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## New Management Policy: "Forging the future"

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# New Management Policy: "Forging the future"

In February 2021, Mitsubishi Chemical Group Corporation released the medium-term management plan *APTSIS 25 Step 1*, which runs for a two-year period from fiscal 2021. Then in December 2021, the Company formulated the new management policy, "Forging the future," covering the period up to the end of fiscal 2025. The policy takes into consideration the assumptions made at the time the medium-term management plan was formulated, after a review of the measures needed, to maximize corporate value.

The new management policy aims for MCG to become a specialty chemical company by fiscal 2025. It includes five management strategies (strategic priorities) to achieve this goal and a three-phase roadmap to maximize shareholder value.

Under Phase 1, Simplify & Streamline, MCG aims to develop a lean organization structure, revamp the business portfolio, and reduce costs. In Phase 2, Build a Foundation for Growth, the Company will take steps to carve out and exit from Petrochemicals and Coal Chemicals businesses and also accelerate investment in growth businesses. In Phase 3, Accelerate Growth, the Company aims to accelerate growth through dynamic capital allocation, leveraging our reorganized business platform.

We aim to sustainably increase value for all our stakeholders, with a clearer strategy to increase efficiency and unlock the growth potential of our businesses.

## Strategic priorities

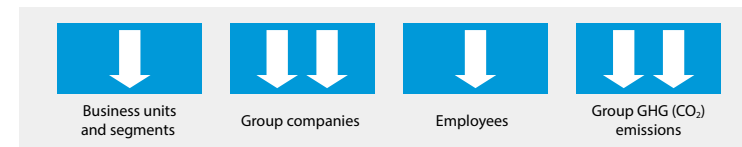
### More Focused Approach to Maximize Our Value

1. Growth, Performance, and Sustainability
2. Business to Exit
3. Strategic Cost Transformation
4. Leaner Structure to Execute Strategy
5. Strategic Capital Allocation

## MCG today and tomorrow

### With a Clearer Strategy to Drive Operational Excellence and Unlock Business Potential, We Can Deliver More Value to Our Stakeholders

#### Our Future Operations

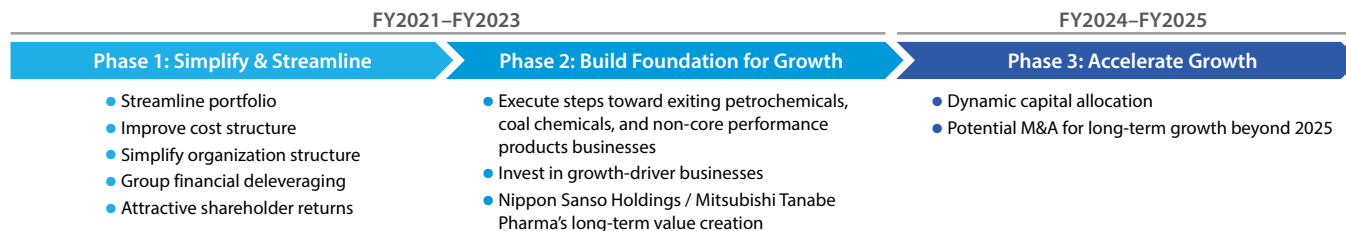


#### Financial Performance Targets for FY2025

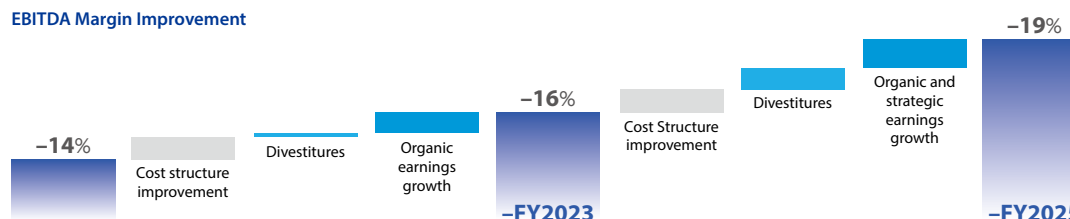
<b>18–20%</b>	<b>11–13%</b>	<b>¥125–145</b>	<b>&gt;7%</b>	<b>0.5–1.0X</b>
EBITDA margin	Core operating margin	Organic EPS	ROIC	Net Debt / Equity

## Strategy execution roadmap

### Committed Strategy for Increased Shareholder Value



#### EBITDA Margin Improvement



# New Management Policy: "Forging the future"



## 1. Growth, Performance, and Sustainability

### Focus on growth markets where MCG has a competitive advantage

MCG has applied the evaluation criteria of market growth potential, a competitive advantage, and carbon neutrality to rework our portfolio as a specialty chemical company.

Electronics and Healthcare & Life Science will be positioned as our strategic focus as we move forward. MCG aims to further increase corporate value by concentrating business resources in these priority markets.

### Our portfolio assessment criteria

#### Market Attractiveness

- Market growth
- Potential risk factors
- ROS / ROIC / EBITDA margin

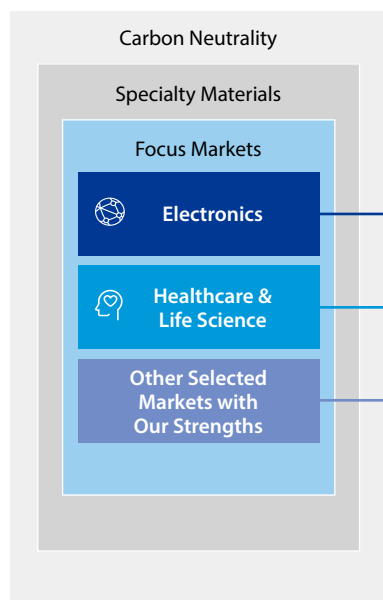
#### Strength

- No. 1 / 2 market position potential
- Technology innovation
- Competitive advantage

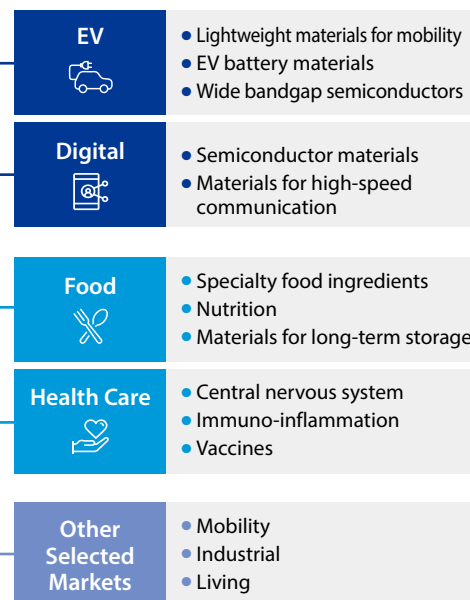
#### Carbon Neutrality

- CO<sub>2</sub> emissions level
- CO<sub>2</sub> reduction potential
- Values to customers/society

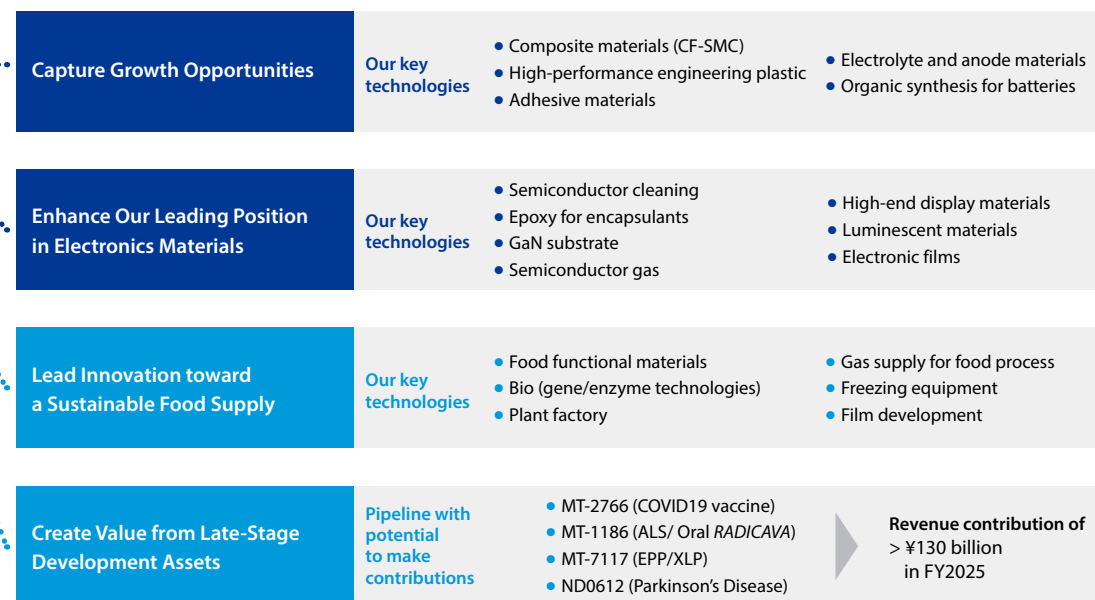
### Our strategic focus



### Target segments



### Targets



## New Management Policy: "Forging the future"

### Investment in solid performance materials businesses, based on the revamped portfolio

MCG will invest in sustained growth in the chemicals, polymers, films, and molding materials businesses, where we have multiple core technology platforms in key strategic priority markets. We will work to enhance our competitive edge and expand our platform as a specialty chemical company.

### Core technology strengths

Chemicals	
MMA	<ul style="list-style-type: none"> <li>No. 1 supplier of MMA monomer with approximately 30% global market share</li> <li>Proprietary new ethylene method leading to cost competitiveness</li> </ul>
Functional Monomer	<ul style="list-style-type: none"> <li>Molecular design technology fully tailored to customer needs</li> </ul>
Films	
Optical Film	<ul style="list-style-type: none"> <li>Top manufacturer of optical polyester film with approximately 20% global market share</li> </ul>
Barrier Film	<ul style="list-style-type: none"> <li>Key supplier of barrier films primarily for food packaging and medical products</li> </ul>
Industrial Film	<ul style="list-style-type: none"> <li>Value-adding offerings for a wide variety of industrial applications</li> <li>Low environmental-load technologies</li> </ul>

Polymers	
Bioplastics	<ul style="list-style-type: none"> <li>Cutting-edge bioplastics for sustainable food packaging and glass alternatives</li> </ul>
EVOH*	<ul style="list-style-type: none"> <li>Proprietary high performance polymer for food packaging</li> </ul>
Functional Resin	<ul style="list-style-type: none"> <li>Comprehensive and environment-friendly resin offerings</li> </ul>
Molding Materials	
Carbon Fiber Composite Materials	<ul style="list-style-type: none"> <li>World-leading integrated product chain of carbon fiber</li> </ul>
Super Engineering Plastic Components	<ul style="list-style-type: none"> <li>Chemical partner for global OEMs, industrial machinery, and aircraft manufacturers</li> </ul>

\* Ethylene vinyl alcohol copolymer

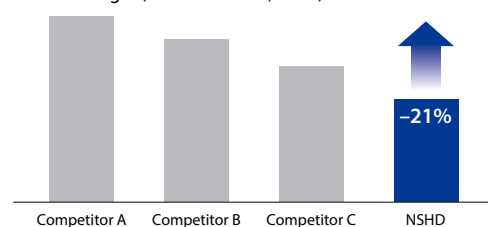
### Take strategic initiatives to capture growth, reduce costs, and improve profitability in industrial gases

Nippon Sanso Holdings (NSHD) is the fourth largest industrial gas company in the world. NSHD is pursuing strategic initiatives to increase profitability with a view to moving into the global top three, through new opportunities for growth investment and cost-cutting programs.

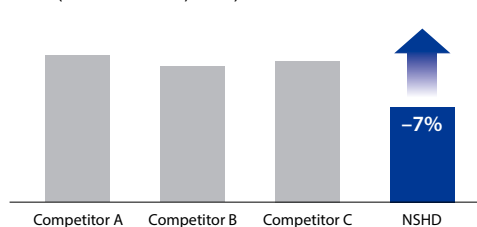
#### Comparison of profitability among global gas majors

Source: Capital IQ, IR materials

EBITDA margin (As of March 31, 2022)



ROIC (As of March 31, 2022)



### Strategic initiatives

#### Cost Reduction

- Apply cost reduction measures taken in Europe and the United States into other regions
- Improve profitability in Japan

#### Financial Discipline

- Improve financial stability
- Balance growth investment, deleveraging, and shareholder returns

#### Capture Global Market Growth

- Especially in the United States and Europe

#### New Business Development / Realize Synergies with the Group

- Semiconductor materials
- Hydrogen
- Medical gases

#### Carbon Neutrality

- Formulate a roadmap to 2030 and 2050 carbon neutrality

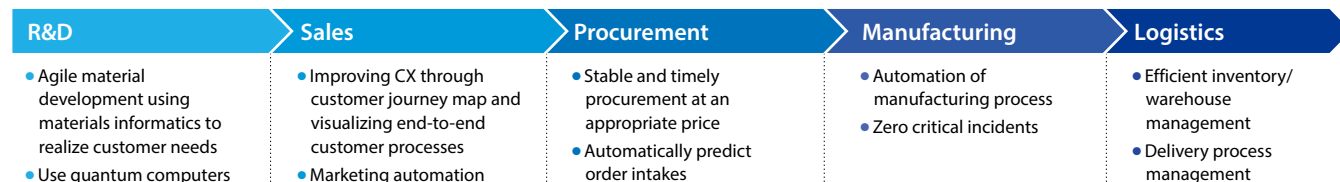
## New Management Policy: "Forging the future"

### Success in digitalization and sustainability will separate winners from losers in the chemicals sector

#### Enhanced digital strategy enabling CX and business process transformations

We think that installing and applying digital technologies means more than just improving business efficiency. MCG has positioned digitalization as a strategic priority in our business model reforms to enable customer experience (CX) and business process transformations.

#### Key DX themes of supply chain



#### Key DX themes

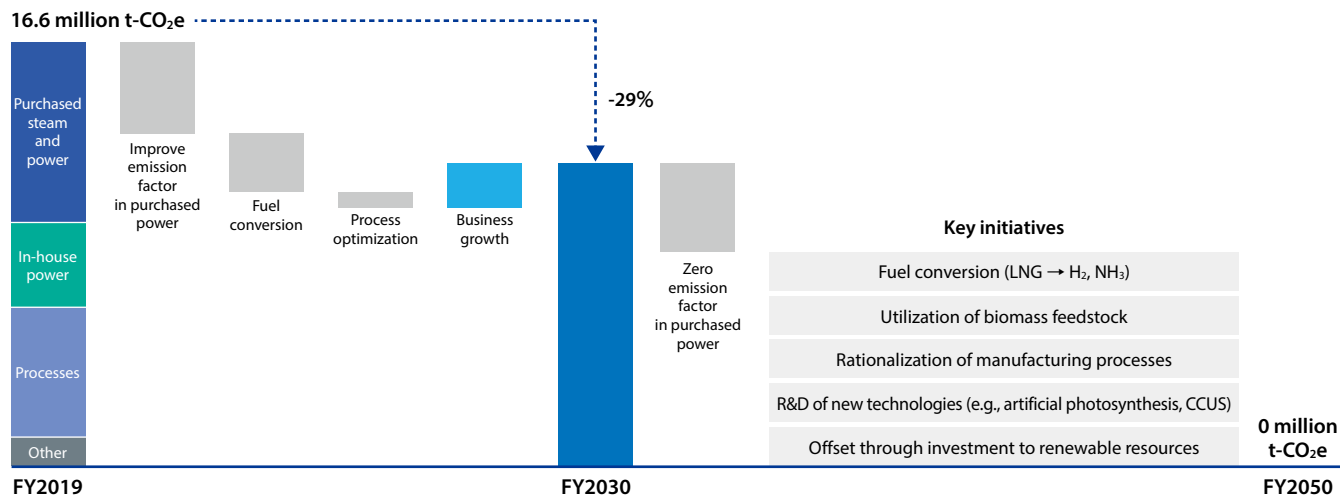


### Path toward carbon neutrality while achieving sustainable growth

In our medium- to long-term basic management strategy, KAITEKI Vision 30, unveiled in February 2020, MCG defined achieving GHG impact neutrality as one of its social visions in 2050. To achieve this, MCG is implementing measures across the value chain to reduce GHGs and ensure effective use, as well as formulating global emissions reduction targets and policies appropriate for each country and region. By 2030, we aim to reduce GHG emissions by 29% versus fiscal 2019 levels, and by 2050 we plan to reach carbon neutrality while achieving sustainable growth.

#### Carbon neutrality by 2050

Our GHG emissions (Scope 1 + Scope 2)



## New Management Policy: "Forging the future"



### 2. Business to Exit

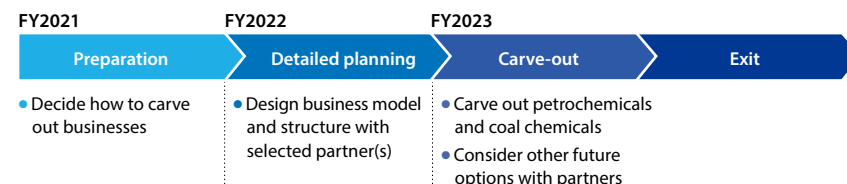
#### Exit from petrochemicals and coal chemicals

MCG will pursue a phased carving out, restructuring, and future exit from petrochemicals and coal chemicals. By carving out these businesses, MCG will act as a leader in the chemicals industry, driving restructuring of the basic chemicals industry in Japan.

#### We will...

- Lead consolidation of the domestic basic chemical industry for transition toward carbon neutrality by 2050
- Restructure through carve-out and future exit

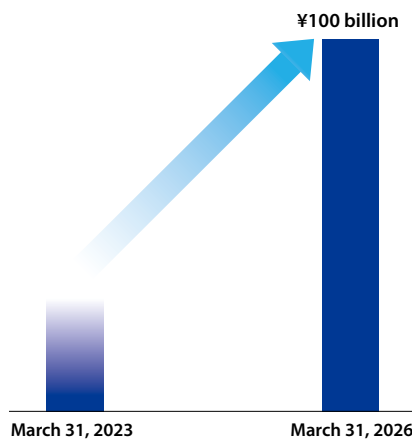
#### Indicative timeframe for carve-out and exit



### 3. Strategic Cost Transformation

#### Pursuing operational excellence and business efficiency

MCG will reduce costs by more than ¥100 billion across the Group by fiscal 2025 and steadily grow profits by pursuing operational excellence through more efficient and effective business activities and an increased competitive advantage. We are working to reduce costs at all levels of the supply chain by developing a simpler, optimized organization. For R&D, we will pursue greater efficiencies while monitoring investment returns.



Major item	Margin impact	Value levers
Logistics / Supply chain management	++	<ul style="list-style-type: none"> <li>• Pursuit of efficiency through digitalization across entire process from manufacturing to sales</li> </ul>
Procurement and engineering repairs	++	<ul style="list-style-type: none"> <li>• Optimization of investment through digital preventative maintenance</li> <li>• Procurement process reformation and digitalization</li> </ul>
General and administrative	+	<ul style="list-style-type: none"> <li>• Business reorganization                             <ul style="list-style-type: none"> <li>– Integration of subsidiaries and offices</li> <li>– Introduction of new personnel system</li> </ul> </li> <li>• Process excellence and digitalization</li> </ul>
R&D	++	<ul style="list-style-type: none"> <li>• Clear prioritization</li> <li>• Value impact                             <ul style="list-style-type: none"> <li>– More selective R&amp;D at Mitsubishi Tanabe Pharma</li> </ul> </li> <li>• Open innovation and Materials Informatics</li> </ul>
Price Structure Improvement	++	<ul style="list-style-type: none"> <li>• Price structure improvement for low-profit businesses</li> </ul>

Significantly increasing our bottom line through >¥100 billion of cost reductions and improvements

## New Management Policy: "Forging the future"



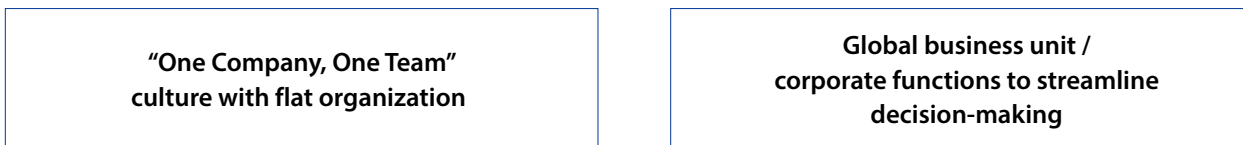
### 4. Leaner Structure to Execute Strategy

#### Enabling fast, efficient decision-making

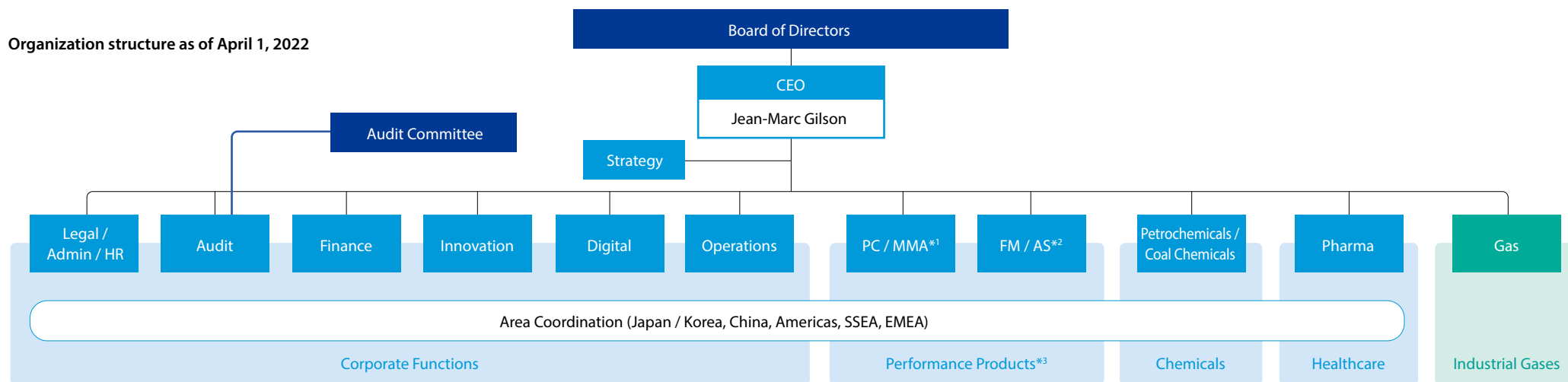
MCG will reform management structures to create a flat organization with a "One Company, One Team" culture as a key step in the execution of business strategy.

In addition, the Company will shift from a legal entity-based to a business unit- and corporate function-based operation to clarify where responsibility lies.

Key characteristics of new structure



Organization structure as of April 1, 2022



\*1 Polymers & Compounds / MMA

\*2 Films & Molding Materials / Advanced Solutions

\*3 Performance Products might be divided into three businesses.

# New Management Policy: "Forging the future"

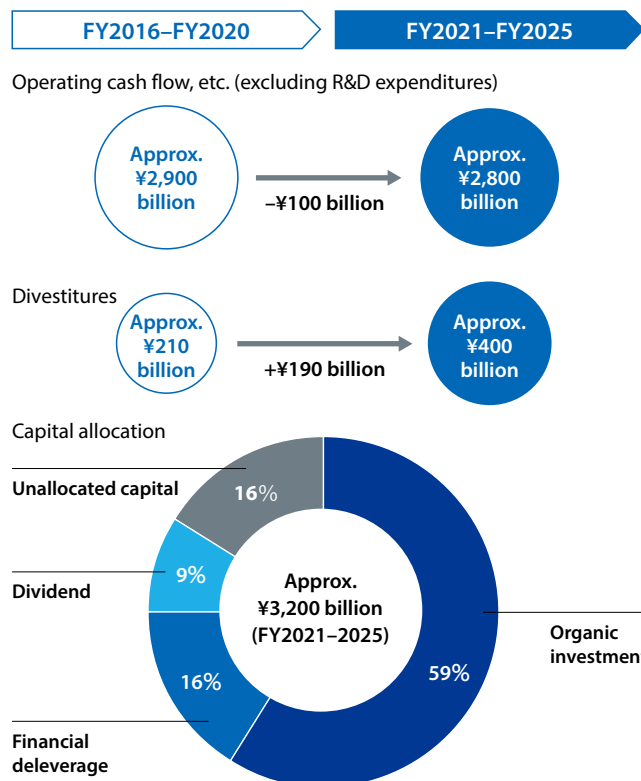


## 5. Strategic Capital Allocation

### Strategically reallocate additional capital from improved operational discipline and non-core asset/business disposals

MCG expects to generate operating cash flow of ¥3.2 trillion, including ¥400 billion in gain on transfer of businesses and excluding R&D expenditures, between fiscal 2021 and fiscal 2025.

With strict financial discipline, the Company will make strategic capital allocations that lead to improved shareholder returns.



**Organic investment**  
(Approx. ¥1,900 billion)

- Invest for more sustainable growth for the future
- Keep capex < Depreciation and Amortization
- **Strong discipline with target ROIC and IRR**
- R&D with clear prioritization

• Maintenance capex	¥580 billion
• Growth capex	¥750 billion
• R&D	¥570 billion

**Financial deleverage**  
(Approx. ¥500 billion)

- Accelerate deleveraging by increased cash flows through cost discipline, earnings growth, and proceeds from divestitures
- Target leverage range
- **Net debt / EBITDA: 2.0-3.0x** • **Net D/E ratio: 0.5-1.0**

**Dividend**  
(Approx. ¥300 billion)

- Dividend Policy
- **Reviewing current dividend policy (stable, 30% payout ratio) with a view to increasing shareholder returns**


### Improved earnings, cash generation, and balance sheet will create additional scope for:

**Unallocated capital**  
(Approx. ¥500 billion)

- M&A to accelerate growth
- Clearly defined investment target areas
- **Best-owner mindset, ROIC over WACC, and EPS accretive**
- Excess capital to be returned to shareholders (Buyback, etc.)



# Message from the CFO

A portrait of Yuko Nakahira, the CFO, with dark hair, wearing a white blazer over a black top and a pink necklace. The background is a light green wall.

**By reliably achieving our financial targets, we can boost our corporate value and flourish in pursuit of excellence.**

**Yuko Nakahira**

Executive Vice President  
Chief Financial Officer

## Ambitions for my new role

I was appointed CFO in April 2022. Having taken up this position, I identify strongly with the vision of the Mitsubishi Chemical Group, a leading chemicals manufacturer in Japan, to increase corporate value in pursuit of excellence under Jean-Marc Gilson.

I majored in chemistry at university and began my career in R&D before moving into management consultancy and then taking on management roles at the global chemicals manufacturer 3M Group, in both Japan and Singapore. In 2019, I was appointed vice president of 3M Company in charge of their Asian consumer goods business. As a business leader, I have focused on steadily increasing earnings and improving shareholder value. To achieve this, I have had to make tough decisions in business management, such as selling or withdrawing from businesses with high market shares but where profitability was unlikely to improve.

The MCG Group has excellent technological capabilities. We need to steadily execute the five management strategies outlined in the new management policy "Forging the future" (▶ Page 23) in order to make the most of these technological capabilities and evolve into a Group capable of sustained growth.

As the new CFO, my mission is to leverage my experience to date and ensure that we reliably achieve our financial targets in order to increase corporate value.

## Message from the CFO

### Fiscal 2021 earnings and pinpointing challenges to address

The biggest challenge facing the MCG Group is our low profitability. In fiscal 2021, EPS and ROE both improved significantly due to a recovery in domestic and overseas demand and higher sales volumes after the impact of the COVID-19 pandemic in previous fiscal years, and transfer of the alumina fiber business as we restructured our business portfolio. However, operating income and operating margin are not yet at satisfactory levels.

We still have a long way to go to reach our ROIC target, and it seems that our capital costs are too high for the returns we generate. We have built up high levels of debt from previous M&A. While net interest-bearing debt is steadily decreasing, our net D/E ratio in fiscal 2021 was 1.40, which is still above our target of one.

### Strategic capital allocation to meet our fiscal 2025 financial targets

To overcome these challenges, our new management policy sets out a three-phase road map through fiscal 2025. We have already begun to tackle the urgent challenge of simplifying and streamlining our business in Phase 1, and we are working on our exit from the Petrochemicals and Coal Chemicals businesses in Phase 2 while looking for the right strategic investments in Phase 3.

### Reducing costs by more than ¥100 billion across the Group

Of all the cost restructuring underway, the logistics and supply chain reforms will probably have the greatest impact. We are integrating into Group-wide functions the logistics and supply chain processes that were previously carried out separately at

individual operating companies, and we are also using digital transformation (DX) to boost efficiency (▶ Page 38 "Message from the Chief Supply Chain Officer"). We are also moving to a "One Company" setup and eliminating duplicate operations by consolidating functions, such as finance and human resources, that were previously in place at each operating company and the holding company. These organizational changes will be rolled out globally, not just in Japan, so we expect further cost reductions at overseas affiliates as well from fiscal 2023.

### Carving out businesses in petrochemicals, coal chemicals, and non-core performance products

To carve out the Petrochemicals business, we are currently investigating a range of possibilities. Japan needs to maintain its petrochemical industry for the sake of economic stability, but this is not something for which a single company can take sole responsibility, in terms of ensuring reliable operations and making the required environmental investment. To fulfill our responsibilities to our customers and maintain stable employment for workers, we are working to supply quality products, generate cash through economies of scale, and select the right partners to achieve our carbon-neutral pledge.

In the Performance Products business, we will accelerate our portfolio restructuring and carve out non-core businesses as part of our drive to raise profit margins.

### Increasing ROIC at the business unit level

To boost ROIC, we need higher operating income for the numerator and lower working capital for the denominator. We are seeking to manage each business unit more rigorously than before, including rapid collection of accounts receivable and reduced inventories. Inventory management has been worked



on before, but I have concerns about the impact that recent forex trends and surging materials costs are having on our inventory assessments. We need to ensure much tighter control of inventory volumes. Capital expenditures are needed for investment in growth and repairs and maintenance, but we will be rigorous in our selection processes for overall capital expenditures, carefully selecting investment for ROIC or other indicators, within a spending range that does not hamper growth. We monitor relevant indicators each month and aim to achieve our minimum commitment of 7% ROIC by fiscal 2025 without fall.

We are sharing these strategies with the top management in each business unit, so that they can be reflected in the budgets which are set, and we are running town-hall meetings and various other interactive sessions for our employees. We will pursue reforms from within by helping every individual in the Group understand how their actions translate into figures and to adjust behavior accordingly.

## Message from the CFO

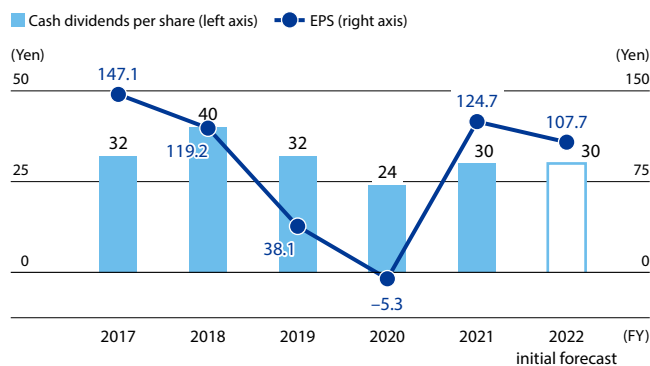
### Sustained earnings growth and expanded dividends over the medium and long term

We paid dividends of ¥30 per share over the full year in fiscal 2021, ¥6 more than in fiscal 2020. In fiscal 2022, we plan to keep dividends at the same level as in fiscal 2021, at ¥30 per share over the full year.

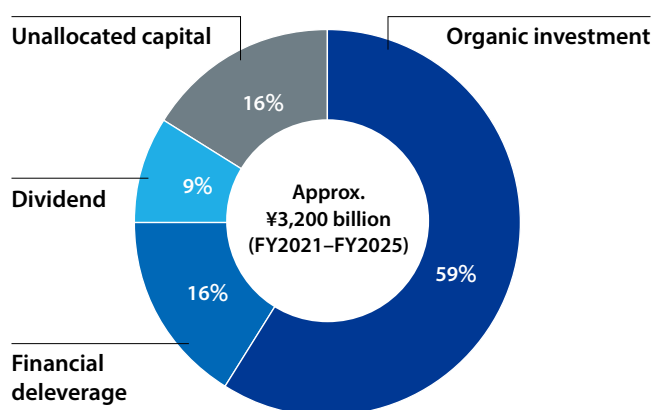
Looking ahead, we will monitor our financial position while considering how to expand our current dividend policy (a medium- to long-term dividend payout ratio of 30%) in order to provide our shareholders with the best returns. Furthermore, we will achieve key indicators through the reliable execution of business fundamentals, by generating business earnings and steadily improving our financial position to enable growth, and thereby increase TSR.

Between fiscal 2021 and fiscal 2025, the MCG Group expects to generate operating cash flow of approximately ¥3,200 billion, including around ¥400 billion from business disposals but excluding R&D expenditures. With stricter financial discipline, we will make strategic capital allocations and steadily reduce debt, which will lead to improved shareholder returns.

### Shareholder returns



### Capital allocation



### Aiming to work together as a Group in pursuit of excellence

We have defined three portfolio assessment criteria in the new management policy, "Forging the future"—Is the market attractive? Do we have the strengths to be successful? Can this business thrive in a carbon-neutral economy? As we work to become carbon neutral by 2050, we will invest in growth while prioritizing ESG aspects such as initiatives for our human capital and environmental issues.

The MCG Group enjoys a wide-ranging technological base and takes a diverse approach to business because of our track record in aggressively pursuing M&A. By integrating these business resources in line with the "One Company, One Team" concept, we will use our fiscal 2025 financial targets as a checkpoint as we work together as a Group in pursuit of excellence.

### Financial targets for fiscal 2025

Group targets	(FY)	2020 results	2021 results	2022 initial forecasts	2025 targets
Sales revenue		¥3,257.5 billion	¥3,976.9 billion	¥4,436 billion	¥3,000 billion
Core operating income		¥174.7 billion	¥272.3 billion	¥275 billion	¥350–370 billion
EBITDA		¥405.6 billion	¥502.4 billion	¥518 billion	¥540–560 billion
EBITDA margin		12.5%	12.6%	11.7%	18–20%
EPS		¥-5.3	¥124.7	¥107.7	¥125–145
Financial leverage (net debt / EBITDA)		5.3	4.1	3.9	2.0–3.0
ROE		-0.6%	13.2%	10.4%	≥10%
ROIC		3.3%	4.9%	4.9%	>7%

### Mainstay segment targets

	Performance Products	MMA	Health care	Industrial Gases*
EBITDA	Approx. ¥180 billion	Approx. ¥70 billion	Approx. ¥70 billion	Approx. ¥220 billion
EBITDA margin	Approx. 15%	Approx. 26%	Approx. 15%	Approx. 25%

\* Request based

# Message from Business Group Management

## Polymers & Compounds / MMA

### Making our MMA offerings even more competitive and expanding the scale of our P&C business to contribute to the Group's growth

#### Hitoshi Sasaki

Executive Vice President  
Head of Polymers & Compounds / MMA



#### Leveraging our rapid decision-making to manifest a competitive edge in the market

Since the Mitsubishi Chemical Group announced the new management policy, "Forging the future," in December 2021, our new management team, myself included, has held numerous discussions on our vision for the Group's organization, functions, and roles. As the business environment in which we operate undergoes dramatic change, we have shifted to a leaner management system and a "One Company, One Team" culture with a flat organizational structure in order to better respond to the expectations of all our stakeholders around the world. I believe that this has not only accelerated decision-making but also helped us to make steady progress toward global standards in terms of improved process objectivity and transparency.

From a business perspective, the current surge in energy prices is driving a similar rise in global resource prices. Given that our business environment features such risks that directly impact the entire supply chain, I think our absolute priority is to ensure that our competitive edge of the P&C/MMA business is demonstrated, so that we can contribute to sustained growth.

#### Constant optimization of manufacturing processes

Our MMA business is unique worldwide in its capability in all three main MMA manufacturing methods, and we have a 30% or higher share of the world's production capacity. This makes us a core business for the MCG Group. We must constantly optimize our manufacturing processes to maintain this competitive edge and ensure earnings stability. Over the near term, we will improve the efficiency of our production systems at all 11 manufacturing sites worldwide in response to the procurement environment for key raw materials. We are considering the construction of a new MMA monomer plant in the United States that uses the cost-competitive ethylene method (Alpha technology), as we believe this will cement our position as a leading company in this field. Over the medium to long term, we will maintain our competitive edge by switching to a more energy-efficient process mix, while developing new catalysts to improve profitability and grow our business.

As we work toward becoming carbon neutral, we will proceed with verification testing on our PMMA chemical recycling plant. We have finished verification testing on pilot

facilities and are now preparing to construct the plant itself, with operations scheduled to start during fiscal 2024.

#### Scaling up our business offering of distinctive products

The P&C business handles a range of distinctive products that contribute to the building of a circular economy, such as lighter-weight and higher-performance materials, materials that render coating processes unnecessary, biodegradable materials, and materials that dramatically extend the shelf life of food products. We aim to effectively expand our business scale through globally centralized management of the wide-ranging technology platforms and technology applications that our Group has built up, and business development of these applications in growth markets and fields. As part of moves to implement this growth model, we made the decision in July 2022 to increase production capacity for the ethylene vinyl alcohol copolymer resin *SoarnoL* at our U.K. plant, targeting operations from July 2025. Global demand is rising for *SoarnoL* as a food packaging material, as it exhibits excellent gas-barrier properties. When used in food packaging, *SoarnoL* helps preserve food flavor and quality and reduces food waste. We expect solid growth for *SoarnoL* in the future.

The MCG Group will continue to develop solutions that contribute to market and customer sustainability and products with irreplaceable properties. We will scale up our business in growth markets around the world by utilizing our global production and marketing systems.

## Message from Business Group Management

### Advanced Solutions

## Delivering new value and building a strong position to drive the Group

### Johei Takimoto

Executive Vice President  
Head of Advanced Solutions



### Delivering new value, accelerating growth

Advanced Solutions aims to deliver new value in the fields positioned as strategic focus markets in the Mitsubishi Chemical Group's new management policy, "Forging the future." Our goal is to create performance product lineups that satisfy the needs of all stakeholders and grow the business.

To achieve this, we are transforming into a market-oriented organization capable of rapidly developing a deep understanding of changes in cutting-edge markets and the diverse value demanded by customers. We will also upgrade our technology platforms further to deliver innovation, a key strength of the MCG Group, and will be disciplined in our portfolio management to build a strong, unique position in the market.

### Globally leveraging our technological capabilities and market understanding

We are developing products and services in a number of different growth markets, including mobility, life science, and electronics.

In the mobility field, we are developing materials for internal and external fittings to support the ongoing social evolution of Connected, Autonomous, Shared, and Electronic (CASE) and higher-performance products such as EV battery materials.

In the life science field, we are working globally on products and system businesses to support more advanced medical care and more sustainable eating habits.

In the electronics field, we are delivering products and services to meet the varied needs of customers who are looking to upgrade information processing technologies, including display parts and materials and precision cleaning services for semiconductor makers. The semiconductor industry is expected to expand further, so we are working to create synergies with the semiconductor businesses and technologies owned by Gelest,

Inc., a U.S. manufacturer of organic and inorganic hybrid chemicals that we acquired in October 2020. By combining Gelest's technologies with our business resources and customer networks, we expect to contribute more than ever to future social challenges and market needs as healthcare evolves and advances are made in the infrastructure of the digital society.

We aim to develop highly profitable business structures by leveraging the technological capabilities and market understanding we have built up in various businesses thus far, and by actively pursuing R&D and business development and allocating business resources for use in flexible strategic partnerships in growth markets.

### Leading the way in strategy execution for sustained growth

To continue to grow our Group's performance products over the medium to long term, we will take a leading role in strategy execution and management that brings together the strengths from across our entire organization, under the "One Company, One Team" culture with a flat organization. We will also maximize the individual skills that our employees bring to the table and develop a strong culture where we all work together toward a common goal.

Note: From July 2022, Films & Molding Materials have been included as part of Advanced Solutions



## Message from Business Group Management

### Petrochemicals / Coal Chemicals

## Accepting the significant decision made in the new management policy and shaping the future of this business

### Yoshihiro Ikegawa

Executive Vice President  
Head of Petrochemicals & Coal Chemicals business



In the Petrochemicals business, we will focus increasingly on markets that utilize general-purpose petrochemical product functions and accelerate our strategy to boost profitability. While we anticipate some short-lived pain, including drawing the line at unprofitable areas, those businesses that survive this difficult selection process will be targeted for aggressive business expansion. We will also focus our efforts on the development of unique products by synergizing with bio-based technologies. We plan to launch on the domestic market first and tackle the development of overseas projects over the longer term, using green hydrogen as a raw material for chemical products.

### Global development of SAKAIDE COKE

In the Coal Chemicals business, we have products such as carbon black and needle coke that are produced from the tar that forms during the manufacturing process for coal, a key material used in the steel industry. The coke supplied under the SAKAIDE COKE brand is known for its highly uniform and stable quality and enjoys a correspondingly strong reputation with steel manufacturers, not just in Japan but also worldwide. To generate solid earnings from these strengths, we are restructuring to

optimize our sales portfolio and production systems to meet the changing structures of the domestic steel industry. In fiscal 2021, we changed our business model to export-oriented operations. Based on our assumption that companies will restrict new investment in CO<sub>2</sub>-generating businesses and withdraw from their coke businesses where they also utilize the material themselves, we expect demand for the MCG Group's coke to rise further in the future. We also expect increasing demand for needle coke that is used as electrode material for electric furnaces, in light of plans to construct many more such furnaces in the drive to achieve carbon neutrality.

We will make the most of the strengths of our product offerings and also develop a full understanding of what society needs and what our Petrochemicals and Coal Chemicals businesses can offer, so that we can better shape our businesses for the future.

### Strategic rationale

#### Challenges

- Domestic market has limited growth potential
- National energy policy is transitioning toward carbon neutrality and the basic chemical industry must embrace decarbonization
- High probability of increasing energy costs in Japan driven by CO<sub>2</sub> reduction efforts
- Cyclical businesses

#### Required solutions

- Consolidated domestic basic chemical value chain brings sustainability benefits to society
  - ▶ Integrate resources to develop sustainable businesses and technologies (i.e., CO<sub>2</sub> recycling, chemical recycling, and bio-chemicals)
  - ▶ Basic chemical products are indispensable from a national economic security perspective
  - ▶ Increase efficiency

### Executing the carve-out in fiscal 2023

The new management policy, "Forging the future," announced by the Mitsubishi Chemical Group in December 2021, put forward a plan to carve out the Petrochemicals and Coal Chemicals businesses in fiscal 2023.

As the world begins the huge undertaking of becoming carbon neutral by 2050, the MCG Group has already worked hard across its global business operations to respond to climate change and reduce GHG emissions. I accept this monumental decision that forms part of our goal to achieve a further increase in corporate value and sustained growth. As a major player in the chemical industry, we will lead the consolidation of the basic chemical industry in Japan, and will resolutely implement this decision by restructuring through a carve-out and future exit from these businesses.

### Leveraging product performance and uniqueness to achieve growth in domestic and overseas markets

For all our current businesses, we see the changing business environment as an opportunity for growth.

## Message from Business Group Management

### Pharma

As a core business in the Group, we will build a pharmaceutical business with a strong presence.

#### Hiroaki Ueno

Executive Vice President  
Head of Pharma



#### Executing management plans with a sense of determination and speed

In the Pharma business, we are enhancing our drug discovery capabilities cultivated over many years and are developing a stronger presence as a core business in the Mitsubishi Chemical Group and as a pharmaceutical company that supports the health of people around the world.

We are restructuring for growth in order to achieve the goals set out in the new management policy, "Forging the future." By building up our management foundations and reallocating management resources, we aim to achieve a recovery in earnings and further growth.

#### Concentrated investment in focus fields and focus markets

Japan and the United States are positioned as our focus markets, and we are developing our business with a focus on these two countries. In Japan, we are working in the focus fields of immuno-inflammation, diabetes and kidney diseases, the

central nervous system, and vaccines. In June 2022, we launched *DYSVAL* for tardive dyskinesia. Previously, there were no treatment options available for this disease. We are working to promote the appropriate use of *DYSVAL* and provide healthcare professionals and patients with this long-awaited treatment option. We also aim to expand our presence in the diabetes field, building on our experience with *TENELIA*, *CANAGLU*, and *CANALIA* and adding Eli Lilly Japan K.K.'s *MOUNJARO* to our diabetes lineup following approval in September 2022. In the United States, we have positioned the central nervous system as a focus field and aim to expand sales following the addition of *RADICAVA ORS* to our amyotrophic lateral sclerosis (ALS) franchise in June 2022. We also have a number of global late-stage trials underway for multiple development programs, and we aim to advance these through to commercialization. We are working to contribute to the health of people around the world by providing "Creating hope for all facing illness."

#### Strengthening all value chains for future growth

In all value chains in the Pharma business, we are working to deliver precision medicine\*<sup>1</sup> and develop around-the-pill solutions\*<sup>2</sup> for those diseases where there are still unmet medical needs. We have started a number of initiatives to maximize the value of our pharmaceutical products.

In our research divisions, we have started to investigate how to increase the speed and accuracy of our drug discovery efforts and are exploring new compounds using our existing drug discovery technologies combined with AI-driven drug discovery methods. In our development divisions, we have initiated application development programs to deliver around-the-pill solutions for early diagnosis or the management of drug compliance, and we have also initiated programs to make drug development more efficient through the use of real-world data. In our manufacturing divisions, we are looking at issues such as new materials for drug packaging, in order to reduce our environmental impact and energy use as we move toward a low-carbon economy. In our sales divisions, we have started using DX tools to provide information in a more efficient way. Finally, by integrating our corporate divisions, we have brought together a broad range of knowledge and are looking into how to apply this to staff development and improved digital literacy. Our goal is to move our business forward as an integrated Group, including generating synergies through greater collaboration between the Group companies.

\*1 Providing the appropriate healthcare to the appropriate patient at the appropriate time, taking account of the differences in people's genes, environment, and lifestyles

\*2 An approach that takes drug therapies as the starting point to offer solutions ranging from prevention to prognosis, to contribute to improving the QOL of patients and their families

## Message from Business Group Management

### Industrial Gases

## Strengthening business resources while working toward carbon neutrality

### Toshihiko Hamada

Representative Director, President, CEO  
Nippon Sanso Holdings Corporation



### Moving forward with five key strategies

The Nippon Sanso Holdings Group operates the Mitsubishi Chemical Group's Industrial Gases segment, and our philosophy is "Proactive. Innovative. Collaborative. Making life better through gas technology." Based on this, we aim to create social value through innovative gas solutions that increase industrial productivity, enhance human well-being, and contribute to a more sustainable future.

To put this philosophy into practice while growing our business further, we are currently implementing the NS Vision 2026 medium-term management plan, which runs from fiscal 2022 to fiscal 2025. When drawing up this plan, we took into consideration changes in the external environment that are happening now, in terms of (1) climate impact, (2) economic uncertainty, (3) geopolitical instability, (4) development of a digital society, and (5) diversification of thinking and lifestyles. We then defined five strategies aimed at sustained growth from a medium- to long-term perspective.

#### Five key strategies in the NS Vision 2026 medium-term management plan

- Sustainability management
- Exploring new business to achieve carbon neutrality
- Total electronics
- Operational excellence
- DX initiatives

[Nippon Sanso Holdings' medium-term management plan](#)

### Collaborating to create value in decarbonized domains

I think that in order to fully execute these key strategies, we must create value by collaborating with a range of stakeholders inside and outside our organization, and going beyond the four regions (Japan, the United States, Europe, and Asia and Oceania) and the thermos business in the Nippon Sanso Holdings Group. This is consistent with our philosophy, Proactive. Innovative.

Collaborative. The technology development capabilities, know-how, expertise, and experience that we have in gas solutions—and that the MCG Group has in the chemical and pharmaceutical domains—are highly compatible with initiatives to achieve carbon neutrality. Starting with the key strategy of exploring new business to achieve carbon neutrality, I believe that we can generate huge synergies from the programs positioned as a priority in fiscal 2022, such as providing more environmental solutions and exploring global HyCO\* projects for a hydrogen society.

\* Hydrogen (H<sub>2</sub>) and carbon monoxide (CO) are separated from natural gas using steam methane reforming (SMR) equipment. The HyCO business provides large-scale supply of H<sub>2</sub> and CO to customers in oil refining and petrochemical industries by way of a pipeline.

### Helping as "The Gas Professionals" to increase the MCG Group's corporate value

This process of collaborating as "One Company, One Team" to create new value provides the perfect opportunity for every single employee in the Nippon Sanso Holdings Group to demonstrate their fighting spirit as "The Gas Professionals." This is also a great chance to adopt a broader perspective and tackle new challenges. The MCG Group is currently implementing a bold restructuring of its business portfolio to achieve sustained growth, and we consider this an opportunity for dramatic progress. We will pull together to boost corporate value across the entire MCG Group, while strengthening the Nippon Sanso Holdings Group's unique business resources, including our industrial gas and thermos technologies, our global and diverse human capital, and our business sites.



# Message from the Chief Supply Chain Officer



**Nobuo Fukuda**

Representative Corporate Executive Officer,  
Executive Vice President  
Chief Supply Chain Officer

## Leading the development of sustainable and effective supply chains across the Group

### Optimizing Group manufacturing

The Mitsubishi Chemical Group was previously run with each Group company as an independent operation. Now, we have a strategy in place to remove barriers and strengthen cooperation between the companies to achieve better performance under the "One Company, One Team" concept.

Within the new Operations Division established to supervise supply chains at all Group companies, my mission is to support Group manufacturing activities within a two-axis matrix structure covering each geographical area and each business group where the Group companies belong. To achieve this, we will utilize the

2022 Instructions for Global Safety Standard and other guides across our global operations, and will work to ensure that all employees have a shared understanding of the values and standards reflected in the "One Company, One Team" concept.

The new management policy sets out a program of cost restructuring to rationalize and reduce costs by ¥100 billion across the Group by fiscal 2025. Our goal is to achieve around ¥25 billion of these cost reductions through the supply chain.

### Pursuing GX alongside our partners

The MCG Group has set targets, and announced them to internal and external audiences, of net zero GHG emissions (i.e., becoming carbon neutral) in business activities in Japan and overseas by 2050 and a 29% reduction in emissions versus fiscal 2019 levels by 2030 (▶ Page 26).

To reach the 2050 target, the MCG Group is investigating the development of artificial photosynthesis and other carbon capture, utilization, and storage (CCUS) technologies, a switch to next-generation clean energy, including hydrogen, and other measures such as the use of biochemical technology and more in-depth life-cycle assessment (LCA). We are looking beyond simply reducing Group GHG emissions, and are engaging in initiatives to use biomaterials or commercialize the recycling of chemicals from plastic waste (mixed plastics into oil, PET or PMMA monomerization, etc.). To become carbon neutral and achieve a recycling-oriented society, we will work with customers, materials manufacturers, and all other partners to drive the transition to sustainable products and businesses.

### Cost restructuring measures in the supply chain

#### Equipment repairs

- (1) Revise risk assessment methods for repair plans and establish systems to avoid over-maintenance
- (2) Improve utilization of workers in repair projects through the use of digital technologies

#### Logistics, supply chain reforms

Eliminate duplication of logistics operations with subsidiaries that have logistics functions; improve business earnings for non-Group customers; reduce inventories; increase transport efficiency, including through use of digital technologies and collaborations with other companies; and make order processes and packaging operations more efficient

#### Purchasing function consolidation, upgrade

- (1) Consolidate purchasing operations for indirect materials and services previously scattered across sites, and implement rigorous competitive purchasing
- (2) Formulate purchasing guidelines at the Procurement & Logistics Division, maintain outcomes from purchasing activities in (1), and support further reductions in purchasing costs at all departments

## Innovation

# Message from the CTO

**Larry Meixner**Senior Vice President  
Chief Technology Officer

## We will deliver sustainable business value and growth to our stakeholders, while opening new horizons for our employees.

### Setting a new course for innovation

The Mitsubishi Chemical Group, through our new Corporate Innovation function, has launched a Group-wide effort to improve the quality, speed, and impact of our innovation.

First, we will strongly link the direction of our innovation activities to the Group's new management policy, "Forging the future." This new policy provides an excellent opportunity to realign our innovation activities, clarify our future directions, and accelerate our progress.

Second, we recognize that innovation is not limited to internal R&D. We will effectively combine a wide range of innovation "tools," including joint development with startups and strategic partnerships with universities, corporations, and external organizations. We will formulate integrated innovation strategies, optimally using each innovation tool according to the specific characteristics of our target markets.

Third, to increase the value and efficiency of our innovation operations, we opened a new research facility in April 2022 at our Science & Innovation Center in Yokohama, Japan. This new facility is designed to facilitate a modern, global style of interaction and will allow us to consolidate and integrate activities by market and technology. We will concentrate our core R&D efforts in Yokohama, while developing specific market-facing missions for our other R&D Centers to optimize the contribution of each to the innovation strategy of the overall Group.

Fourth, we will aggressively promote communication and diversity. Innovation emerges from the interaction between different perspectives, which provides the stimulus to challenge conventional thinking. In addition, all our key future markets should be viewed as global, as we cannot achieve sufficient growth from the Japanese market alone. Our Group's overseas innovation presence has been limited to date. However, to achieve our goals we will combine the technology strength we have built in Japan with a global innovation perspective.

### Innovation paves the way to our future

It is often said that with change comes opportunity. Today, our Group is undergoing a period of significant change, including new management policies, business strategies, management teams, and operating structures. While M&A and other approaches remain important in taking advantage of growth opportunities, innovation is, and always has been, the primary driving force in creating new value. By focusing on innovation to fuel our Group's new management policy, and by shifting to a modern and global approach to innovation, we can seize the opportunities for growth presented by this period of dramatic change.

## Innovation

# Our Research & Development

### R&D as a future growth engine

A world-class R&D organization is the centerpiece of our innovation efforts. The accumulated expertise and resulting IP are among our company's most valuable assets.

To maintain our competitive edge as a leading global chemical company, we conduct R&D for near-term business impact, while at the same time creating new pillars to support our long-term growth. In addition to in-house R&D, we fully leverage open innovation to increase our speed to market through collaboration with government, academia, startups, and corporate partners.

### Driving near-term business impact

#### Ultra-low dielectric loss film—Contributing to the realization of "Beyond 5G"

For next-generation telecom systems, it is critical to reduce transmission loss, particularly in high-frequency applications. We have developed a new class of films with high dielectric properties that leverage our unique material design and synthesis technology to reduce the loss tangent\*<sup>1</sup> to less than 0.001. This film reduces transmission loss in the 5G millimeter wave band (28 GHz) by about 50% compared to conventional products, while also providing high transparency, heat resistance, and excellent copper adhesion.

\*1 A numeric value that expresses the degree of electrical energy loss in a dielectric

#### Green KTF and BioPTMG\*<sup>2</sup>—Targeting carbon neutrality through bio-based high-performance products

To meet increasing demand for KTF, our moisture transmission film product, but at the same time to reduce CO<sub>2</sub> emissions during production by 30%, we have launched Green KTF. Green KTF is derived from natural products such as calcium carbonate and plant-derived polyethylene, yet it maintains the same performance as conventional KTF. Main applications include back sheets of disposable diapers and high-performance protective clothing. We have taken a similar approach to our PTMG product, which is used as a raw material for polyurethane and polyester resins. We have developed BioPTMG, which boasts the same performance as petroleum-derived PTMG, while dramatically reducing associated CO<sub>2</sub> emissions.

#### Low-temperature nitridation technology

Hydrazine is attractive to the semiconductor industry as a potential low-temperature nitrogen source precursor in atomic layer deposition (ALD) of metal nitride thin films. However, because of its high reactivity, safe handling of hydrazine is challenging. We are developing low-temperature nitridation technology for high-purity hydrazine and the associated bulk delivery system, which will improve the ALD process throughput and the quality of nitride thin films.

\*2 Poly tetramethylene ether glycol

### Creating the next pillars of growth

#### Focus on precision medicines

We aim to realize precision medicine that takes into account the causes and phenotypes of diseases in the central nervous system and immuno-inflammation. Our precision medicine approach provides appropriate healthcare to patients at appropriate times, considering the differences in people's genes, environment, and lifestyles. MT-7117, currently under development for erythropoietic protoporphyria and systemic sclerosis, is our leading precision medicine program.

We are promoting digital technologies to realize precision medicine. For example, we are collaborating with academia and AI venture companies to develop AI technology for drug screening. This technology enables accelerated drug evaluation using large-scale image data, instead of time-consuming data review by highly skilled researchers. We anticipate applying this technology in the future to drug screening based on genetic polymorphism and drug screening using human induced pluripotent stem (iPS) cells from patients.

#### Plant-based growth factors for regenerative medicine

Cell culture materials are critical in regenerative medicines for cultivating stem cells from patients or donors, enabling cell proliferation and differentiation into target organs and tissues. We are conducting research in collaboration with Myoridge Co., Ltd. (▶ Page 43) on production of growth factors using plants. This partnership leverages the process we used to create the world's first plant-based COVID vaccine, which is under development by our Canadian subsidiary Medicago, Inc. We aim to address long-standing challenges in conventional cell culture resulting from the widespread use of bovine fetal serum, including unstable supply, contamination risk, and animal welfare.

## Innovation

### Our Research & Development

#### Growth of 4-inch GaN crystal for manufacturing GaN substrates

We are collaborating with Japan Steel Works, Ltd. to improve the manufacturability of large-diameter bulk gallium nitride (GaN) substrates for power electronics with support from the New Energy and Industrial Technology Development Organization (NEDO). We have conducted crystal growth experiments for the mass production of high-quality 4-inch GaN substrates using a low-cost manufacturing technology, and have confirmed that the crystals are growing as anticipated.

#### External partnerships with government and academia

##### ARPCChem and Mitsubishi Gas Chemical—Photocatalysts for artificial photosynthesis

Artificial photosynthesis is a groundbreaking technology that aims to enable a carbon-neutral society by using CO<sub>2</sub> as a raw material. In a major Green Innovation project funded by NEDO, we are collaborating with ARPCChem and Mitsubishi Gas Chemical to develop photocatalysts with high conversion efficiency and reduced hydrogen production costs. We are also developing complementary technologies to produce high yields of basic chemical derivatives such as ethylene and propylene from hydrogen and CO<sub>2</sub> via alcohols.

#### University of California, Santa Barbara—The Mitsubishi Chemical Center for Advanced Materials

The Mitsubishi Chemical Center for Advanced Materials (MC-CAM) is an interdisciplinary materials research center at the University of California, Santa Barbara (UCSB). This partnership, started in 2001, specifically targets functional soft materials and has resulted in over 180 peer-reviewed

publications to date. For example, MC-CAM has produced key advances in solid polymer electrolytes (SPE) for solid-state batteries and organic photodetector (OPD) materials. Current MC-CAM research focuses on high-value-added advanced functional materials supporting the long-term vision of the Mitsubishi Chemical Group.

### What are the MOT indices?

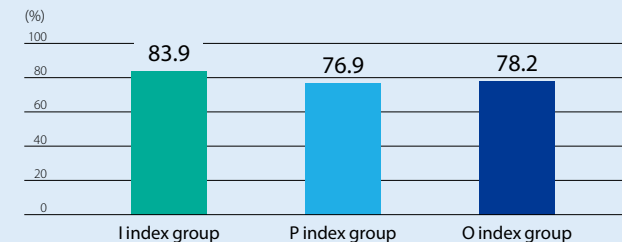
The MOT indices are one of the three axes of KAITEKI Management (MOE, MOT, and MOS) and serve as a metric for our technological and innovative capabilities. The MOT indices consist of the following three index groups, which classify the innovation process into input (I), process (P), and output (O). MOT indices are designed to focus on objectively measurable quantities, which can be compared meaningfully to competitors and to our own historical performance.

Index name	Example of measurement object
I index group	Investment in innovation activities
P index group	Progress of key R&D themes and DX
O index group	Sales of new products, number of patent applications, and quality of patents

### Fiscal 2021 MOT result

The 2021 MOT indices indicate that all three groups achieved results of approximately 80%. Detailed results from the P index group suggest that we should accelerate progress in our digital capability. The O index group results reflect a need to emphasize the quality of our patents in addition to quantity. The insights derived from MOT drive us to further improve our innovative capabilities in line with our new business strategy.

#### Fiscal 2021 MOT results



## Innovation

# Our Research & Development



Finding solutions for a sustainable future

### The KAITEKI Institute

The KAITEKI Institute, Inc. (TKI) was established in 2009 to act as a think tank to focus on long-term trends and opportunities. TKI does this by envisioning future market needs and prototyping conceptual products to meet those needs in collaboration with our global network of academic and scientific experts.

For example, TKI led development of a highly engineered prosthetic blade that has been used in Paralympic competition.

Another conceptual product is the "ICT Medical logistics box," an Internet of Things (IoT)-enabled box for transporting and tracking sensitive items. Mitsubishi Chemical Logistics Corporation (MCLC) is developing a portable version of the TKI concept to explore a new business model in the ethical pharmaceuticals distribution market.

TKI is now focused on efforts that align with the Group's need for an objective long-term perspective on global future scenarios and the resulting impact on new business opportunities.



Highly engineered prosthetic blade prototypes developed by TKI support Paralympic athletes in training and worldwide competitions.

### Development of regenerative medicine using Muse cells

Muse cells (Multi-lineage differentiating stress enduring cells) are endogenous pluripotent stem cells naturally present in the bone marrow, peripheral blood, and connective tissues of all body organs. Muse cells can be injected intravenously and there is evidence they can migrate to injured organs, spontaneously differentiating into cells that correspond to the injured tissues.

We are developing a regenerative medicine product that exploits the special properties of Muse cells. We have been conducting clinical trials for six indications following successful non-clinical research results. We are focusing our current efforts on one principal indication, cerebral infarction (CI). In fiscal 2021, our exploratory study showed good safety properties and suggested possible efficacy. After discussions with the Pharmaceutical and Medical Devices Agency (PMDA), we are pursuing steps to secure full approval. Large-scale confirmatory clinical trials will be started in fiscal 2022 for regulatory submission.



## Innovation

# Corporate Venture Activity

## Strategic partnerships with startups around the world to accelerate innovation

Our corporate venture activity has entered its fourth year since the founding of Silicon Valley-based Diamond Edge Ventures in fiscal 2018. Our global team, located in Tokyo, Silicon Valley and Germany, catalyzes engagements between startups and our company's business units to create mutual opportunities for innovation. As of March 2022, we have created over 270 such engagements and invested in nine startups, including four new investments in fiscal 2021.

## Accelerator programs

In fiscal 2021, we rolled out our first partnership program "KAITEKI Challenge," focused on "Re-imagining Proteins, Plastics, and Packaging." We selected six startups as finalists, and we are working with them to validate several innovative concepts. In fiscal 2022, we will launch our next partnership program "TANAMIN Digital Health Challenge," aiming to create novel digital healthcare solutions.

## Portfolio



### DAIZ Inc.

DAIZ Inc. is a Japanese plant-based meat company delivering safe, sustainable, and high-quality alternative protein based on proprietary germination and extrusion technologies. The company's product MIRACLE MEAT has been already adopted by many food suppliers and restaurant chains. We are co-developing food ingredients for plant-based meat, supporting the DAIZ mission, and expanding our own food-related technological capabilities and market access.



### Eridan Communications, Inc.

Eridan Communications, Inc. aims to reduce the power consumption for wireless communications by enabling the world's most efficient radios for 4G/5G. Eridan's MIRACLE RF front-end module is based on a digital switching architecture with GaN power devices that realizes ultra-clean signals and significant size reduction. Our collaboration opens new opportunities for expansion into the RF module market.



### Lingrove Inc.

Lingrove Inc. is a provider of low-carbon-intensity composites made from plant-based fiber in a wide variety of resins. The company's signature product Ekoa® is made of flax fiber and resin, enabling "wood without trees" by creating appearances similar to stained and finished wood. Leveraging our diverse materials portfolio, this partnership aims to create low CO<sub>2</sub> footprint products in many applications including architecture and automotive interiors.



### Myoridge Co., Ltd.

Myoridge Co., Ltd. provides cells and custom-designed serum-free media for cell culture applications, serving pharma, regenerative medicine, and food industries. Myoridge has the unique ability to address cost, reliability, and cell quality challenges by creating bespoke media recipes for each cell type and development stage. We are partnering with Myoridge to develop plant-based growth factors for various cell culture markets.

# Message from the CDO



## Unlocking tremendous business value by adopting best practices that utilize advanced digital technologies

**Yuji Ichimura**

Senior Vice President  
Chief Digital Officer

Our new Company-wide organizational concept of "One Company, One Team" is the key to enabling DX at the Mitsubishi Chemical Group. In our previous organizational structure, business operations of each legal entity and business group were conducted with a high degree of independence. In this situation, business practices were adopted on a local scale, yielding uneven results in terms of quality and standardization, and data sharing was challenging for both technical and organizational reasons.

However, the core of our new management approach is to apply global best practices and break down communication barriers between different organizations. One aspect of these reforms is a stronger Corporate Digital function with the authority to drive change across the entirety of MCG.

### Defining our vision and pursuing best practices

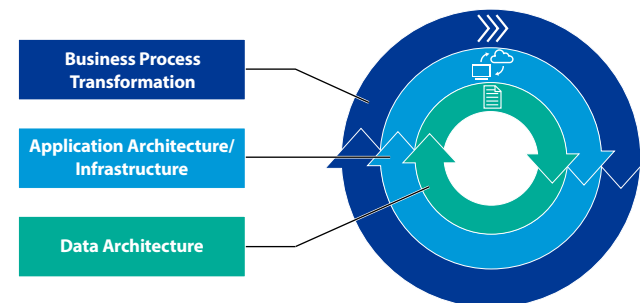
As reflected in this section, our starting point is the business processes themselves. We do not turn our attention to the supporting IT infrastructure until the desired "to-be" business processes are defined.

We prioritize the critical evaluation of each major business process, adopting global best practices and standardizing wherever possible. In roughly 10% of cases, we pursue customized solutions for direct business advantage, but these are exceptions rather than the rule. Based on the desired business processes, we then design and implement the application architecture and establish data infrastructure and policies. In tandem, we are aggressively modernizing our approaches to maximize the benefits of cloud computing, mobile devices, and next-generation network technology. The benefits to the business are enormous in terms of cost efficiency, as well as opportunities for synergy never before realized across business operations within MCG.

### Realizing our corporate vision through DX

Finally, advanced digital technologies continue to offer the chance for revolutionary impact on our businesses. For example, we already derive substantial business value from materials informatics applied to formulation chemistries and AI enhancement of quality inspection. We also participate actively in the development of rapidly emerging technologies such as quantum computing. By combining rapid application of advanced technology with strategic deployment of optimal and standardized business solutions across MCG, DX will play a critical role in achieving our new management policy, "Forging the future."

### Digitalization cycle



# Progress with DX

## Business process transformation

The first step in DX must be a clear understanding of the desired "to-be" business processes that the new digital systems are designed to serve. Our approach is to rigorously standardize 90% of our processes globally to enable efficiencies, cost reduction, and seamless end-to-end value chains. To build this necessary "digital backbone", we have started the design and deployment of our future state capabilities, encompassing our operating processes, data models, systems, and people competencies.

We have initiated several specific programs spanning commercial excellence, operations, customer experience, human resources, and finance in order to support our transition to a market-oriented organization. Initial focus areas include pricing, customer engagement, opportunity management, indirect procurement, and agile management reporting. In executing each initiative, we maintain focus on change management to ensure support and commitment from all relevant members.

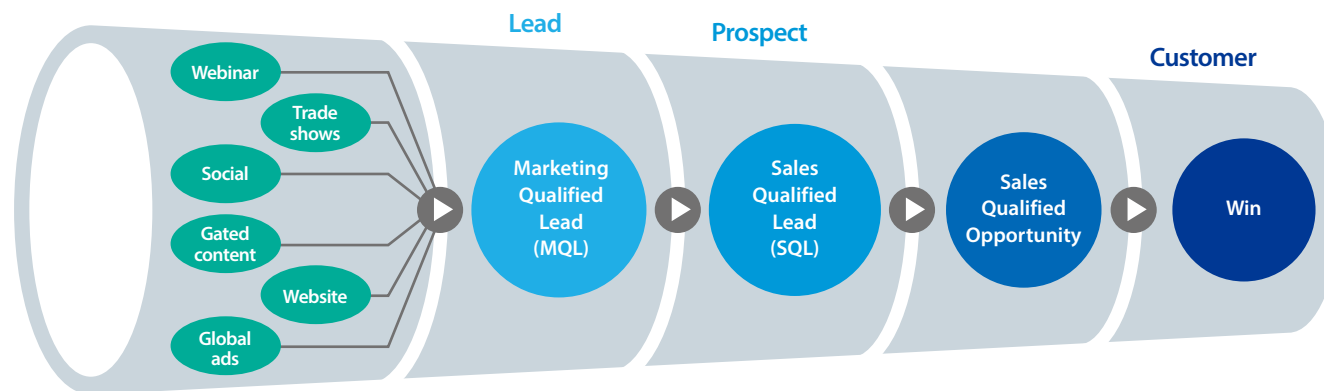
## Example: Making price-setting processes more efficient through digitalization



Our pricing process progression will adopt globally accepted norms to achieve value differentiation, including margin guidelines, a pricing office, defined performance cadence, and aligned incentives.

## Example: Bringing together the lead to closed sale process

See below for MCG's sales funnel (the process from sales lead to closed sale)





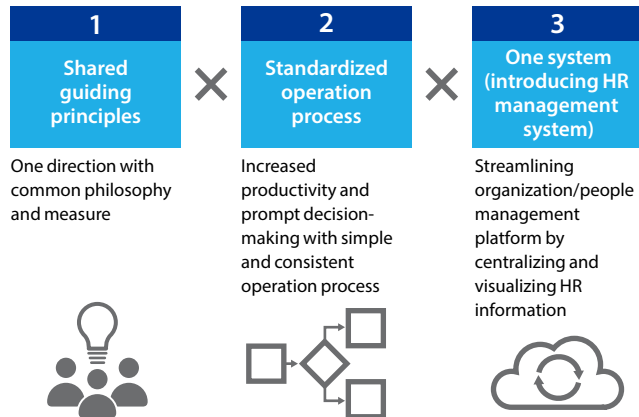
## Progress with DX

### Application architecture

Only after identifying the future ("to-be") ideal business processes can we standardize the relevant applications and systems. Actions will be reduced in number, simplified, rebuilt, and optimized to fit the newly designed processes. One key example is our implementation of a single human resources system across the entire Group, enabling both better business results and a more dynamic and positive career environment for all employees.

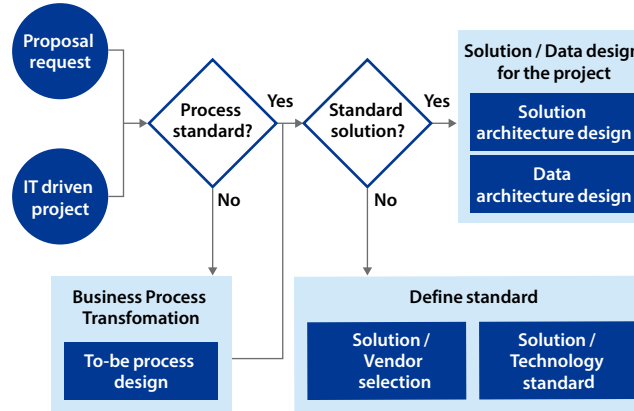
### Developing global-standard HR processes/ organizations and information systems

#### For "One Platform" across the Group/globe



The technology used in each application or system will reflect industry and global standards. Master data standardization is also required for decision makers to have access to current and accurate data. Our flexible solution-adoption approach will allow rapid integration of industry-standard solutions when it is available, and will allow rapid definition of new processes and standard solutions when it is not available. This approach will enable us to improve and simplify our technology environment, from which we expect abundant cost optimization opportunities.

### Process for introducing new solutions



### Data standardization and utilization

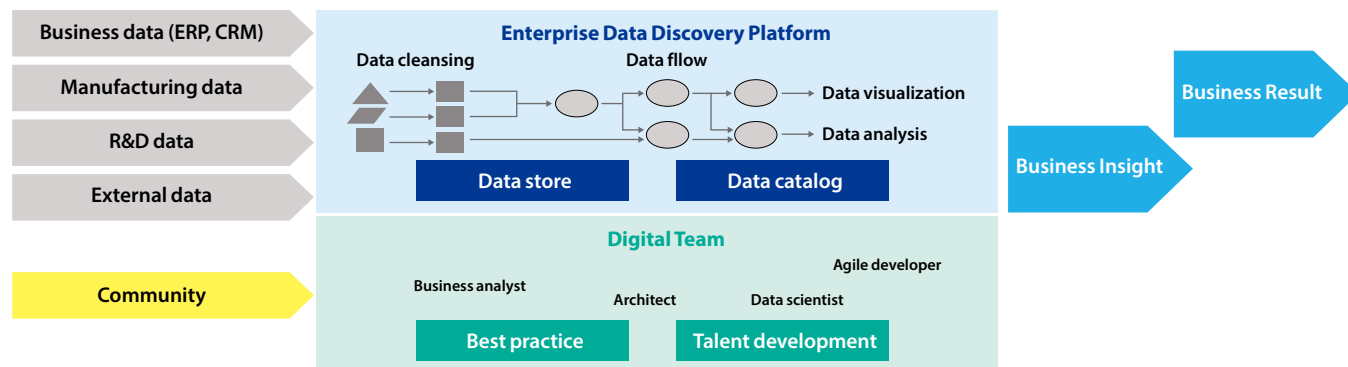
Data is a critical element in the Company's "Forging the future" strategy. We believe that successful data management is more than just storing and protecting data; it must define the most effective use of data as a critical business asset. Enterprise business insights can be derived by collectively visualizing data collected from multiple business operations. These insights fuel the agility needed to make rapid and effective decisions in quickly changing business environments. However, none of this is possible without a fundamental shift in the way we treat data.

We created the Enterprise Data Discovery Platform, a Company-wide data integration initiative supporting end-to-end data life cycle. Data from diverse sources is assimilated onto the platform through automated tools. The data is cleansed, harmonized, and then integrated across organizations to meet specific business intelligence needs. Finally, business intelligence tools facilitate visualization of the data from multiple perspectives. For instance, manufacturing data and sales results are automatically gathered from a production management system and an enterprise resource planning (ERP) system, respectively. The platform then enables business users to make rapid scheduling decisions.

Deep data analysis is provided using state-of-the-art AI tools. The data catalog within the platform provides search capability, a key feature of the platform. Overall, the data platform enables easy visibility to global business applications and business processes. We enhance the platform through an agile data strategy and continuous upskilling of our internal digital team.

## Progress with DX

### Data platform: From data to business value



### Infrastructure migration

Times have changed. Our entire infrastructure will be migrated to an environment that can support end-users working in the office, at home, or elsewhere. Three initiatives are critical to enable this transition, as shown on the right. In addition to creating new options for workers, these initiatives have significant potential for cost optimization.

#### Initiatives for infrastructure transition

**Cloud lifting:** Moving applications and systems to cloud environments, reducing current operations and maintenance and shifting resources to more value-added tasks

**Multi-device access:** Enabling work not only from stationary PCs but also mobile devices, empowering employees with more flexible work options and higher productivity

**Network modernization:** Preparing for pervasive utilization of 5G and eventually 6G networks, reducing reliance on internal LAN infrastructure

### Emerging technologies

DX must also include an aggressive and active posture toward emerging technologies. For example, we participate actively in the IBM Q Network Hub at Keio University. In joint research with IBM Japan, Ltd., JSR Corporation, and Keio University, we calculated the excited states of thermally activated delayed fluorescence (TADF) emitters which are applied to the fabrication of efficient OLEDs. We developed a new scheme to mitigate the error from current noisy quantum computers and succeeded in improving the calculation accuracy. This application of quantum computers to excited state calculations of commercial materials was a world first, and should lead to more accurate quantum chemistry calculation results for designing OLED emitters with high quantum efficiency.

# Message from Our New Chief Strategy Officer



**Joseph Rinaldi**

Vice President  
Chief Strategy Officer

**I am pleased and honored to be the new Chief Strategy Officer (CSO) for Mitsubishi Chemical Group Corporation. Throughout my 36-year career, I have tackled a variety of challenges in various functions across litigation, finance, technology, transformation, and the workforce. I believe this diverse experience will help me develop a practical and actionable strategy.**

## **Our strategy team will have several important mandates**

First, we are working to build out the overall strategic planning process. The strategic plan must show how and where we will compete and why we will successfully create value, both short and long term. We will introduce the plan at the beginning of 2023.

Developing a plan is just the beginning. Ultimately, we must move our strategic plan from paper to actions to transform the Company to unleash MCG's capabilities and global reach across attractive customer industries. We will launch decisive strategic and transformative efforts to build and enhance our capabilities to make the plan succeed. We will ensure that every business unit, function, and employee clearly understands our overall corporate strategic plan and why we are doing it, and we will monitor execution and adjust as necessary.

Managing our business portfolio is another essential responsibility. I will act as one of the gatekeepers and approvers of capital transactions or acquisitions. Key evaluation criteria include strategic fit, risk, affordability, and opportunity cost versus other alternatives.

Our strategy will continue to build on several ongoing efforts from the "Forging the future" initiatives. Notable is the project to split our Petrochemicals business and several other transformations that will not only lead to better processes but will also result in the promised cost savings. In addition, we

continue to work on several previously started divestitures and adjustments to our portfolio.

We will also drive strategic value by optimizing our portfolio's Economics, Innovation, and Sustainability elements. Within my department, I am pleased that we have the Sustainability Management Department. Having these experts in the CSO's office will help us ensure that we build sustainability in everything we do and better monitor our progress.

Our strategy team serves an essential role as an agent of change, bringing ideas we might not otherwise consider. We will sometimes be provocative, pushing the organization to question why we are doing something a certain way, challenging the existing paradigms. We also provide strategic counsel and support on various issues of critical importance. In addition, our team is leading a select set of special projects, such as the current cost transformation initiative. Finally, we also provide acquisition, alliance, and divestiture merger expertise, responsible for all aspects of the process.

Since my first involvement with the Company in September 2022, I have been impressed by the people working at the MCG Group companies worldwide. They are dedicated, passionate, team-oriented, and customer-focused. I believe in the quote "you win with people." Our people are the ultimate competitive edge that will provide superior value for our customers, shareholders, and ultimately to society.