

Details of measures to improve asset efficiency

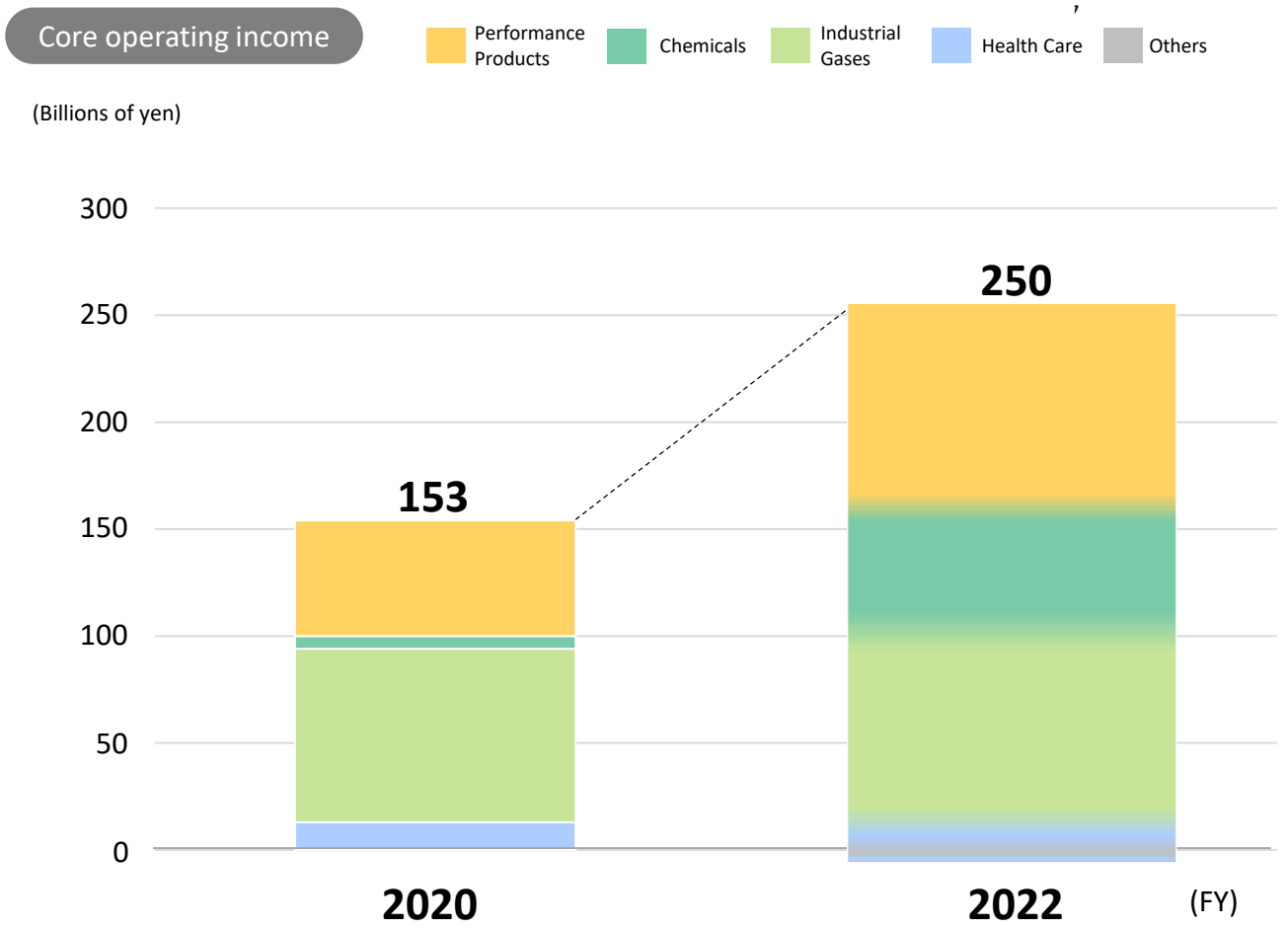
(Billions of yen)	Forecast Cumulative total for FY2020	*APTSIS 25 Step 1*
Reduce cross-shareholdings	150	65
Improve CCC	120	40
Lower cash and deposits and sell assets, etc.	420	75
Total asset efficiency improvements	690	180

3-5 Financial Target

■ **Endeavor to generate 250 billion yen in core operating income amid uncertainty owing to prolonged impact of pandemic**

Key financial metrics

Core operating income	¥250 billion
Net income attributable to owners of the parent	¥120 billion
ROE	10%

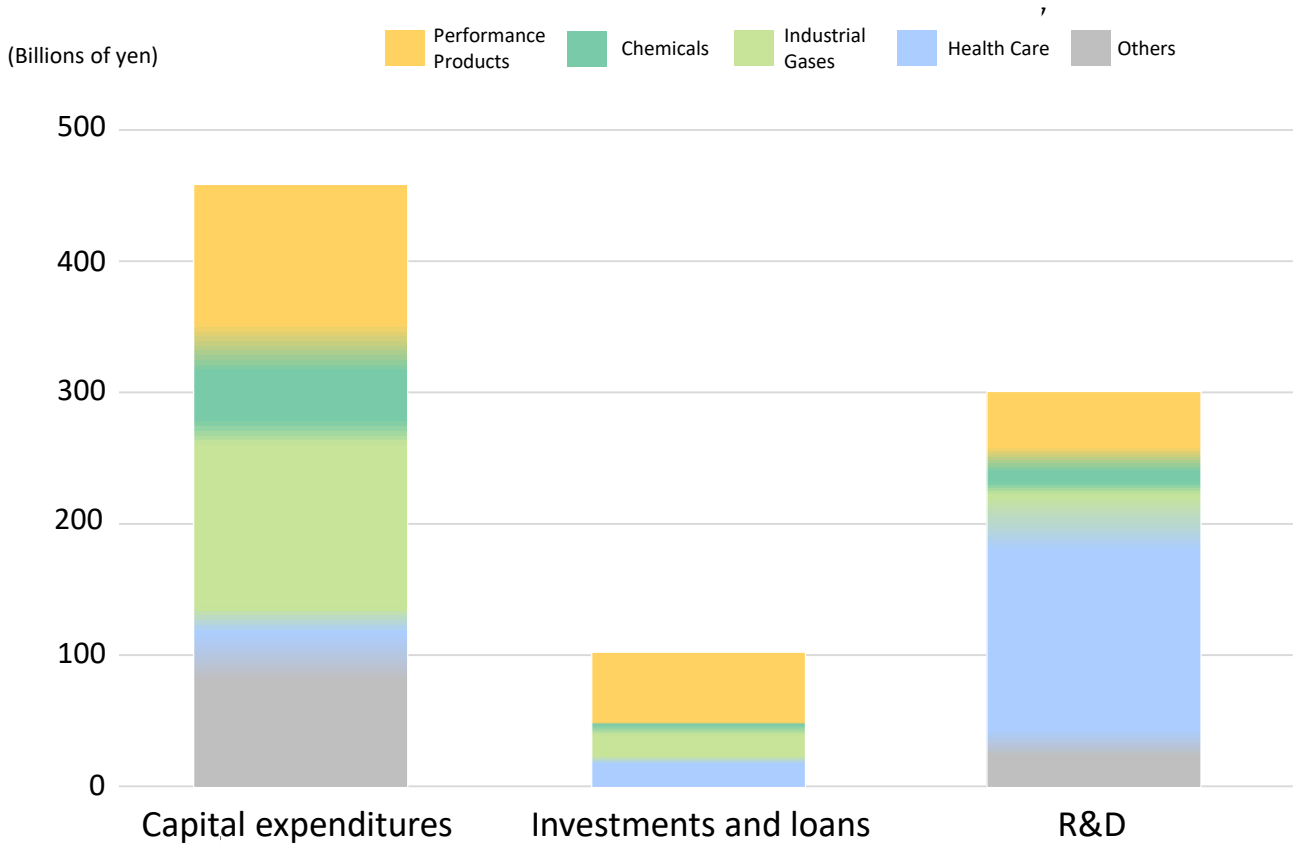


3-5 Resource Allocation Policy

- Capital expenditures: Maximize within depreciation and amortization scope
- Investments and loans: Prioritize areas with growth acceleration prospects
- R&D: Strengthen Performance Products and Health Care R&D

Investments over two years

Capital expenditures	¥450 billion
Investments and loans	¥100 billion
R&D	¥300 billion



Agenda

3-6 Strengthen Sustainability Management to Achieve KV30 Targets

- Push ahead with circular economy efforts as MOE and MOS crossover
- Deploy in-house carbon pricing
- Endeavor under government Carbon Neutral 2050 policy to build foundations for environmental impact neutrality

Circular Economy Promotion Committee initiatives

CO_2 circulation

- **Reduce emissions and harness CO_2**

✓ Reduce emissions from manufacturing
- Rationalize processes
- Switch fuels on in-house generators and shift to purchased electricity
- Use renewable energy and credits

✓ Mull expanding avoided emissions

✓ Accelerate CO_2 usage R&D
- Develop artificial photosynthesis technology
- Produce photocatalytic hydrogen
Recycle CO_2

Plastic circulation

- **Chemical and material recycling**
- **Bioplastics**
- **Environmentally friendly product design**

Water resource circulation

Water management

- **Advanced recycling**
- **Reduce intake water**

Enhance domestic wastewater quality

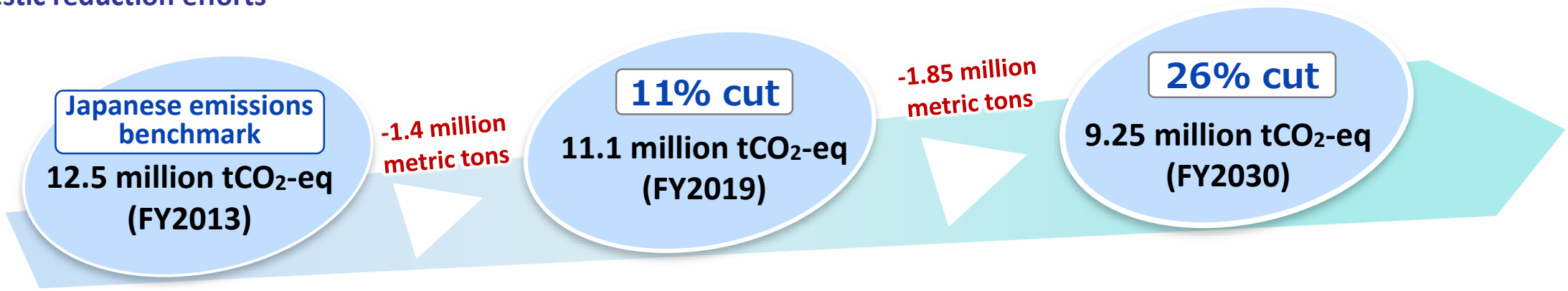
LCA tool evolution

Evolving to advanced levels in chemical industry by 2025 ▶ **Develop evaluation method and deployment structure**

3-6 Initiatives to Cut GHG Emissions by Fiscal 2030

■ Seek to lower emissions in line with national and regional government targets

Domestic reduction efforts



Emissions reductions from manufacturing

- Switch fuels on in-house generators and boiler facilities
- Rationalize processes, including by DX and conserving energy
- Use renewable energy and credits
- Improvement CO_2 emissions factor for purchased electricity

Accelerate R&D to recycle CO_2

- Develop artificial photosynthesis technology:
  Large-scale verification tests in 2030 and social implementation in 2040

＊MCC participates in NEDO's Artificial Photosynthesis Project and is member of ARPChem

Emissions reduction contributions across entire value chain

- Implement chemical recycling
- Expand deployment of biomass plastics

3-6 Identification of Materiality

Pursue targets by identifying material issues to address under *APTSIS 25*

Material business portfolio strategy issues

- GHG reductions
- Sustainable resource management
- Supply food and water sustainably
- Healthy and vibrant lifestyles
- Safe, secure, and comfortable lives
- Telecommunications and digital processing technology advances

Consider reflecting in portfolio transformation

Material environmental and social impact issues

- Environmental impact reductions
- Circular economy
- LCAs
- Community contributions
- Conserve biodiversity conservation

Driving force/Acceleration/Improving productivity

Material business foundation issues

- Business model transformation
- Product stewardship
- DX
- Improving working environment and managing health and productivity
- Cultivating human resources
- Diversity and inclusion
- Stakeholder engagement

Identify and address risks

Material risk management issues

- Information security and cyber security
- Sustainable supply chain
- Human rights

Key existential issues

- Process safety
- Compliance
- Corporate governance

3-6 Maintaining and Enhancing Corporate ESG Assessment

- Monitoring progress with KAITEKI Management through corporate ESG assessments
- Selected for the Dow Jones Sustainability World Index for four consecutive years

Dow Jones Sustainability Indices

Member of
Dow Jones Sustainability Indices
Powered by the S&P Global CSA

S&P Global Sustainability Award Bronze Class

Sustainability Award
Bronze Class 2021
S&P Global

KAITEKI Report 2020 (Integrated report)

Runner-up in Grand Prix of NIKKEI Annual Report Awards 2020

Silver in WICI Japan Award 2020 for Excellence in Integrated Reporting

FTSE Blossom Japan Index

FTSE Blossom Japan
GPIF

S&P/JPX Carbon Efficient Index

S&P/JPX カーボン エフィシェント 指数
GPIF

MSCI Japan ESG Select Leaders Index*

2020 CONSTITUENT MSCIジャパン ESGセレクト・リーダーズ指数
GPIF

MSCI Japan Empowering Women Index*

2020 CONSTITUENT MSCI日本株 女性活躍指数 (WIN)
GPIF

FTSE4Good Index

FTSE4Good

CDP

CDP

- Climate Change Score B
- Water Score A-

Nikkei Smart Work Management Survey

・★★★★★

NIKKEI Smart Work ★★★★★ 2021 Best 22

Nikkei SDGs Management Survey

・★★★★

NIKKEI SDGs 経営調査 2020 ★★★★

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Strategies for Growth Business Areas

3-4 Strategies for Growth Business Areas

■ Evolve LIB materials and develop next-generation battery materials to help popularize EVs and expand adoption of renewable energy

LIB materials (*Step 1*)

Joint electrolyte venture in Japan with Ube Industries

- Sharpening technological edge by integrating additive technologies

  Boost capabilities in high-capacity LIBs (nickel-rich cathode and Si anode materials)

Expanding sales of new anode materials

- Build sales of new natural graphite-based anode materials with outstanding LCA scores

  Excellent output and low expansion helping extend battery lives

Mass production plant for new anode materials (Completed in 2020)

Next-generation battery materials (*Step 2*)

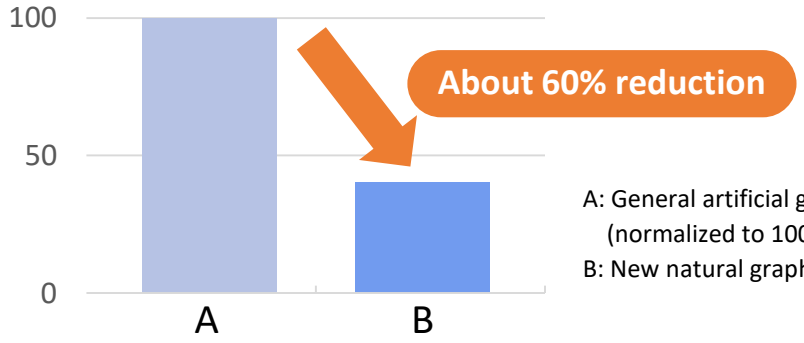
Accelerate development through open innovation

- Collaborate with LIBTEC, universities, and public research institutes

Design and develop electrolytes and active materials

- Developing materials for all-solid-state batteries and Li-air and other advanced batteries

CO_2 emissions during manufactures



A: General artificial graphite-based anode materials (normalized to 100)
B: New natural graphite-based anode materials

3-4 Strategies for Growth Business Areas

Help materialize low-environmental impact cycles through biomass and biodegradable polymers

Focus on biomass and biodegradable polymers (*Step 1* and *Step 2*)

- Expand biomass polymer products for consumer durables
- Focus on biomass and biodegradability for medical and single-use tableware applications requiring plastics

Biomass Polymers

"Mazda CX-5" DURABIO™ adopted

DURABIO™

BENEBiOL™

3D backplates of Lenovo smartphones incorporate DURABIO™

- Shift raw materials for existing products to biomass
- Looking to acquire new materials

Biodegradable Polymers

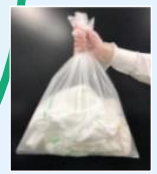
BioPBS™

FORZEAS™

ECOLOJU™

GOHSENOL™ (PVOH)

G polymer™



Laundry bag using Hi-Selon™ water-soluble film made from PVOH

- Expand product lineup
- Develop/acquire biodegradability control technology

Medical items not recyclable for hygiene reasons

- Expand biomass polymer product line

Single use tableware and bottles

- Expand biomass and biodegradable polymer lines

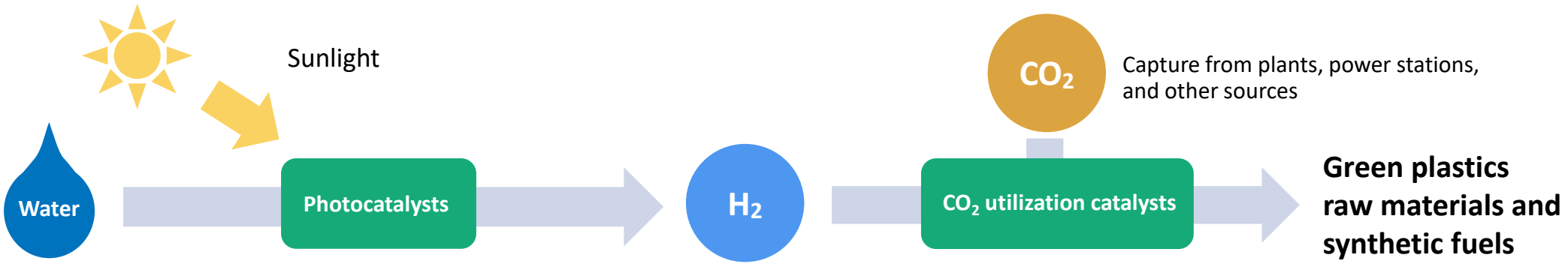
Consumer durables

- Develop recyclable biomass polymers

3-4 Strategies for Growth Business Areas

Help reach beyond-zero emissions targets by developing artificial photosynthesis technology that harnesses CO_2

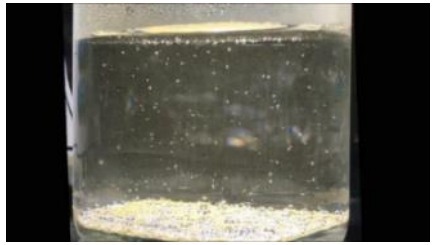
Artificial photosynthesis (Next-generation)



Note: MCC participates in NEDO's Artificial Photosynthesis Project and is member of ARPChem

Photocatalysts

- Develop photocatalysts whose CO_2 LCAs in hydrogen production are superior to those of combinations of renewable energy and water electrolysis
- Schedule
  Large-scale verification tests in 2030
  Social implementation in 2040



Water splitting with
3cm^2 photocatalytic sheet

CO_2 utilization catalysts

- Studying energy saving in CO_2 resource recovery reaction process
- Pilot testing new methanol synthesis technique with ceramic membranes used as reaction membranes

Membrane reactor of methanol synthesis
(Pilot test)

3-4 Strategies for Growth Business Areas

■ Providing hydrogen stations as key social infrastructure

Building hydrogen supply chain (*Step 2* to Next-generation)

Production	Storage and transportation	Supply	Utilization
Produce hydrogen with photocatalysts	● **Expand hydrogen station sales** ● Expand sales of CFRP for accumulators		Develop green plastics raw materials and synthetic fuels

Hydrogen stations (*Step 2*)

Developed on-site CO_2-free hydrogen filling system whose design taps solar power in integrating hydrogen production through supply

Hydrogen station in Kawasaki

Help popularize hydrogen

Noteworthy organizations in which Group companies participate

The Council for a Strategy for Hydrogen and Fuel Cells:	**MCC**
JH2A:	**MCC, TNSC**
Hydrogen Utilization Study Group in Chubu:	**MCC**
HySUT:	**TNSC**

3-4 Strategies for Growth Business Areas

- **Help cut food losses by creating highly functional food packaging materials**
- **Contribute to circular economy through biomass and recycling and reduction technologies**

Cater to increased demand (*Step 1*)

- Pandemic driving demand rising (providing high-barrier, light, easy peel, and other high-performance products)
- Looking to expand production capacity of Soarnol™ and BioPBS™

Products employing Soarnol™ high-performance polymer with excellent gas barrier properties

Paper cups and coffee capsules using BioPBS™ biodegradable polymer

DIAMIRON™
Co-extrusion multilayer film

TECHBARRIER™ Siox vacuum coated high gas barrier film

Boost recycling and reduction technologies (*Step 2*)

- Contribute to long-term food storage and carbon neutrality by enhancing material recycling, chemical recycling, and organic recycling technologies, as well as raw material conversion, processing and molding technologies.

Raw materials	Biomass conversion	Carbon neutral
Polymer and film production	High barriers Non-absorbent Thin film	Long storage Preserve scent, taste, and efficacy Reduce
Recycling	Monomaterials and compatibility Biodegradability Chemical recycling	Materials recycling Organic recycling

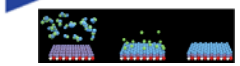
3-4 Strategies for Growth Business Areas

■ Expand the semiconductor-related solutions business by combining advanced materials development and environmental impact reduction services

	Step 1	Step 2
Expand existing businesses	*Environmental impact reduction services* ● Strengthen parts cleaning business	● Develop parts cleaning for advanced processes
	Materials business ● Expand high-purity chemicals business	● Cleaners and etchants for advanced front-end processes
	● Expand sales and applications for synthetic quartz powder	
	● ArF and EB resist materials	● Resist materials for EUV light sources
Develop businesses with new materials		● New materials for miniaturization and multi-layer structure
		● Develop high heat dissipation materials (special boron nitride)

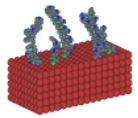
Miniaturization and multi-layer structure

Gelest



Acquired Gelest—a company with expertise in the design and synthesis of metal compounds for use in semiconductor precursors—to apply its hybrid chemical technology in advanced semiconductor materials

aveni



Initiated joint research with this developer of thin-film deposition materials and processes for 3D memory manufacturing

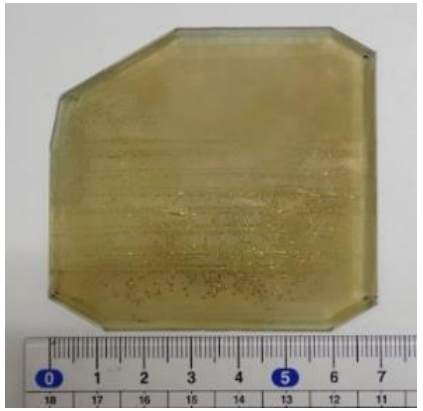
3-4 Strategies for Growth Business Areas

Providing high-performance materials for 5G and advanced communications

Step 1	Step 2	Next-generation

Substrates for high-frequency power devices

- Applied SCAAT™ liquid phase growth method to generate seed crystal substrates for GaN single crystals
- Collaborated with Tohoku University and the Japan Steel Works, Ltd., in successfully developing low-pressure acidic ammonothermal method for liquid phase growth under low pressure conditions
- Undertaking NEDO-supported project to pursue advances in mass production of large-diameter and high-purity GaN single crystal substrates by combining two methods



2-inch low defect GaN crystal
Seed crystal: SCAAT™
Growth: Low-pressure acidic ammonothermal method

Advanced photonics materials

- Develop high-purity synthetic quartz and new resins for advanced fiber-optic materials

Synthetic quartz

Plastic optical fiber

High-purity special gas

- Develop high-purity special gases and supply systems underpinning device and materials development and production

Special gas plant in Japan

Help build tomorrow's information and communication infrastructure

- First materials manufacturer to participate in organization seeking to standardize and materialize NTT's IOWN concept
- Develop new materials

3-4 Strategies for Growth Business Areas

■ Enhance comfort with materials that improve safety and convenience

Functional materials and antimicrobial agents for healthcare

- Contribute to comfort with biomaterials and antibacterial and antiviral agents

Mobility Materials

- Meet growing need for high-frequency isolation, vibration and noise suppression and match heightened demand for hygiene in light of pandemic

Step 1	Step 2	Next-generation
● High-performance contact lens materials		
● Medical materials (bone cement and artificial joints)		
		● Dental 3DP materials
		● Low protein adsorbent material
		● Novel high-performance biocompatible polymers
● Pharmaceutical intermediates		● Regenerative medicine and cell culture components
● Next-generation pharmaceutical capsules		● High-performance transdermal drug delivery
● Antiviral and antimicrobial agents		
● Damping and soundproofing materials		
● Electromagnetic wave control materials		
● Materials for automotive displays		
● EV fire protection components		
● Anti-viral and anti-bacterial interior materials		

Group Synergies

- **Integrating Group technology platform and expertise**
- **Accelerate growth of existing businesses and create new healthcare businesses that encompass health maintenance and treatment**

Business synergy initiatives

Regenerative medicine

Leverage MTPC's expertise to accelerate Muse cell business

Next-generation themes

MTPC, MCC and MCHC launched microbiome project

Pharmaceuticals + medical materials

Started drug discovery project employing MCC's inorganic materials technology

Technology platform

Initiated project combining MCC's computational science and MTPC's protein modeling technology

Initiatives for microbiome

Mitsubishi Tanabe Pharma

MITSUBISHI CHEMICAL

Combine drug discovery expertise with food ingredients and lactobacillus businesses

Build infrastructure combining technologies of each company

- Microbiome data
- Data analytics
- Intervention techniques

Draw on data to develop healthcare business encompassing medicine and food

Food ingredients	Services	Healthcare
• Ready-made meals • Processed foods • Food for long-term care and hospitals	• Provide healthcare information	• Use in drug target discovery • Provide precision medicine through biomarkers and patient stratification • Prevention, pre-disease, and prognostic interventions