RESONAC

Chemistry for Change

RESONAC REPORT 2023

Technological progress has enriched our lives from the perspective of physical belongings. However, the price for this progress has been paid by the global environment, which is currently in a state of crisis. Society is thus now faced with the pressing task of finding a way to continue to progress while protecting the environment.
Chemistry is a building block of all industries, and the chemical industry therefore has the potential to help find a solution to the dilemma through co-creation with a range of stakeholders.

The power of chemistry can indeed cast light on the fundamental changes that need to be made, but this power may also cast a shadow.
Our goal is to use chemistry to ensure that future generations can find happiness in a healthy global environment. Accomplishing this goal will require us to predict and create the technologies and functions required of the times before they arise, and to use the power of chemistry in a responsible manner.

Our foundation remains our wide range of cutting-edge functional materials technologies, which encompass areas spanning from midstream to downstream sectors.
We will leverage this solid base to ascertain the roots of today's challenges and take the initiative in finding new solutions. To achieve this objective, we will think beyond the conventional boundaries of our individual business activities.

We are committed to co-creating a better society together with stakeholders who share our ideals, ranging from consumers to industry leaders, and to accumulating the strength expected of a global company as well as acting and making decisions in an agile and flexible manner. As a "Co-creative Chemical Company," Resonac will "Change society through the power of chemistry."

Transforming to a Co-creative Chemical Company to Become a World-class Functional Chemical Manufacturer

RESONAC

Chemistry for Change

Purpose

Change Society through the Power of Chemistry

Contribute to the sustainable development of global society by creating functions required of the times as an advanced material partner

Values

Passionate & Results-Driven

By taking pride and passion in our work,

By focusing our strengths and performance,

We will become a globally recognized top player.

Agile & Flexible

By learning through trial and error,

By thinking flexibly and acting swiftly,

We will transform into a dynamic organization.

Open Minds & Open Connections

By showing mutual trust and respect,

By collaborating openly beyond boundaries,

We will co-create new value with all stakeholders.

Solid Vision & Solid Integrity

We truly recognize the power and potential of chemistry,

We prioritize sustainability for future generations,

We commit to upholding our values of integrity to all stake holders and ethics in developing chemical technologies.

Co-creating a Better Society with Partners That Share Our Ideals

Our goal is to use chemistry to ensure that future generations can find happiness in a healthy global environment. Expansive co-creation with our partners is necessary in order to seek out and solve the various problems faced by society.
We aim to create a movement that resonates with people, through the combination of the ideas based on our extensive business experience and customer base, our unrestricted advanced material technologies, and the wide-ranging technical prowess of our partners and their ability to implement this in our society.
By resonating far and wide, we also aspire to attract new partners and create an even bigger movement that transform society. As a "Co-creative Chemical Company," Resonac will "Change society through the power of chemistry."

P59 / Contributing to Society and Customers by Fulfilling Our Purpose through Resonac Pride Products & Services

RESONAC REPORT 2023

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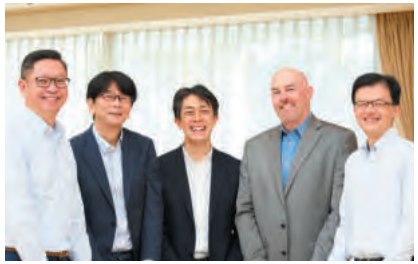

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Dear reader,

This is the first Integrated Report by Resonac, which experienced its second founding.

Last year, we started by presenting the long-term views of our new management team, led by CEO Hidehito Takahashi, with the aim of garnering your trust and expectations. As we were not yet able to provide enough information on our achievements, we communicated our thoughts on the future and plans to tackle the issues we recognized.

While also continuing to focus on the future, this year we endeavored to provide details on how much progress we are currently making toward these goals and our trial-and-error process. We explain how "Team Takahashi" functions as a team, whether we've made progress with the promise we made last year to develop co-creative talent, and showcase the employees that have started to play an active role in the company. We talk about what kind of strategies we are implementing across our operations as we revamp our business portfolio. We also discuss whether sustainability is truly at the root of our management, and whether Resonac's governance structure is functioning effectively as we strive to become a company that can compete on the global stage.

While we haven't yet reached the point where we can answer all questions with results, we hope this report shows that we are making efforts to promptly, but also steadily and carefully, achieve our goals. We also hope that it will help facilitate dialogue and co-creation with you.

We want you to see how we are first trying to change ourselves as a "startup with 26,000 employees" as we strive to change society for the better. Please enjoy Resonac as we are now.

Hideki Somemiya Chief Financial Officer (CFO)
Tomomitsu Maoka Chief Strategy Officer (CSO)

Official Resonac YouTube Channel

We upload videos introducing Resonac so that you can learn more about us. Our channel also has videos containing dialogue with internal and external stakeholders. Please check it out!

01 What's Resonac?

What is Resonac? We will introduce Resonac's past and now, including the path to Resonac's birth, how we create value, and what is the "Co-creative Chemical Company" we are trying to achieve.

7 Path to the Birth of Resonac
9 Overview of Resonac's Business
11 Value Creation Process
13 Special Feature: What is a Co-creative Chemical Company?
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Former Showa Denko

Originating in the field of electrochemistry, Showa Denko has developed its technological capabilities over the course of years to expand into the fields of inorganic chemistry, organic chemistry, and metal materials. Many of its past technological achievements have been passed down to serve the development of a wide variety of products in use today, including materials and components used for IT equipment and mobility devices as well as essential daily items.

1908
Established Sobo Marine Products K.K. (later Nihon Iodine K.K.) to manufacture and sell iodine

Sobo Marine Products K.K.

1931
Started production of ammonium sulfate using domestic technology (Showa Fertilizers K.K.)

1934
Industrialized domestically produced aluminum (Nihon Electrical Industries K.K. (former Nihon Iodine K.K.))

The first block of aluminum

1939
Established Showa Denko K.K. through the merger of Showa Fertilizers and Nihon Electrical Industries

Former Hitachi Chemical (Showa Denko Materials)

Showa Denko Materials continues to create new functions and value centered on semiconductor materials and other IT and mobility products.
These efforts are driven by its proficiency in developing products using the material design technologies to capitalize on the material characteristics it has fostered since its founding.

1912
Started research into insulating varnish for electrical motors aiming at domestic production

Electrical insulating varnishes

1930
Started trial production of phenol resin laminates

1931
Started trial production of porcelain insulators

1933
Started trial production of carbon brushes

Society's needs and the value we provide to society

1930's

Society's needs
Stable food supply

Value we provide
Ammonia production using Japanese technology

Succeeded in synthesizing ammonia for the first time in Japan using Japanese technology and machinery, a feat considered impossible at the time. We then went on to produce the first synthetic ammonium sulfate (inorganic fertilizer) made using only Japanese technology, and started providing inexpensive fertilizer.

1950's

Society's needs
Innovation of technology

Value we provide
Copper clad laminates for multilayer PWBs

Developed technique to enable complicated wiring on a single copper clad laminate board, which enabled mass production of electronic circuits, a key contributor to the popularization of commercial television and radio systems.

1969
Oita Petrochemical Complex started commercial operation

Office of Oita Petrochemical Complex

1988
Entered the hard disk media business

2001
Merged with Showa Aluminum Corporation
Product lineup included aluminum cooling devices, cylinders, and packaging

Aluminum cylinders

2003
Started the plastic chemical recycling business

Kawasaki Plastic Chemical Recycling (KPR) plant

2006
Began contract manufacturing of SiC epitaxial wafer for power devices

2009
Started production of cooling devices for power semiconductors

Cooling devices for power semiconductors

2010
Merged with Showa Highpolymer Co., Ltd., the first company to achieve domestic production of synthetic resin emulsion, unsaturated polyester resin, etc.

2017
Acquired SGL GE, a German graphite electrode supplier

Graphite electrodes

2022
Substantive integration

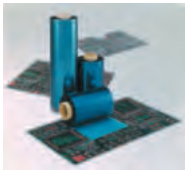
2023
Resonac established

RESONAC

Resonac experienced its second founding, as a company that operates the semiconductor and electronic materials, mobility, innovation enabling materials, chemicals, and other businesses, and possesses a broad lineup of material and technology offerings spanning midstream and downstream areas.
As a "Co-creative Chemical Company," Resonac aims to continuously grow and improve corporate value through co-creation.

1955
Started production of copper clad laminates for multilayer PWBs

1978
Started sale of photosensitive film of alkali-based solvents



Photosensitive film of alkali-based solvents

1984
Started production of circuit connecting film for displays

Circuit connecting film for displays

1992
Started sale of reflow-resistance epoxy molding compounds

Epoxy molding compounds

1998
Started mass production of carbon anode materials for lithium-ion batteries
Started production of CMP slurry for shallow trench isolation (STI)

CMP slurry

2001
Started production of molded plastic rear door modules

2000's

Society's needs
Waste problem Recycling

Value we provide
Aluminum can recycling activities

Resonac, the first producer of aluminum cans in Japan, was the first to kick-start and spearhead recycling activities in Japan to create a recycling-oriented society. In 2021, the ratio of aluminum cans recycled across Japan rose to as high as 96.6%.

Society's needs
Innovation of technology (longevity)

Value we provide
Anode materials

Production of graphite material used to make anodes, which affect the performance of lithium-ion batteries. They enable electronic devices to be more energy efficient, more compact, and charge more efficiently.

Society's needs
Weight reduction

Value we provide
Plastic rear doors

Succeeded in manufacturing molded plastic rear door modules for the first time in Japan. Enabled more design freedom and lighter car bodies at a time when metal backdoor was the norm.

Society's needs
Innovation of technology

Value we provide
Hard disk (HD)

Successfully mass-produced the world's first large-storage hard disk media for perpendicular magnetic recording. Used to safely and securely store large amounts of data, such as at data centers.

Society's needs
Energy saving

Value we provide
SiC

A material used in next-generation power semiconductors, expected to save energy. Used in power supplies for data center servers, railcar devices, etc.

Overview of Resonac's Business

Operating Income	Consolidated Net Sales	Total Assets
¥61.7 billion	¥1,392.6 billion	¥2,093.7 billion
Down 29.2% year on year	Down 1.9% year on year	Down 2.3% year on year

Semiconductor and Electronic Materials

Net sales	Operating income
¥427.2 billion	¥45.5 billion

The Semiconductor and Electronic Materials segment supplies materials used in front-end and back-end semiconductor production processes, SiC epitaxial wafers for next-generation power devices as well as hard disk media.

Major products

- Front-end semiconductor materials: Electronic chemicals, materials for chemical mechanical semiconductor planarization (CMP slurry)
- Back-end semiconductor materials: Epoxy molding compounds, die bonding materials, copper clad laminates, photosensitive dry film, photosensitive solder resist
- Device solutions: hard disk media, SiC epitaxial wafers, compound semiconductors (LEDs)

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Mobility

Net sales	Operating loss
¥180.6 billion	¥(0.7 billion)

The Mobility segment contributes to the production of lighter-weight vehicles with molded plastic rear door modules and plastic gears, while supplying lithium-ion battery materials for use in the electrification of vehicles.

Major products

- Automotive products: Molded resins, friction materials, powdered metal products
- Lithium-ion battery materials: SPALF aluminum laminated film, carbon nanofiber additives, carbon anode materials

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Innovation Enabling Materials

Net sales	Operating income
¥141.1 billion	¥10.1 billion

The Innovation Enabling Materials segment supplies a wide range of technologies and materials that support the innovation and competitiveness of the Resonac's businesses. Offerings include ceramics, functional chemicals, aluminum specialty components, and coating materials.

Major products

- Functional chemicals, functional resins, coating materials, ceramics, aluminum specialty components

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Chemicals

Net sales	Operating income
¥527.8 billion	¥24.9 billion

The Chemicals segment boasts a lineup of competitive, high-share products including olefin, organic chemicals, basic chemicals, industrials gases, and graphite electrodes.

Major products

- Olefins and Derivatives: Olefins, organic chemicals
- Basic chemicals and Industrial gases
- Graphite electrodes

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Others and Intersegment Transactions

Net sales	Operating loss
¥115.9 billion	¥(18.1 billion)

Semiconductor Materials Global Top Management Roundtable

P73

The semiconductor materials business is positioned as a growth business in our long-term vision. We present the round table discussion on this business, which holds the key to Resonac's growth, held by Hiroyuki Yamashita, who oversees the Electronics Business Headquarters, the leaders of the U.S., Taiwan, and Singapore sales offices, and CSO Tomomitsu Maoka.

Overview of Resonac's Business

Consolidated Workforce Composition

In Japan	Outside Japan
49.2%	50.8%

Consolidated Number of Employees

25,803

Down 1.0% year on year

Net Sales Ratio

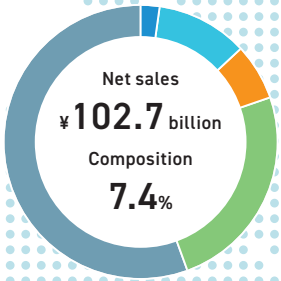
In Japan	Outside Japan
44.3%	55.7%

Global Business Composition

(As of December 31, 2022)

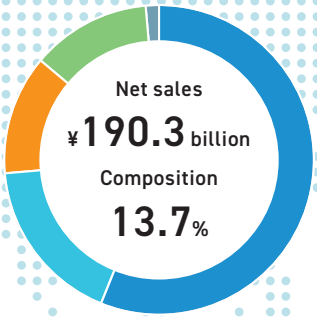
Europe

Number of employees 1,580
Number of companies 17



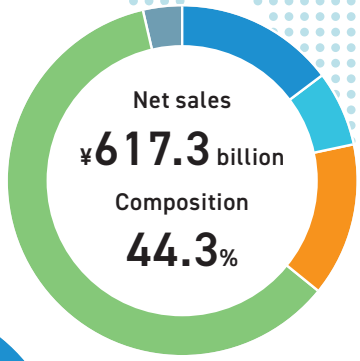
China

Number of employees 3,407
Number of companies 23



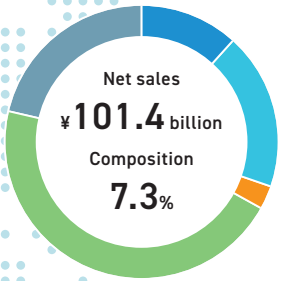
Japan

Number of employees 12,706
Number of companies 25



North America

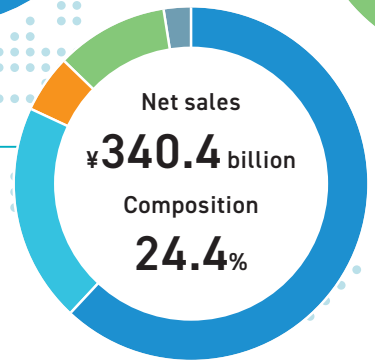
Number of employees 989
Number of companies 10



- Semiconductor and Electronic Materials
- Mobility
- Innovation Enabling Materials
- Chemicals
- Others

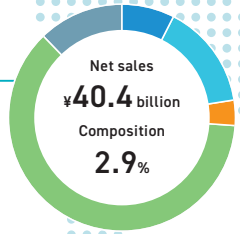
Asia

Number of employees 6,680
Number of companies 32



Other regions

Number of employees 441
Number of companies 1



Value Creation Process

Change Society through the Power of Chemistry

Contribute to the sustainable development of global society by creating functions required of the times as an advanced material partner

Material issues for sustainability

- Strengthen co-creation & competitiveness and create social value through innovation
- Gain credibility through responsible business management
- Develop autonomous, creative, and active human resources and culture

Financial capital
Consolidated total assets
¥2,093.7 billion
(As of December 31, 2022)

Manufacturing capital
Worldwide production bases

Intellectual capital
Intellectual properties, material technologies, function engineering technologies, assessment technologies, and a wealth of expertise related to organic chemicals, inorganic chemicals, and aluminum

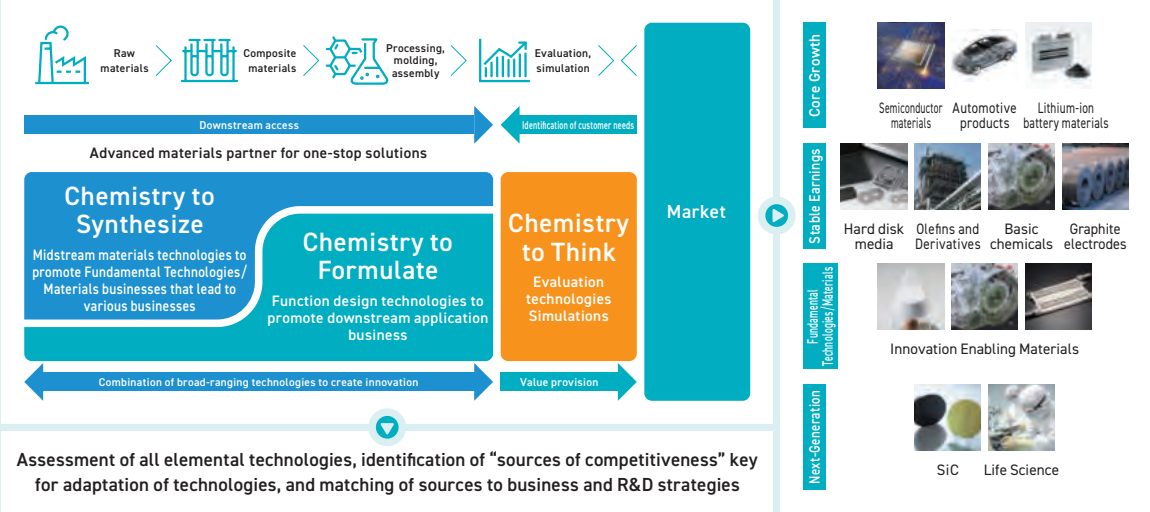
Human capital
Organizational culture and diversity for creating diversity

Social capital
Base of long-term customers and trusting relations built through co-creation with a range of stakeholders

Natural capital
Effective use of energy and resources; technologies that contribute to the resolution of environmental issues

Value creation model: "Co-creative Chemical Company"

Provision of customer value by identifying downstream customer needs and producing innovation through the adaptation of multiple technologies as made possible by possessing a broad lineup of material and technology offerings spanning midstream and downstream areas



Corporate governance | Stakeholder engagement

Safety | Compliance

Values: Passionate & Results-Driven | Agile & Flexible | Open Minds & Open Connections | Solid Vision & Solid Integrity

Material Issues for Sustainability

Strengthen co-creation & competitiveness and create social value through innovation

We are creating social value through our business by taking the initiative in co-creation and enacting a process, spanning from the identification of social issues to the provision of solutions to these issues, by means of technology development and new business models.

2023,NOW

Development of advanced semiconductor packaging materials

With an eye to 3 to 5 years down the road, we collaborated with raw materials and assembly process development at the Stage for Co-creation, and started R&D of the materials (products) needed for the future generation of advanced semiconductor packages. Alongside tackling the long-term themes of plastic recycling and next-generation high-speed communications composite materials, we are also working to create value through co-creation with the aim of solving medium to long-term social issues.

Gain credibility through responsible business management

We must cultivate a culture of safety and work to eliminate accidents, while mitigating strategy, operational, hazard, and other risks. In addition, we should facilitate a flexible response to the changing environment in order to gain trust from stakeholders by continuously delivering distinctive value.

2023,NOW

Building a safety infrastructure, safety culture

In keeping with Article 1 of Resonac's Code of Conduct, which stipulates "Safety First," we are working to build a safety culture across our global operations under the leadership of the CEO. Based on our safety code of conduct and 10 safety principles, newly formulated in 2023, we carry out safety activities across workplaces in Japan and overseas, and also promote interactive safety patrols (SCP: Safety Communication Program). Video

Develop autonomous, creative, and active human resources and culture

We aim to become a human resource developing company, whose employees are the envy of other companies, by fostering creative and autonomous co-creative human resources and building the corresponding corporate culture.

2023,NOW

Co-creative leadership training and training sessions to bolster the co-creative collaboration capabilities

In the pursuit of solving social issues, we seek to foster co-creative talent that can take the lead in innovating and solving problems creatively through co-creation founded on autonomous bonds that go beyond companies and departments, shaped by mutual understanding and a resonance of values. We encourage and support the development of co-creative leader skills, the implementation of action based on our values, and autonomous career development.

Ideal State (long-term vision)

World-class Functional Chemical Manufacturer

Company that can compete on the world stage

World-class competitiveness and profitability

Company that contributes to a sustainable global society

Capability to create innovations and to develop new businesses

Company that develops co-creative talent that represents Japan's manufacturing industry

Ability to train competitive talent with co-creation values

2030 targets

TSR: Aim to rank among the chemicals industry's top **25%** over the medium to long term

Achieving Sustainability Vision

Future we seek to realize through the power of chemistry

Harmony with the global environment

Happiness and prosperity of people

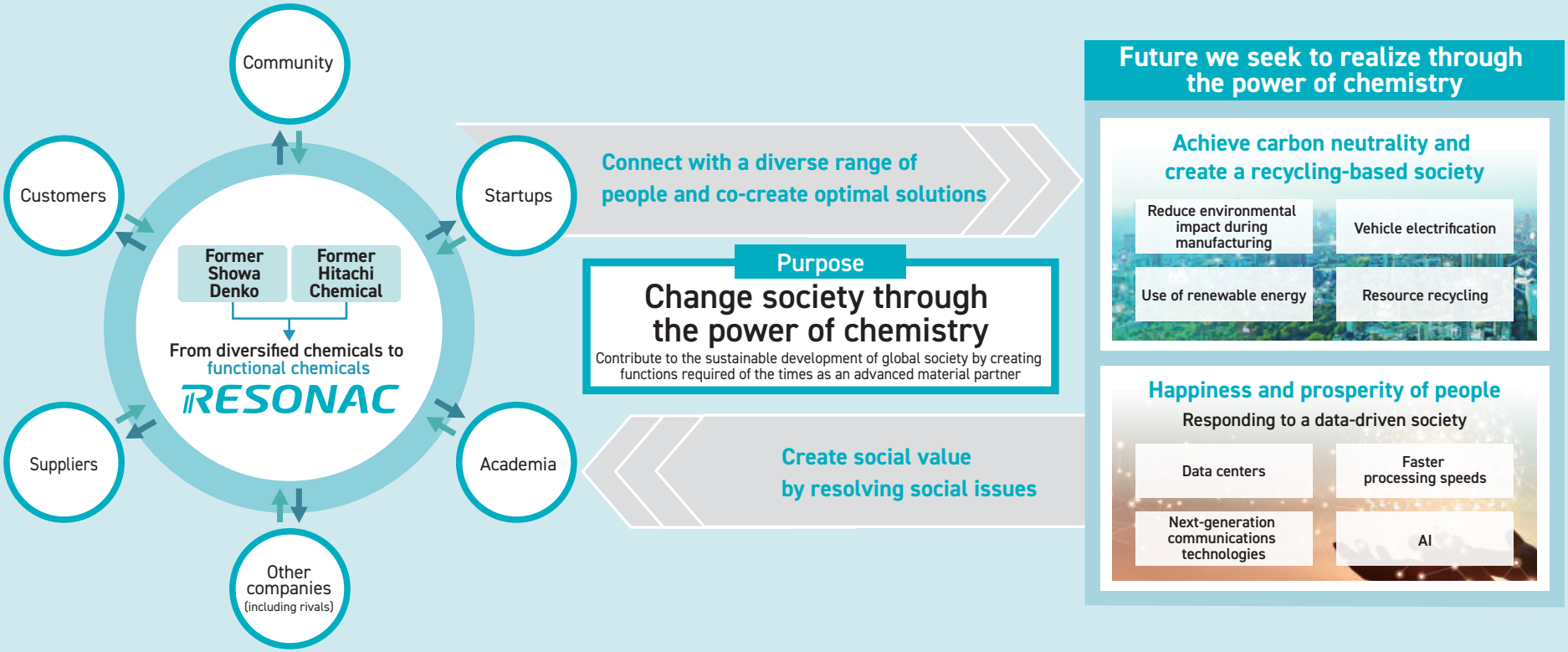
[Special Feature] What is a Co-creative Chemical Company?

Resonac Aims to Become a "Co-creative Chemical Company"

Why? Chemistry is a building block of all industries, and the chemical industry should be able to help find solutions to society's issues through co-creation with a range of stakeholders

In today's global society, the industrial structure is changing at a dizzying pace, and this speed continues to accelerate. Not only that, the challenges faced by various industries are too complex and large to be solved by a single company alone. Since chemistry is a building block of all industries, the chemical industry should be able to solve society's issues through co-creation with a range of stakeholders. Our current strategy is to focus our investment on the Semiconductor and Electronic Materials segment as a core growth area. Not only is the pace of technological innovation for semiconductors extremely fast, the combination of various technologies is essential. Co-creation is thus indispensable both inside and outside the company in order to develop the required functions at a swift pace. As a "Co-creative Chemical Company," we will quickly create new functions together with diverse talent and change society with the power of chemistry.

P11 / Value Creation Process P45 / Long-term Vision



Who? In order to become a "Co-creative Chemical Company" that creates innovation, we need "co-creative talent" that embody our purpose and values

To become a "Co-creative Chemical Company" that creates innovation and changes society with the power of chemistry, we need human resources that embody our purpose and values. In other words, we need "human resources that can innovate and solve problems creatively through co-creation founded on autonomous bonds with people inside and outside the company as we work to resolve social issues."

Based on the idea that employees have ownership of their own careers, we have prepared a variety of career paths and educational opportunities to fit each person's individual aspirations, and have launched various systems to support connections both inside and outside the company.

One of these is AHA!, a global award that all Resonac Group employees can submit preliminary entries to. In addition to workplaces, cross-organizational teams establish declarations of action based on our purpose and values, set targets and concrete initiatives based on these declarations, and submit entries themselves. At the subsequent judging events, entrants will talk about their experiences putting our values into practice in carrying out our initiatives. This will result in feelings of mutual understanding (harmony) among employees, thus contributing to co-creation that transcends various boundaries.

We are working to nurture co-creative human resources by introducing unique training programs, such as co-creative leadership training and training sessions to bolster the co-creative collaboration capabilities, so that a wide range of Resonac employees around the world can further realize their purpose as a team.

P19 / Letter from the CEO　P35 / Letter from the CHRO　P91 / Human Resource Strategies

Source of value — Diverse range of technologies and customer base that has been cultivated over many years held by Resonac

1 Problems are large, complex, and unknown — Changes in the external environment — 2 Changes in value

To create innovation and social value

"Co-creative talent" that embody our purpose and value is necessary

In the pursuit of resolving social issues, we will innovate and solve problems creatively through co-creation founded on autonomous bonds with people inside and outside the company

- **Passion** for solving social issues
- **Co-creation** across companies and departments
- **Leading change** with humility and persistence

Purpose: Change society through the power of chemistry

Values

- Passionate & Results-Driven
- Agile & Flexible
- Open Minds & Open Connections
- Solid Vision & Solid Integrity

A global award that leads to the development of co-creative talent

AHA!

Entry	Team exchange event	First screening	Final judging event	AHA! Meeting
January to February 2023	June	August	November	March 2024

The name of the award comes from our wish to realize co-creation that transcends boundaries, through creating feelings of mutual understanding (harmony) from Aha moments, which is created by learning about the activities of a wide range of teams and becoming inspired to do things that employees could not do or understand before.

*AHA!: Awards of Harmony, successor to the global awards held by former Showa Denko and former Hitachi Chemical.

POINT 01 Opportunities for personal growth

- Autonomously carry out activities
- Collaboration with various people, cross-departmental activities
- Find new friends
- Engage in activities from a new perspective

POINT 02 A connection of equals

- Interaction between entry teams
- A place you can promote your activities (work) to the people around you

How and Where?

We will establish a "place that fosters co-creation" with various stakeholders, and co-create cutting-edge technologies to help create a better society with a diverse range of people

A platform for open innovation, key to Resonac's R&D efforts

Stage for Co-creation

With an eye to solving social issues by listening to the needs of the world and the views of society, we established the Stage for Co-Creation (in Yokohama City, Kanagawa Prefecture). This venue serves as a platform for open innovation, which stands at the core of Resonac's R&D activities. We are integrating the organizations that house functions related to computational science, material analysis, mass production technology & facility management, and chemical safety management& evaluation, Resonac's areas of strength. In doing so, we aim to develop advanced technologies that can help create a better society through collaboration and co-creation with local communities, as well as with venture companies and universities inside and outside Japan.

P65 / R&D and Intellectual Property Strategies

Function as a central venue for R&D activities

Speed up R&D activities through the consolidation of R&D and research support functions in cutting-edge fields, and the creation of development methods that combine computational science and AI

×

A platform function that brings knowledge together

Create value by solving social issues through co-creation both inside and outside the company

- Collaboration with venture companies and universities
- Collaboration inside and outside the company
- Use of AI promotion functions and learning functions (VR equipment, etc.)
- Combination of global conference/training techniques

Launch of the Stage for Co-creation!

On April 4, 2023, Resonac held the Stage for Co-creation's opening ceremony. Executives, guests, and a number of employees involved in the Stage for Co-creation cut the ribbon and talked about their expectations for co-creation initiatives and their enthusiasm for working at the venue. Ahead of the full-scale opening in 2024, most of the development members will move in during 2023 and kick operations into gear.

P32 / Letter from the CTO

Taking on technological innovation for next-generation semiconductors together with other companies

Packaging Solution Center

In 2019, we established the Packaging Solution Center (Kawasaki City, Kanagawa Prefecture) with the aim of creating cutting-edge technologies that can handle increasingly complex and constantly evolving semiconductor packages. The center's greatest strength is its state-of-the-art equipment, which can be said to be on par with the semiconductor package manufacturing equipment used by semiconductor manufacturers. It enables the mounting, evaluation, and simulation of semiconductors themselves using materials for a variety of semiconductors. The ability to verify the entire manufacturing process greatly contributes to the improvement of material functionality and development speed. The center is open not only for use by Resonac, but also to a wide range of industries. We are taking on the challenge of solving issues faced in next-generation semiconductor manufacturing while interacting with other companies and universities. In addition, JOINT2 was established as a consortium consisting of 12 companies* that manufacture semiconductor equipment, materials, and substrates. JOINT2 is a project subsidized by NEDO, and is working to develop technologies for high-density mounting of next-generation semiconductors, such as through the mutual use of technologies and information. The combination of member companies' materials and technologies allows for the proposal of optimal one-stop solutions for customers.

P77 / Semiconductor and Electronic Materials

*Members: Ajinomoto Fine-Techno Co., Inc., C. Uyemura & Co., Ltd., EBARA CORPORATION, SHINKO ELECTRIC INDUSTRIES CO., LTD., Dai Nippon Printing Co., Ltd., DISCO Corporation, TOKYO OHKA KOGYO CO., LTD., NAMICS Corporation, Panasonic Connect Co., Ltd., MEC COMPANY LTD., Yamaha Robotics Holdings Co., Ltd., ORC MANUFACTURING CO., LTD.

Message from Professor Tadahiro Kuroda of the University of Tokyo Graduate School

Web

Although Japan's share of the global semiconductor wafer manufacturing market has declined in recent years, we still have the ability to compete on the global stage in the fields of semiconductor materials and manufacturing equipment. I am impressed that Resonac, one of the first Japanese companies to focus on the back-end processes of semiconductor manufacturing that possesses the latest equipment and an expansive network, has carved out a very good position for itself.

Now What?

Co-creation to solve various issues has been "started" and steadily advanced to realize the vision we want to be

Case 1 〉 A long-term R&D theme undertaken at the Stage for Co-creation that contributes to the next generation

Development of next-generation high-speed communications materials

In order to achieve next-generation high-speed communication (6G), a new semiconductor material that significantly reduces transmission loss is required to achieve a transmission speed 100 times that of 5G. With the aim of creating new materials for next-generation semiconductors used in 6G, Resonac is working with universities and venture companies to develop ceramics and interface control technologies for resins and fillers from scratch through material synthesis.

By utilizing the power of computational science from the molecular and material design stages, it is possible to verify as many as 90 types of combinations in the three months it previously required to verify a single combination.

Circular Economy; Plastic chemical recycling

In order to reduce the consumption of fossil resources, reduce CO_2 emissions, and eventually achieve carbon neutrality, we are taking on the challenge of establishing plastic chemical recycling, in which used plastics are decomposed, turned back into raw materials, and then used again to manufacture plastics.

Since 2022, we have been jointly developing technology with Microwave Chemical Co., Ltd., and in experiments using model samples of used plastics, we have succeeded in extracting raw material components such as ethylene and propylene with a yield of about 80%, reaching a certain point in establishing the basic technology. We are leveraging AI and computational science to elucidate the decomposition mechanism of plastics and investigate catalysts, which enables us to swiftly move forward with development.

Message from Microwave Chemical

When we were approached by Resonac, which was ahead of the times in launching a chemical recycling business, we were convinced that if we could combine our technology with Resonac's know-how, we would surely be able to create a new, one-of-a-kind chemical plastic recycling business in the world. We believe that the way both companies are always on equal terms and can exchange opinions freely has led to the acceleration of technology development.

Left: Mr. Kitani, Group Leader of Research and Development Department, Microwave Chemical Co., Ltd.
Right: Mr. Kameda, Manager of Business Development Dept. / Head of Chemical Recycling Business Div., Microwave Chemical Co., Ltd.

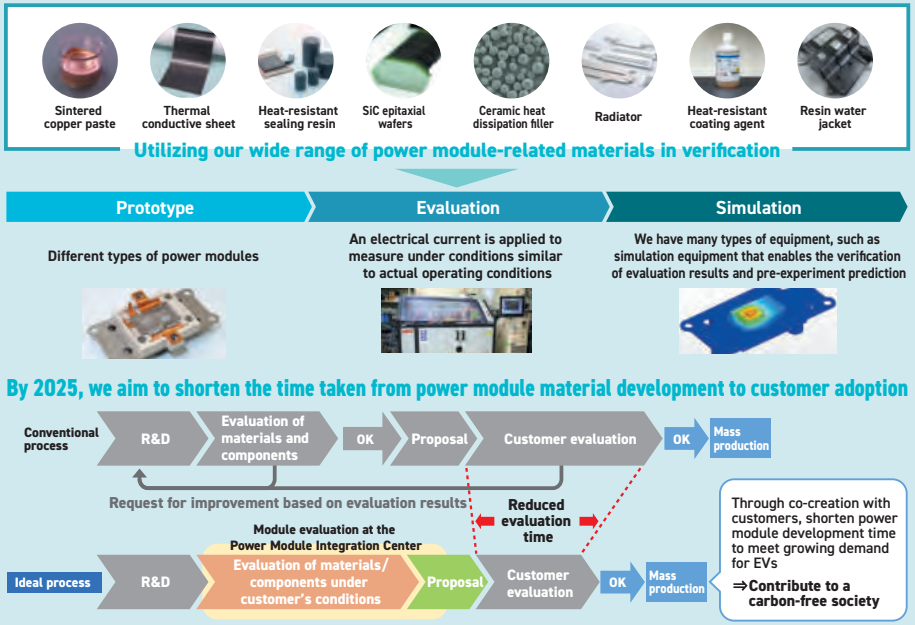
Case 2 〉 Starting co-creation with customers in the evaluation of power module materials

Web

The Power Module Integration Center (located at the Oyama Plant in Tochigi Prefecture) has started full-scale operations to strengthen the development of materials for power semiconductors, which are essential for vehicle electrification, and the power modules packaged with these semiconductors. As an organization that modularizes and evaluates a wide range of Resonac's power module-related materials, the center has utilized this technology to develop materials and speed up this process. Since 2023, we have been evaluating materials under conditions similar to those set by our customers, and sharing the verification details. In doing so, we provide technological innovation support as far back as customers' material development phases and help shorten the development time for power modules. In fact, there have already been cases where customers have successfully reduced the number of prototype evaluations by half. By 2025, we aim to establish a system for joint evaluations with customers and help shorten development times further.

We have also started carrying out value proposition activities for power module-related materials in the marketing process.

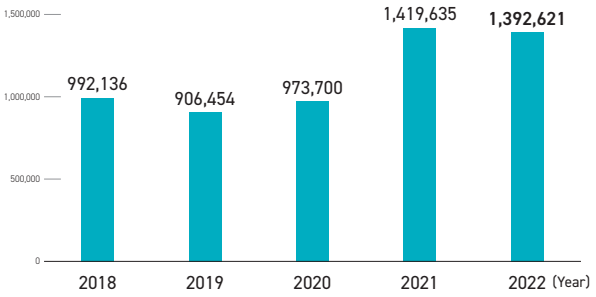
P70 / Marketing Activities in the Automotive Market



Financial and Nonfinancial Highlights

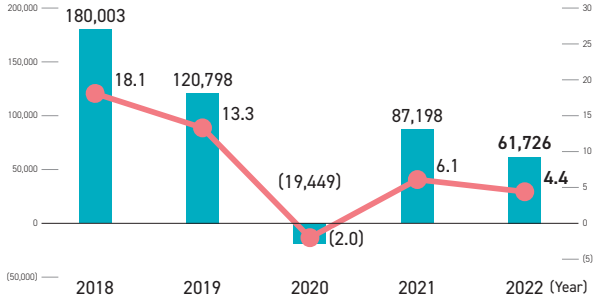
Figures include data for former Hitachi Chemicals after July 1, 2020.

Net sales (Millions of yen)



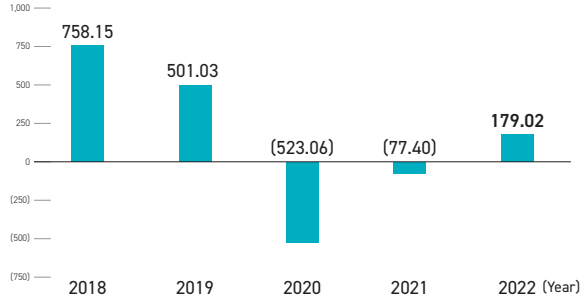
Businesses that Resonac will continue to operate saw a growth in net sales thanks to robust semiconductor demand, a recovery in automobile production, and higher selling prices. However, net sales fell overall due to the impact from the sale of multiple businesses in the previous fiscal year.

Operating income (Millions of yen)
Ratio of operating income (loss) to sales (%)



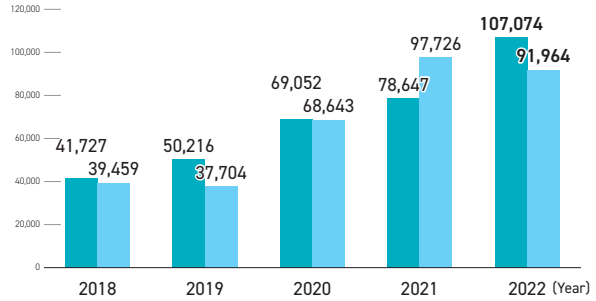
Operating income decreased, due partly to drags from the time lag at which soaring raw material costs were passed onto selling prices and from the sale of businesses. The above figures have been revised since the time of the earnings release due to changes in accounting policies.

Net income (loss) per share*1 (Yen)



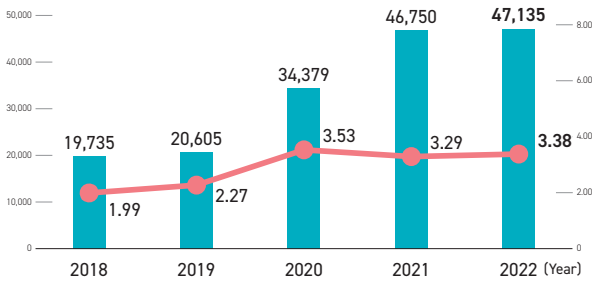
While hefty extraordinary losses were recorded in the previous fiscal year due to business restructuring, no such losses were booked in the current fiscal year, resulting in a move back into the black.

Capital expenditures (Millions of yen)
Depreciation and amortization (Millions of yen)



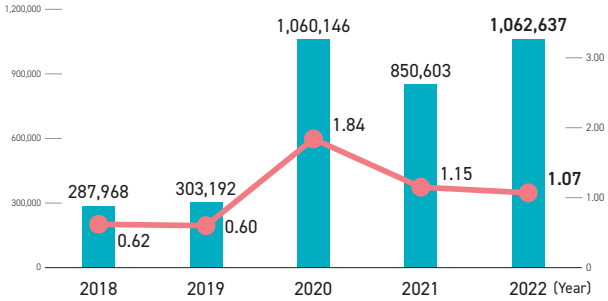
In line with the goals set in our long-term vision, we focused investments on boosting the production capacity of the Semiconductor and Electronic Materials segment, a Core Growth business.

R&D expenditures (Millions of yen)
Ratio of R&D expenditures to sales (%)



We are focusing efforts on R&D in a bid to swiftly create synergies from the integration of two companies that have been integrated.

Interest-bearing debt (Millions of yen)*2
Post-adjustment net debt/equity ratio (Times)*2



We raised funds through subordinated loans for the acquisition of preferred stock, which resulted in an increase in interest-bearing debt. As a result, interest expense increased while preferred stock dividends decreased.

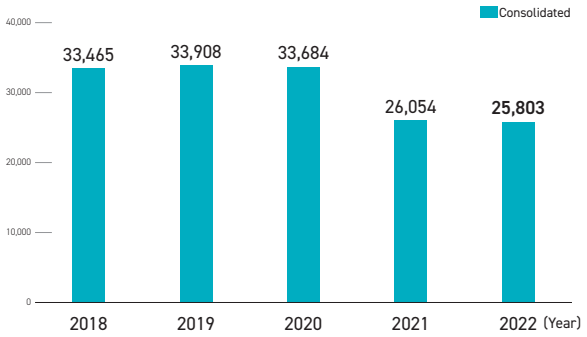
Our subsidiary former Hitachi Chemical (current Resonac Corporation) and its Japanese subsidiaries previously adopted the International Financial Reporting Standards (IFRS), but switched to Japanese Generally Accepted Accounting Principles (JGAAP) from fiscal 2023. This change has been applied retroactively and the figures for fiscal 2022 have been retroactively adjusted. Some of these retroactively adjusted figures include those that have not yet been audited.

*1 Net income (loss) per share has been computed based on the average number of shares of common stock outstanding during the respective fiscal year.

*2 From the third quarter of 2020, due to former Hitachi Chemical, becoming a consolidated subsidiary, the D/E ratio reflects the following situation: regarding preferred shares issued by HC Holdings K.K., a subsidiary, posted under non-controlling interests on the consolidated balance sheets, the value equivalent to 50% interest-bearing debt, net value is indicated after excluding cash and deposits and adding debt on lease. For determination of the 50/50 allocation for preferred shares in light of the characteristics of the capital structure is based on the rating of Japan Credit Rating Agency, dated April 21, 2020. This change in accounting standards for the D/E ratio from 2020 has been retroactively reflected in 2019 figures. Furthermore, in regards to the subordinated loans taken out in order to purchase preferred stock, 50% of this amount is deducted from interest-bearing debt and added to shareholders' equity. Determination of the 50/50 allocation for the subordinated loan in light of the characteristics of the capital structure is based on the rating of Japan Credit Rating Agency, dated October 4, 2022.

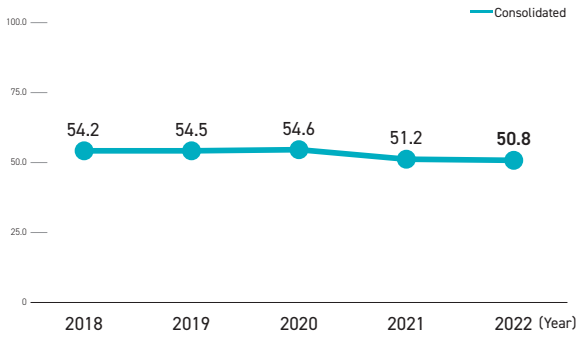
Financial and Nonfinancial Highlights

Number of employees (persons)



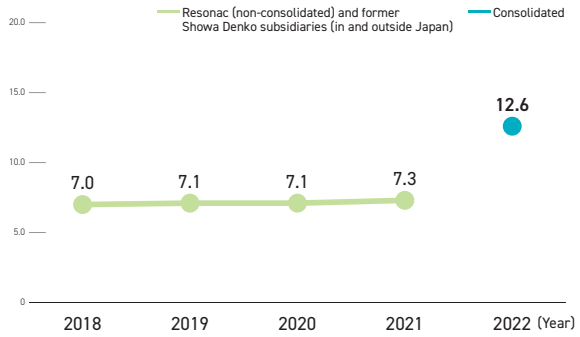
Former Hitachi Chemical joined the Showa Denko Group in 2020. We have been carrying out business portfolio restructuring, such as selling off the energy storage devices and systems business in 2021, and are working to optimize the allocation of employees.

Ratio of employees working outside Japan (%)



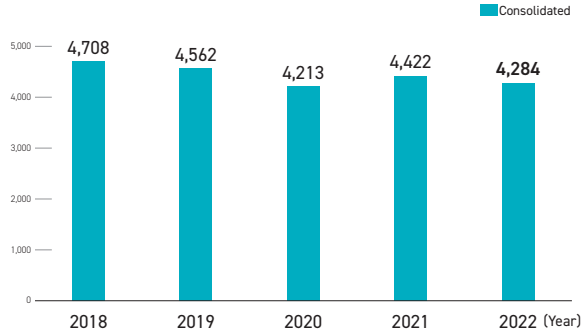
The sale of domestic and overseas plants and Group company businesses, carried out as part of business portfolio restructuring, has led to a change in the number of employees. See P10 for the number of employees by region.

Ratio of female managers (%)



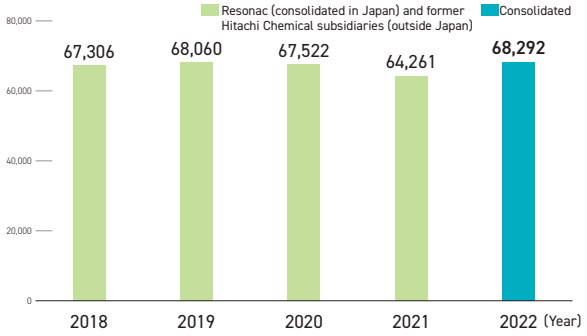
We aim to recruit and train employees without being influenced by nationality, gender, or other factors, and maximize the value of individuality within our organization by accepting the meaningful value brought by the unique and varying attributes of each person.

Greenhouse gas emissions (Scope1+Scope2; kt-CO_2)



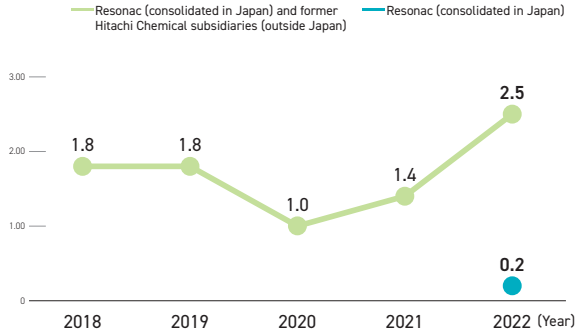
In a bid to reach our goal of becoming carbon neutral in 2050, we have set the target of a 30% reduction in greenhouse gas emissions in 2030 from the level of 2013. We are reviewing the medium- to long-term targets for each business, and are working to reduce our greenhouse gas emissions and promote energy saving.

Amount of water used (excluding seawater; thousand m^3)



The Resonac Group regards a shortage of water as a global issue and is working to make effective use of water and reduce its consumption. We also treat the water used in our activities to reduce its environmental impact before releasing it back into the environment.

Ratio of industrial waste sent to landfills (%)



We have set the target of achieving a ratio of industrial waste sent to landfills of 0.5% or less in Japan, and are working to reduce the amount of waste we produce and recycle and use our resources more efficiently. We also inspect our sub-contractors for intermediate treatment and final disposal of waste to confirm that they appropriately treat and dispose of our waste.

02 Where to Go —Leaders' Letters

What Resonac Aims for

What kind of vision do we aim for to change society,
what challenges do we face, and what transformations do we intend to bring about?
The passionate feelings of Resonac's management are conveyed in these messages.

19 —— Letter from the CEO
25 —— Letter from the CFO
29 —— Letter from the CSO
32 —— Letter from the CTO
35 —— Letter from the CHRO
37 —— Human Capital Management Dialogue
Collaboration between the CEO and CHRO Accelerates the Speed of Management
41 —— Team Takahashi: Aspirations for Human Resources Development
44 —— Team Takahashi—Excelling in Times of Change

Letter from the CEO

President and CEO

A startup with 26,000 employees! We are transforming ourselves ——for Resonac to "change society"

What I Want to Achieve at Resonac

In January 2023, Showa Denko and Hitachi Chemical were integrated to form the functional chemical manufacturer Resonac. This is often referred to as the second founding, and I rather consider myself as a founder. As the founder of a startup company with 26,000 employees, what I want to realize, as stated in our purpose, is to change society through the power of chemistry. It is true that the chemical industry has its lights and shadows. Chemistry has contributed to the development of industries and affluent lives by creating materials for products such as plastics, semiconductors, and electronic components, which are indispensable in our daily lives. The reason I am in the chemical industry is that I was fascinated by the potential of chemistry. On the other hand, chemistry has continued to damage the global environment, such as CO2 emissions and marine plastics.

I have two favorite books. One is "Free to Choose" by Milton Friedman, and the other is "Silent Spring" by Rachel Carson. While Friedman affirmed the pursuit of growth by companies in a survival-of-the-fittest capital market, Rachel Carson sounded the alarm about environmental pollution caused by chemical manufacturers. The economy and the environment, once considered to be a dichotomy, we are now seeking a balance under the keyword sustainability. That's why I believe we can change society through the power of chemistry in this era.

The reason I want to take the lead in changing society through the power of chemistry is driven by a strong sentiment. It is anger and introspection regarding the current state of Japan. I love both Japan and the Japanese people, but I wonder why Japan is always trailing behind the world in various fields, why many talented Japanese cannot compete on a global level, why Japan's GDP per capita is only half of Singapore. I feel frustration about these things and regret that I couldn't change this situation as a business leader. I want to create a world-class functional chemical manufacturer from Japan. I want to change the industry's conventional practice to achieve this. This is my desire and responsibility.

However, my aspirations can't be realized by my abilities alone. That's why we need to co-create with various companies, including competitors, and many stakeholders, innovate, and grow. For this to happen, Resonac first needs to change. The new company name "Resonac" was created by combining the word "resonate" and the "C" of "chemistry." As the name of our company suggests, we seriously want to transform society as a Co-creative Chemical Company.

Letter from the CEO

What We are Pursuing Now to Achieve this

A certain scale of business and high profitability are required to become a world-class functional chemical manufacturer. If we don't generate a good profit as a company, we cannot contribute to society or invest in innovation. To be a "good company," we first need to be a profitable company. For this reason, Resonac aims to achieve a 20% EBITDA margin by 2025, while maintaining net sales of ¥1 trillion.

What Resonac wants to achieve after becoming profitable is to bring innovation to society. Chemistry is the starting point of all industries. We definitely need the power of chemistry to bring innovation to society. We will pursue the power of chemistry for that purpose, and even if we acquire highly competitive technology and know-how through co-creation, we do not intend to keep them to ourselves at all. I believe that is our responsibility as a chemical company and the ideal form of a Co-creative Chemical Company.

For example, one of the important innovations that Resonac should bring about is reducing environmental load. We are currently taking various measures toward carbon neutrality, and of course, various chemical companies are innovating their own techniques and proceeding on their own paths. I believe that such efforts will reveal a winning strategy in the near future. Even if we can seize that winning strategy, I would like to make our technology and know-how open so that the entire industry can work on it.

> The Moyamoya Meeting is a symbolic initiative to maximize Resonac's corporate value.

There are three things Resonac should promote to change society through the power of chemistry. The first is human resource development and corporate culture change. This is the most important issue. The second is to refine material creation, in other words, to innovate materials that support the evolution of semiconductors and electronic components with as much added value as possible with the power of chemistry. The third is to maximize corporate value by effective business portfolio management easily understandable for shareholders and investors.

Development of Co-creative Human Resources and the Cultivation of Organizational Culture

The differentiating factor for corporate growth lies in whether the management team has the gustiness to carry out the strategy and whether the human resources to support it have been developed. As the CEO of Resonac, what I prioritize the most is the development of human resources to enhance individual capabilities and corporate culture change. I believe that achieving this will lead to the maximization of corporate value.

To enhance individual capabilities, we have established several training programs, such as training sessions to bolster the co-creative collaboration capabilities and co-creative leadership training. For the cultivation of organizational culture, employees frequently hold roundtables, town hall meetings, and Moyamoya Meetings at their workplaces. The Moyamoya Meeting is a symbolic initiative to maximize Resonac's corporate value, and it started this January. About 20 young employees gather and raise three things they are typically frustrated or concerned about, and I and CHRO Imai facilitate the discussion, encouraging open and frank dialogue. The important thing is not to set a theme in advance. Young employees always have something they are concerned about. This meeting is not about solving these concerns but an opportunity to think about how our Values can support them, and it's also a chance to bring young voices to the management team.

First, as the first round, we think about whether participants' concerns can be solved with our four Values, specifically, Passionate & Results-Driven, Agile & Flexible, Open Minds & Open Connections, and Solid Vision & Solid Integrity. The issues are grouped into categories: those that can be resolved by an individual, those that can be resolved collectively, and those that cannot be resolved through our Values. By going through this process, participants will understand how to use Values. In the second round, participants prioritize the concerns that can be resolved with Values in terms of effectiveness and importance and propose solutions to the plant managers present. Employees' concerns often get stopped at their immediate supervisors and tend not to easily reach the plant managers as the top management. Conversely, the plant managers also have the opportunity to hear directly from young employees. Additionally, if there are any obstacles that make it difficult for a plant manager to decide whether to adopt a solution, I can also remove those obstacles on the spot. While the purpose of the Moyamoya Meeting is to deepen understanding of Values, what I want to convey most is "enjoy your work and face things with a more open mind". I believe it's essential for me, as the CEO, to actively participate and contribute in these meetings in order to create an environment where we promote co-creation based upon our Values.

There are two keywords for co-creative human resources. One is co-creation, and the other is autonomy. Japanese people often operate efficiently within a vertical command system, following top-down directives, but there can sometimes be a lack of collaboration when it comes to lateral interactions. People who can navigate this are co-creative human resources. P35 / Letter from the CHRO

The portfolio strategy and human resources strategy must match in Resonac's human capital management. The portfolio strategy is to transform into a specialty chemical company. We must move from being a traditional diversified chemical manufacturer centered on petrochemicals to a functional specialty chemical company. In specialty chemicals, sales representatives listen to customer requests, and the development division purchases materials, produces prototypes, verifies them, and then proposes them to customers. This requires negotiation and communication skills. While it might seem obvious, in the traditional bulk chemical industry, this kind of careful alignment wasn't necessary. Instead, top-down commands were most important in petrochemical complexes to prevent accidents. Our company's shift toward specialty chemicals and developing co-creative, autonomous human resources are the two main drivers for maximizing corporate value, and this is the essence of Resonac's human capital management. P89 / Resonac's Human Capital Management

> **Shifting towards specialty chemicals and co-creative, autonomous human resources are the two key drivers for maximizing corporate value.**

The strength of Resonac's human capital management lies in the complete synchronization of the CEO and the CHRO, dedicating our all to it. Another strength I pride myself on is having a clear vision for the company 10 years from now. This is drawn from my experience at the General Electric Company (GE), where I used to work for. They were sharing values and fostering competition. Although there was a sense of tension, because values were shared, everyone was able to feel a sense of accomplishment when they succeeded. I strongly feel that I want to create that world.

I tell our employees, "I will provide everyone with an equal opportunity. Choosing your career path is up to you. It's not about work-life balance, but work-life choice." While the company offers you the opportunity to choose a way of living and working that makes yourself feel happy, don't think that you are unhappy because your way is different from others. Naturally, if profitability differs depending on the business

Letter from the CEO

division in which you are enrolled, you may be envious of the business division next door. That's why we offer job rotations and internal job postings. Since learning opportunities vary by business, you can experience various roles in sequence, promoting personal growth.

At this year's acceptance ceremony, I said, "I don't know what the industrial structure will look like 30 years from now, and I won't make any light promises about that future. Instead, I promise to turn you into individuals who can thrive anywhere." This, I believe, is the hallmark of a genuinely employee-friendly company, and I want to make Resonac a "dojo" - a place that trains individuals society needs.

Additionally, Resonac has adopted a Chief X Officer (CXO) system. We have 23 business units and approximately 100 plants and offices, each of which operates independently with diverse business management methods. The CXO system facilitates cross-functional roles for them. For instance, a person in charge of finance in a business unit reports not to general manager of the business unit, but to the CFO. Similarly, the CHRO serves as the supervisor of each business unit's personnel staff members. Finance and personnel representatives in each business unit, under the CFO and CHRO respectively, align with the policies of the headquarters while also acting as partners to general managers of business units. This organizational structure that emphasizes on horizontal connections can certainly be considered one of Resonac's growth engines.

> Reorganization to win in the field of semiconductors and electronic materials
> Reorganization needed in petrochemicals to avoid losing

Refining Materials Creation

Within chemistry, semiconductors and electronic materials are one of the fields where Resonac will be able to demonstrate its strengths. In the field of semiconductor materials, Japanese companies, including Resonac, have a dominant presence in the world. In order to improve the quality of functional materials used in semiconductor materials, it requires the iteration of a wide range of experiments – an area where persistent Japanese firms excel, building formidable industrial barriers. On the other hand, the petrochemical industry is difficult to demonstrate its competitiveness, and earnings tend to fluctuate, affected by market conditions such as crude oil prices. In that sense, in the field of semiconductors and electronic materials, reorganization is needed to win, while in the petrochemical industry, reorganization is needed to avoid losing."

At Resonac, synergies are gradually beginning to emerge between the strengths of the former Showa Denko and the former Hitachi Chemical. The fusion here is "Chemistry to Synthesize" of the former Showa Denko, which is strong in raw materials, and "Chemistry to Formulate" of the former Hitachi Chemical, which has a high market share in finished products for semiconductor manufacturers.

It is our strength that we can now address the performance requirements of semiconductor manufacturers comprehensively, going all the way back to resin materials. For example, we have a product called "copper-clad laminate" in printed wiring board materials, which holds the top market share globally. This product is manufactured by laminating copper foil, glass cloth, and resin, and the resin can be made from the molecular design level at the former Showa Denko. In addition, CMP slurry, the world's top market share product in the mixtures used for polishing semiconductor wafers, can also be manufactured from the molecular design level of the particles, since the former Showa Denko has ceramic business. Indeed, by merging the know-how and technologies of both companies, we have triggered a "chemical reaction" to produce products with even higher specifications. The integration is not something where results can be achieved overnight, but we believe it holds great upside potential for the future. P32 / Letter from the CTO

Maximizing corporate value by developing co-creative human resources and bringing innovation to society

Letter from the CEO

Building a Business Portfolio with a Focus on Shareholder and Investor Perspectives

In terms of portfolio strategy, we aim to transition from a traditional diversified chemical manufacturer centered on petrochemicals to a specialty chemical company that performs specific functions. To achieve this goal, we've been pushing for a transformation centered on profitability, positioning semiconductors and electronic materials as our core growth businesses, and have set a goal to increase their sales composition ratio from just over 30% to 45% by 2030. Growth should be achieved with this business. It is of utmost importance to continuously grow by developing quality materials successively without lagging behind the pace of our customers.

Meanwhile, we are currently reshuffling our portfolio, including selling off several businesses. For the petrochemical business, the focus is on increasing profit margins and safely operating the facilities. In the ceramics and resins business, the goal is to advance R&D and supply high-quality materials for semiconductors. If asked what corporate value means to me, it is the stock price. However, the stakeholder I spend the most time with is our employees. I publicly declare that the customer follows that. This does not mean that I take our shareholders and investors lightly. By investing my time in our employees and enhancing their engagement, and by building a strong relationship with our customers, I believe we can maximize our corporate value, leading to maximum returns for our shareholders and investors.

P25 / Letter from the CFO

Gaining Empathy from Shareholders and Investors

While we will thoroughly explain the changes in our business portfolio to our shareholders and investors, we will not announce them as a medium-term management plan because I don't see the point in setting numerical targets in the medium term. However, we will be sure to indicate the direction Resonac should take in the future, explain our non-financial KPIs based on materiality for sustainability and their progress, and the process we take toward them.

P25 / Letter from the CFO

The equity stories to persuade shareholders and investors are clear. They consist of the story of growing the semiconductor and electronic materials business and the story of preparing people and the organization for transformation. I want to clearly communicate to our shareholders and investors that we will endeavor to realize these two stories.

P73 / Semiconductor Materials Global Top Management Roundtable

The current stock price and PBR levels are far from the image of Resonac I envision for 10 years from now. However, as Resonac develops the ability to generate profits, and gains understanding from our investors and shareholders that it will be able to achieve long term growth through strengthened business portfolio, and for that goal it is developing human resources and fostering an organizational culture, I believe the stock price and PBR will gradually reflect these factors.

Recently, the number of long-term shareholders and investors who resonate with Resonac's story is undoubtedly increasing. We will continue to passionately tell the Resonac's story through proactive IR and SR activities.

We hope you will join us in our excitement about Resonac's mission to change society through the power of chemistry. We hope for your continued support in this endeavor.

Contributing to the Improvement of the Performance of the Japanese Economy

When I entered the workforce, it was the end of the bubble era, precisely when the Nikkei average hit its peak. Over the next 30 years or so, Japan's economic competitiveness gradually declined. As a result of the deflationary economy, Japan became so inefficient that it fell to the bottom of the OECD countries in terms of GDP per capita. Very recently, even the Nikkei average, which is said to be at its highest post-bubble value, has yet to surpass its peak level at the end of 1989. In the past 20 years, the average annual salary of workers in major countries has approximately doubled, but the average annual salary of Japanese workers has decreased.

Overcoming a number of challenges, Resonac takes a leap forward

I strongly feel that our generation of Japanese people has a responsibility for causing such a decline in Japan. I am driven by a strong sense of responsibility and frustration to put all my effort into breaking through this situation as long as our generation is involved in industry. The Japanese workforce in the chemical industry has about 900,000 people. Let's say that Resonac, with our 26,000 employees, took actions to break the vicious cycle of Japanese industry and as a result, was able to significantly enhance our corporate value. I have a wild dream that if we achieve this, through the chemical industry, customers, suppliers, and other workers and their families, about 10% of Japanese households, or 5 million households, will become vibrant, which in turn will help invigorate the Japanese economy as a whole. Concepts sprout from a strong wild dream. Once a wild dream becomes a concept, it can be articulated as a vision and turned into an action plan. Once you have a plan, all that's left is to put it into practice. I believe that Resonac's core business in semiconductors and electronic materials is a global treasure, and our long-term vision is the concept of taking this business to the next level.

Under this long-term vision of Resonac, I see my role as CFO in realizing the enhancement of Resonac's profitability and corporate value. Through my past experiences at investment

banks, extensive experience in the technology sector, serving as the CFO of a semiconductor business at an electronics manufacturer, and launching new businesses, I've learned many things such as the importance of replacing business portfolios, cash flow management, and having in-house pricing power, which is the key to improving profitability. While I am aware that our company currently faces challenges in both financial and business efficiency, I believe that by fully utilizing my past experiences, insights, and personal networks, we can resolve these issues one by one.

I describe the source of motivation as adrenaline. Given the various challenges our company faces now, I feel that my adrenaline levels are at their peak in my own history. I am committed to working every day with the determination to accomplish the reformation of Resonac at any cost and maximize the corporate value of Resonac.

P49 / Financial and Capital Strategies

Concentration of Resources on Resonac's Advanced Semiconductor Packaging Technology

The reason I believe our semiconductor materials business is a global treasure is that the semiconductor market is currently at a major turning point, and the next decade will be an era in which material manufacturers hold the key to further advancements in semiconductor performance. Until now, the improvement in the performance of semiconductor chips was based on the world of More Moore, in which miniaturization technology in semiconductor circuit formation (front-end process) has been the primary technology driver. In the world of More Moore, semiconductor equipment manufacturers and wafer manufacturers enjoyed the benefits. However, with the evident physical and cost limitations of miniaturization in the front-end process, it's said we have entered the era of More than Moore. In the world of More than Moore, we believe that our strong product lineup, which contributes to advanced packaging technology in the back-end process, will be essential for improving the added value of semiconductors. Resonac, as a material manufacturer, will not only provide the materials that semiconductor manufacturers, our customers, demand but will also draw and propose a roadmap for advanced packaging technology ourselves. In doing so, we can simultaneously further improve presence in our industry, strengthen our profitability, and enhance our corporate value. This is a clear growth story that only the Company can envision in the world. To realize this, the Company has decided to concentrate management resources on the semiconductor and electronic materials business.

To ensure the successful execution of Resonac's growth story, I have been moving forward with each measure by acting swiftly and with a strong will of my own since I became CFO. In our long-term vision, we have set a medium- to long-term ROIC target of 10%. Capital efficiency improvement is also a significant theme, and bold initiatives are required. Within the Company, we have introduced rules that will serve as a discipline for investment policies based on the portfolio attributes of each business to concentrate management resources on the semiconductor and electronic materials business, which has the potential to realize high profit margins. We will limit investments in Stable Earnings businesses within the limits of depreciation and amortization, and actively expand investments in growth businesses. We have also reformed our internal Investment Committee, which asks the owners of each investment project to go beyond analyzing the appropriateness of the investment from a numerical standpoint, and to ask whether they are prepared to achieve a reliable return on their investment, and to request a thorough discussion of the issue. I am the chairman of the Investment Committee, and members from a strategic perspective (CSO), engineering perspective (CMEO), risk management perspective (CRO), and technical strategy perspective (CTO) also participate, and we have in-depth discussions at each meeting. In some cases, multiple rounds of debate have been held at the Investment Committee, and I feel that we have a system in place for meaningful and serious discussions.

P52 / Strategic Allocation of Management Resources

In addition, I felt a strong discomfort at the end of 2021, shortly after I joined the Company, about cross-shareholdings that only generate only a return significantly lower than the cost of capital and can be considered dormant assets from the standpoint of capital efficiency. In the process of confirming the validity and necessity of the reasons for holding cross-shareholdings in each business division, for example, when the business organization claims that transactions with its customers are made possible by cross-shareholdings, I ask, "Do you really need to own stock to have a business relationship with them? If you want, I can make an appointment and go talk to your business partner." As a result, the mindset of the parties involved was reset, and company-wide activities to eliminate these cross-shareholdings accelerated. And as a result of the diligent negotiations by the business division members, we were able to almost reach a point where we could sell all of our cross-shareholdings.

P128 / Cross-Shareholdings

Overcoming Immediate Challenges in Pursuit of Our 2025 Targets

In order to ensure that Resonac will make great strides in the future, we must quickly overcome the challenges at hand. As CFO, I take seriously the fact that the financial results for fiscal 2023 will be severe, and we intend to take this opportunity to clean up the negative legacy of the past by removing the "pus" that has become visible in the current challenging business environment. It is necessary to promptly reform our earnings structures and accelerate our portfolio reforms.

In our core semiconductor and electronic materials business, due to sluggish demand for semiconductors and data centers, we foresee a significant decline in profit for fiscal 2023. This is the flip side of our decision to concentrate management resources largely on the semiconductor and electronic materials businesses, and in this sense, we somewhat expected the influence of the semiconductor cycle on the business structure and prepared for such circumstances. However, the semiconductor industry, which is essentially our customer base, serves a wide range of sectors like consumer goods, automotive, industrial, and data centers. Accordingly, we believe that by diversifying our customer base and applications, we can transform our business structure to one that targets more stable, higher growth. In addition, in the Mobility segment, the parts business for internal combustion engines has been affected by the market shrinking faster than anticipated, affecting our profits.

To address this situation, Resonac's policy is to undertake radical, unconventional actions and structural reforms based on an accurate understanding of demand projections and changes in the business environment, and we are determined to secure a performance recovery from fiscal 2024 onwards at any cost.

Our top priority for all business domains is to ensure that we provide appropriate added value to our customers through products that enable us to secure our standard marginal profit ratio, and to improve our business structure so that we can generate solid profits. In other words, accelerating the elimination of unprofitable businesses is of utmost importance. Eliminating unprofitable businesses is also key to achieving a 20% EBITDA margin in fiscal 2025, which is the focus of our long-term vision. In the mobility segment, 30% of sales are from unprofitable businesses, and other segments also have a fair share of such businesses. For each unprofitable business division, we have set milestones for cost-cutting strategies such as substantial price increases, and we have defined policies and action plans to downsize or withdraw businesses that cannot improve profitability within the specified period and are monitoring them quarterly.

P50 / Elimination of Unprofitable Products

It was also necessary to change the mindset of our business divisions' employees towards prioritizing profit margins, even at the cost of reduced sales. Accordingly, in our long-term vision set three years ago, we lowered the sales target for 2025 of 1.6 trillion yen, signaling our intent to prioritize the eradication of unprofitable businesses and enhancement of profitability, and we have revised our sights to maintaining sales of 1 trillion yen or more. While some measures require approval from our customers and can be time-consuming, we are already making progress, and the effects are gradually becoming apparent. In cases where it is difficult for a business division to reach an agreement with the customer alone, I personally step into negotiations with the customer.

On the other hand, in conversations with our shareholders, some express concerns that we might be allocating too much management resource to solving our businesses facing challenges. They point out that this could mean fewer resources for growth investments or considerations of alliances and acquisitions in the semiconductor materials field, potentially posing a significant risk. Certainly, it's true that we are currently investing a lot of resources into businesses facing challenges. However, as mentioned earlier, we are continuously monitoring and gathering information about potential alliance targets, including opportunities in the semiconductor material industry and capital expenditures in growth areas discussed in the Investment Committee, and this includes listing potential companies in long and short lists. While working on our businesses facing challenges., we also actively consider discontinuous growth and acquisition opportunities in collaboration with CSO Tomomitsu Maoka to consider them in a timely manner.

For the Development of the Future Generation Supporting Resonac and a Sustainable CFO Organization

Each of the initiatives to improve profitability and corporate value I am sharing with you, are by no means something that only I can think of, but rather measures and ideas that may not be common knowledge in our company or in the chemical industry, but are commonplace in other industries. We are currently in an intense period of change, and as someone who has come from outside, I'm leading the charge. However, in order for Resonac to continue to grow in the future, it is essential to build a stronger CFO organization, develop the generation that will lead the company in the future, and foster a culture in which people can demonstrate their values.

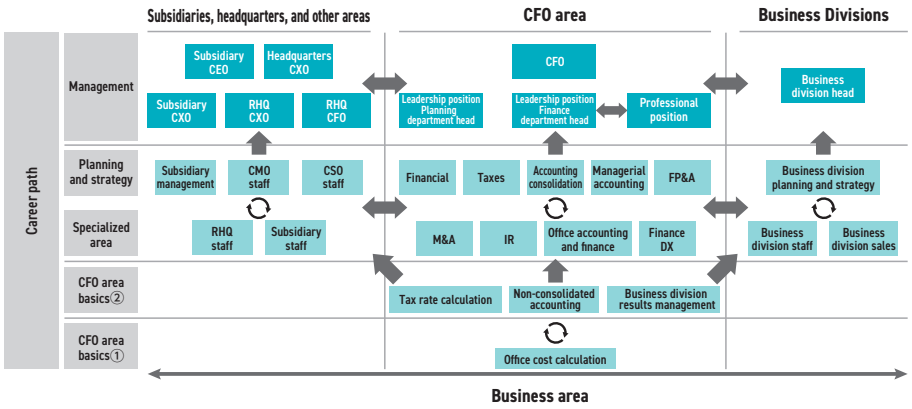
In terms of the organization, I have been transforming the way the CFO organization operates since taking my position. Firstly, I transferred teams responsible for budgeting, medium-term management planning, and M&A considerations, which were previously under Resonac's strategy divisions, to be under my direct control in the CFO organization. I have strongly advocated for a reform of the CFO organization mission and transformed our CFO organization, which

had previously focused on supporting strategy, into an organization that can also lead strategic decisions. Additionally, over 150 accounting members, who were affiliated with individual business units, were restructured to be under the CFO organization, rather than remaining affiliated with their respective business units. By doing this, we have been able to promote cross-divisional perspectives, and advance task standardization and human resource development from a Group-wide viewpoint rather than a strongly siloed mindset.

In terms of human resource development, I have placed a specialist dedicated to human resource development directly under me. We have introduced systems unique to the CFO organization, such as department-wide job rotations and career planning, and this includes accounting members from individual business units. While we have many promising young employees in our company, many had difficulty visualizing themselves as career owners, and it has become customary for them to work in the same department for long periods of time. I've been promoting a system where you create your own career in order to transform the mindset of each member of the CFO organization. At the end of last year, I personally explained using several career tree examples, and together we discussed possible future career plans for all members of the CFO organization. Following that, we conducted career interviews with all employees for each department at the beginning of this year, and the results show that each individual, especially younger employees, is becoming much more motivated.

In addition, last year we started an in-house MBA program called *Some Lab*. For this program, I myself served as a lecturer, and the program consisted of about half practical case studies based on my own experience and half lectures by university professors. In the end, each group was asked to formulate and present a strategic proposal to Resonac.

CFO area career tree



Following last year's first phase, in which participants were selected from the CFO organization, this fiscal year's second phase had participants from other CXO organizations and business divisions as well and even through the Some Lab, I strongly feel the motivation of our employees has increased. I will use my time generously so as not to let that fire of motivation die out, and I cannot wait to nurture the younger members.

To our stakeholders

I would like to reiterate that the Company has a clear story for future growth. Since last year, we have been focusing on IR activities to convey what kind of company we want Resonac to be seen as. As a result, global institutional investors with long-term holding (long-only) who empathize with our growth story and transformation story have been increasing as top shareholders.

However, at the same time, the current stock price and PBR of Resonac still show a small conglomerate discount. We are aware that the Company is not yet fully trusted by all investors. To gain further trust from our investors in the future, it's essential to ensure our scenarios are executed and promises with our investors are kept, and deliver solid results in terms of business performance. We are strongly aware of this part of our daily transformation.

Lastly, I want to mention three reasons why I believe Resonac will surely leap forward. The first is that the Company has the ability to develop semiconductors and electronic materials, which can be said to be the world's treasure, and above all, I personally have a passionate desire to achieve growth. As CFO, I want to take action myself and support the Company in continuing to be at the forefront of the semiconductor industry, focusing on the evolution of advanced packages. The second is the quality of CEO Hidehito Takahashi as a president. I believe that Mr. Takahashi will become a president that is representative of the Japanese manufacturing industry. As a key member of Team Takahashi, while committing to the complete execution of various management policies, I strongly hope that Team Takahashi can bring about a reformation in Japanese companies that will lead to improved performance not only at Resonac, but also in the Japanese economy as a whole, which has lost its vitality. The third is the power of human resources. We are committed to human resource development across the entire company, and within the CFO organization, we passionately focus on human resource development, striving to unlock individual awareness and potential in an aim to drive transformation into a Co-creative Chemical Company, ultimately enhancing corporate value.

We hope that you watch Resonac's growth, as a company genuinely dedicated to changing society through the power of chemistry.

Letter from the CSO

Tomomitsu Maoka
Chief Strategy Officer (CSO)

Maximizing corporate value through strategic intelligence

Materials Manufacturers Pressed to Transform to Compete on the World Stage

I joined the former Showa Denko in October 2021, and with the launch of the new system in January 2022, I took on the role of CSO. The role of the CSO is to define what needs to be done to become a world-class functional chemical manufacturer and broadly promote the purpose of the integrated new company to change society through the power of chemistry.

With the full integration of former Showa Denko and former Hitachi Chemical, the scale of the Company has grown significantly. However, just because of this integration, the fundamental essence of the Company does not change immediately. To compete as a global company in the global market, not only the size but the content and quality must also change. To make Resonac a world-class functional chemical manufacturer, we need to identify any gaps with the world and chart a course to close those gaps through means such as reviewing our business portfolio, establishing a competitive business model, strengthening partnerships inside and outside the company, and reforming organizational operations.

This gap was not something that only became apparent after the integration. Looking at the history of the semiconductor and electronic materials industry, which we position as our core business, it is evident that Resonac must change.

I have built up my career at foreign-owned consulting firms, semiconductor and PC manufacturers, and Japanese semiconductor manufacturers. During this time, I witnessed the decline of Japan's high-tech industry firsthand. Particularly in the semiconductor device industry, manufacturers are constantly merging, especially in the U.S., and I believed that the effects of this industry reorganization, such as negotiation power between customers and suppliers and technological concentration, would undoubtedly impact the surrounding ecosystem. However, I did not see any signs of this in the adjacent semiconductor materials industry,

and I wondered why, even though it should be compelled to transform as an industry to compete globally.

Then, at the end of 2019, news came of the merger between Showa Denko and Hitachi Chemical. I thought, "It's finally here; it's beginning." Later, I met the current CEO Hidehito Takahashi, and felt confident that our visions aligned. Driven by the desire to create a company that could compete globally, I decided to join. I was convinced that I could demonstrate my abilities in this environment precisely because of the merger with Hitachi Chemical.

Concept of the Strategic Intelligence Required

The key to our strategy is to transfer our technology and potential to the value of the actual applications in which our products are used.

The former Showa Denko had expertise in changing the physical properties of materials, having strengths in the upstream of the material supply chain. Meanwhile, the former Hitachi Chemical had strengths in the downstream, combining materials to create functions and offering them to customers. Being able to integrate material development and its combinations internally expands the options for optimizing product functionality. Moreover, understanding the downstream applications more profoundly allows us to direct development resources in a direction where added value increases. Understanding the entire supply chain is crucial in building a business model as it bridges the gap between the buyer's value standards and the provider's logic.

Regarding overall optimization as a company, until now there were business strategies for individual business units, but a comprehensive Companywide strategy had not been fully laid out. What was previously called a Companywide strategy was a bundle of individual business strategies with a simple addition of numerical aspects. To maximize growth and profit Companywide, it is necessary to intentionally decide which businesses to expand and which not to. For this reason, we've emphasized distinctions among business units, meaning we've clearly determined variations in the allocation of company resources across different business units. P52 / Strategic Allocation of Management Resources

In portfolio construction, we will focus our resources on the Semiconductor and Electronic Materials segment as our Core Growth business. At the same time, for products that cannot be expected to generate a certain level of profit on a regular basis, we will consider price increases or withdrawals and make business decisions accordingly.

I believe it is essential to incorporate the concept of strategic intelligence to execute this strategy. We will analyze and process intelligence obtained from internal and external sources and utilize it for strategy. At the same time, it's also essential for the Company to proactively disseminate information.

As part of such efforts, we've set up a governmental liaison office directly under the Corporate Planning Department and started its operation. Semiconductors are a business that is very sensitive to geopolitical factors. It's clear from last year's supply chain disruptions that situations arise that can't be resolved with just private company measures. However, despite our presence in the semiconductor materials market, we lacked the ability to consolidate our various government contacts and build stable relationships. For this reason, we have established a function to strengthen our connections with government agencies and to accumulate the knowledge and experience generated as a result on a regular basis as an organization. P73 / Semiconductor Materials Global Top Management Roundtable

Scenario Planning for Intelligence Enhancement and Establishment of RHQ

Furthermore, we're also engaging in scenario planning to probe the potential impact of geopolitical risks in the future. Scenario planning involves constructing various scenarios from both long-term and short-term perspectives within teams. We estimate a wide range of impacts in terms of business impact and risk without bias, even for events deemed unlikely. We actually intentionally examine even those events seen as having a low likelihood of occurrence.

The essence of scenario planning is to prepare management for unforeseen events by conducting thought experiments on events that are not considered as an extension of daily operations, such as the costs and methods of response to anticipated impacts. An urgent issue was the impact on business from Russia's invasion of Ukraine last year. In the semiconductor field, the effects of U.S.-China decoupling are already apparent, and we expect these effects to continue.

Although the scenario planning thought process is becoming widely known, few companies incorporate it as a regular activity. These efforts are essential for our long-term strategy of being a company that can compete on the world stage, and one of the ways we are further accelerating this strategy is by strengthening our regional headquarters (RHQ).

The background for establishing RHQs is the decentralization and diversification of business environments in each country and region in terms of laws, regulations, and business

practices. Rather than only controlling each region directly from Japan, it is also necessary to coordinate with each region's unique business environment to find the optimal relationship. For this reason, we have set up four RHQs: in San Jose, U.S. as our North American base, in Wiesbaden in Germany as our European base, in Shanghai as our Chinese base, and in Singapore as our Southeast Asian base.

We are building a chain of command between Japan and each region, customizing operational policies in each region, and strengthening support in corporate functions. Additionally, based on the information from the RHQ, we will clarify how the headquarters will make decisions, or how the RHQ will make judgments promptly, establishing clear distinctions between their roles.

Positioning Sustainability at the Core of Management

Last year, the Company established three issues of materiality for sustainability as crucial management issues to ensure sustainable growth together with society. At the same time, we announced both internally and externally the policy that sustainability is at the core of management. This means that whether it's a Companywide strategy or a management strategy, both exist to support the realization of materiality. Realizing materiality is the key to achieving our management strategy and long-term vision.

We launched the monthly Sustainability Promotion Council last year as a mechanism to realize materiality. The council is attended by all CXOs and business unit heads also participate once every three months. We have defined sustainability as a central issue that top management must decide upon, and a system has been established to discuss and make decisions on a wide range of issues, including carbon neutrality and human rights, within the Sustainability Promotion Council. We have set nonfinancial KPIs at the Companywide level based on materiality and discuss initiatives to implement them. P55 / Promoting Sustainability

Achieving sustainability requires Companywide involvement. We have added sustainability items to the performance evaluations of all CXOs and business unit heads from this year.

Bringing the Resonac Brand of Functional Chemicals to the World

The company Resonac was born in January 2023. It was our second foundation. We have changed our company name from Showa Denko to Resonac, shifted from a diversified chemical company to a functional chemical company, and we want to convey to everyone around the world that our innovative management team is implementing company reforms. We are building our brand strategy based on this sentiment.

To be honest, although the name Showa Denko was somewhat known, many people didn't know what the company did. To prevent this from happening for Resonac, we must communicate effectively that we are a global functional chemical manufacturer and that we are strong in semiconductors and electronic materials. By strengthening the brand power of Resonac, we hope to boost employee pride, gain widespread recognition in society, and attract human resources who can compete globally. This will contribute to improving corporate value.

The field we will be competing in is the world, and we need to respond quickly. In the future, there will be fewer and fewer things that can be solved by a single company. In order to deepen collaboration both within and outside the semiconductor industry, we will put even more effort into digitalization and globalization in our brand strategy.

Now That We Have the Resources, We Need to Win in the World

A year and a half has passed since a new system was established through the substantive integration and I joined as CSO. In the midst of various matters related to the integration, I have played the role of a compass. Even if it was sometimes unpleasant to hear, we have always looked at the medium- to long-term and responded as a team.

From my own experience, it's rare for a company of this size to make decisions and act with such speed. I believe that I am able to exercise leadership because I am an outsider. I want to be the catalyst for innovation by looking at the Company objectively, based on my career experience developed outside of Resonac.

Resonac now has everything it needs to compete: human resources, technological capabilities, system, and strategy. I feel that resisting decline and aiming to win is a great motivation, and it's an admirable thing. I don't want to see any more Japanese companies lose, and I don't feel like Resonac, which has all these resources, will lose. We hope for your continued support for Resonac competing on the world stage.

Letter from the CTO

Masato Fukushima
Chief Technology Officer (CTO)

The Job of the CTO is to Bring the Future Toward Us

I assumed the position of CTO at the birth of the new Resonac. The CTO is a technical specialist in the Company's CXO structure, and the highest position of engineers for a typical manufacturer, but that role is evolving for Resonac today. For example, I come from the hard disk media business of the former Showa Denko, so I don't understand every aspect of technology, especially when compared to frontline employees. This is even more the case for the former Hitachi Chemical. So, what does a CTO do? I see the CTO's role as pointing the direction where Resonac should go from a technical point of view, or bringing the future toward us.

Resonac launches
—Creating an exciting future through dialogue and co-creation!

Since the industrial revolution, manufacturers following a self-sufficient policy under capitalism and consumer-based economy have invested capital in technological development to produce goods and earn returns from society. The primary role of CTOs back then was to refine technology as a weapon and unite the engineers. Now that the foundational notion is crumbling, it is also important to point in the direction of technology that is good for the Earth and what employees can be proud of. To do so, there are limits to thinking only by yourself and an overview of technology is essential. That's the ability that "brings the future toward us", which a CTO should demonstrate.

A Ceaseless Sense of Urgency—If We Don't Change, We'll Decline

I've always thought that if we don't change, we'll decline. Perhaps change may be the only way to even maintain the status quo. I see this integration as a very positive opportunity to incorporate new ways of thinking. Of course, change can be extremely stressful, but we must and will change, even to the point of renaming our company. If we can't overcome this, we won't remain a company that people around the world will support for the next 100 years. That's why I believe we must be people who can enjoy change.

The hard disk media business, which I had been a part of for many years, began about 40 years ago and has continued to expand. However, during this time, the number of equipment manufacturers, material manufacturers, and customers has decreased. Surviving this competition is a testament to our success, and there's potential for further growth with new technologies. However, it is true that both the technology and the market are saturated, and the increased scale means less room for error, making it harder to take on the challenges of new technologies or customer needs. Generations that experienced growth and failures see things differently than those who joined after the company scale expanded, and I am contemplating how to share those perspectives and create spaces where failures are allowed, for instance by using strategic personnel rotations as an alternative.

The Dialogue Triggered by the Integration Creates Synergy

This integration, combining two companies each with a 100-year history, is quite challenging. However, in the field of R&D, I feel that the straightforwardness that engineers from both companies show to customers is very similar. Yet, the ways they fight against challenges differ. The former Showa Denko has a strong belief in chemistry as the seed of industry. It has a strong sense of being upstream in the value chain as a technological culture, with a history of seeking electricity and building businesses based on electrochemical engineering. For this reason, it is good at making and improving what it wants to make with the equipment it designed, and the relationship between its manufacturing equipment and processes is unique. Meanwhile, the former Hitachi Chemical is located downstream, relatively close to the end consumers, and is very skilled at understanding needs and mixing various materials to create new functions.

After two years of trial and error since the decision was made to integrate the two companies, we have come to know each other and have begun a dialogue about how we can bring their different strengths together to create products that can be used in a certain way, given their different technologies. For example, when a petrochemical business engineer from the former Showa Denko develops a catalyst that is a key technology, an engineer from the former Hitachi Chemical will consider it and try to apply it in another business. For another example, if a midstream and downstream resin developer who asks, "Is there a resin like this?," gets to understand the upstream production technology, it will be possible to come up with ideas such as, "If we improve the manufacturing equipment in this way, we can make it," or "If we redesign the raw material itself, it can express new functions like this." We have this way of creating synergies, and we would like to create a mechanism to maximize the expression of such synergies. P65 / R&D and Intellectual Property Strategies

Accelerating Open Innovation by Promoting Dialogue Through the Stage for Co-creation

P15 / What is a Co-creative Chemical Company?

Regarding open innovation not only internally but also with external parties, in 2017 we conceived the concept of providing a venue where diverse people can gather for the creation of new pipelines, and in 2022 we promoted this concept mainly through the Stage for Co-creation that was established in Yokohama. Not bound by conventional methods, the Stage for Co-creation is positioned as a place to explore new initiatives. Under the direct supervision of the CTO, Resonac is pursuing R&D themes that aim to "change society" as long-term R&D, and it is also working on enriching the technology database and establishing coaching and mentoring systems as platforms to achieve this goal.

The situation for the Stage for Co-creation has changed dramatically in the six years since the concept was created. I believe that we must conduct a grand experiment on this Stage for Co-creation. One of our long-term R&D efforts is the development of next-generation high-speed communications materials with an eye toward 6G (Beyond 5G). In a 6G world, although the frequency band used will exceed 100 giga, materials that can be used in that frequency band do not exist today. We would like to integrate upstream and midstream technologies to provide world-class composite materials in the 6G domain, and provide essential technologies for the coming society. We are also working to develop innovative technologies to achieve carbon neutrality. Aiming for the "carbon resource recycling" of basic chemical products, we are taking on the challenge of developing waste plastic-to-olefin recycling technologies in the plastic chemical recycling process, which involves collecting waste plastics and turning them back into raw materials. Currently, we are pursuing open innovation with partner companies. We are also working with our petrochemical business on CO_2 separation, capturing and use initiatives as a method to develop technologies to replace fossil fuels. Ideas for such efforts stem from a love for our children and grandchildren, serving as motivation for engineers.

This development requires understanding what customers and various other stakeholders are currently contemplating and what they wish to achieve next, and jointly brainstorming newer perspectives, materials, and processes. Pursuing immediate R&D too much often leads one astray from the actual intentions of the customers or the market trend. Under

such circumstances, we must pause, verify the direction of the chosen research with stakeholders such as customers or partner companies, and then determine the best path to the future that we should be working toward. Furthermore, the challenge lies in how we can transform the material and chemical industries, which have traditionally been required in the society where massive consumption of chemicals has been a premise. The Stage for Co-creation going forward must be a venue where we will consider such issues from a broad perspective, while technological trials and errors are continuously undertaken with an eye toward the next 100 years.

Achieving Further Acceleration Through the Use of Materials Informatics

The changes as a result of the integration are not limited to the organizational culture, business portfolio, and human resources. The forms of open innovation, as well as the levels and nature of computational and information sciences, are also evolving.

Materials informatics is a method that statistically processes how materials are combined to create what kind of product, predictively determines combinations of materials and manufacturing conditions that satisfy required functions, thereby significantly streamlines and expedites development. In process manufacturing industries that utilize chemicals and petroleum as raw materials like the Company, the application of this method is expanding, and I believe an era when engineers and customers routinely use computational science and information science is quickly approaching. For this reason, customization tailored to specific needs will be important. While achieving this is highly challenging, members of our Research Center for Computational Science and Informatics are striving to achieve it by understanding the aspirations of their customers (internal users). Members who have been envisioning the future and creating internal networks of partners since about a decade ago, when there were even no budgets, are now leaders, and they're deepening dialogues within our company and the market and generating businesses with young engineers.

Having a diverse range of businesses has a major positive effect on the acceleration of our R&D. In the market, our product portfolio ranges from petrochemicals and basic chemical products to semiconductor material products, as well as materials like resins, metals, and ceramics, and the combinations of these materials are endless. In some cases, answers that might take a century of experimentation can be produced in a few minutes to hours with this method. In addition, the evolution of materials supporting *monozukuri* (manufacturing) not only drastically enhances performance but also enables the creation of new applications.

Becoming Engineers Who Take Pride in Changing Society Through the Power of Chemistry

It is important to realize that the starting point is the engineer. For example, take the concept of carbon neutrality. Up until now, there's been a tendency not to be open about the progress of one's own technology. However, in an environment where no one knows if what we're doing is 100% correct, sharing information and using technology collectively would actually be a better option. This is even more so if everyone has the same goal of helping the Earth. Of course, to continue research sustainably, pursuing profit is necessary, and the balance is not easy to achieve. However, this may be solved by considering intellectual property strategies and new forms of alliances.

For this reason, engineers must think autonomously and go beyond their own boundaries. When in doubt, our purpose and values are where we return to. We are also further increasing opportunities for dialogue within our research centers, discussing how to specifically interpret them from technological development perspectives.

Engineers are people who can't help but enjoy testing hypotheses based on their own ideas and insights. And of course, engineers want to win and succeed after all. However, R&D is a series of uncertainties. In order for such people to realize our purpose to "Change society through the power of chemistry," it would be necessary as the first step to ensure that what they create brings joy to customers and the market, and that if that leads to profit, research and development budget might eventually increase, leading to desired research opportunities. Another necessary aspect is the pride in knowing that the technology engineers contributed to is protecting the Earth and guiding it in a better direction. P62 / CTO Roundtable with Young Researchers

To this end, diverse career paths for researchers and engineers are desired. Although I spent most of my career in development field in business unit , I also experienced being General manager of Marketing Department before becoming General Manager of Production & Technology Control Department. In the future, R&D theme leaders might even come from marketing backgrounds.

Heading Toward an Uncertain But Exciting Future

Lastly, let's consider why Resonac needs a CTO like me today. Firstly, I already have a blueprint of what we are going to do in the future. I know the approach, having always aimed to compete globally and having continued "co-creative" R&D. Having regrettably experienced a significant restructuring during my time in business unit, I also understand how game-changing technologies emerge, how customers utilize them to innovate, and the pace of that change. Secondly, I possess decision-making skills developed amidst rapid changes.

My other qualities are a certain confidence and generosity. Join me aboard the Spaceship Earth proposed by thinker Fuller and admired by Steve Jobs, and move together toward a bright, positive, and uncertain but exciting future!

Letter from the CHRO

Nori Imai Chief Human Resource Officer (CHRO)

People drive business growth

We focus on developing co-creative talent who can change society

Resonac's Human Capital Management

Our portfolio strategy is to become a functional chemical manufacturer that can compete and co-create globally. The value of a functional chemical manufacturer is not just selling chemical products but providing functions that customers and society demand (such as maintaining high adhesion even with ultra-thin films). A broad technology platform is necessary to create such functions, and by integrating the former Showa Denko and the former Hitachi Chemical, we have built a broad technology platform, both organic and inorganic. Using this platform as a starting point, we aim to combine technologies in unconventional ways through collaboration and co-creation with stakeholders, primarily customers, and provide new functions, which are achieved by "co-creative talent"[*1]. Our human resource strategy is to create co-creative talent, and Resonac's human capital management aligns our management and business strategies with our human resource strategies.

P37 / Human Capital Management Dialogue P89 / Resonac's Human Capital Management

Key Issues and Initiatives in Human Resource Strategies

We aim to grow as a functional chemical manufacturer through co-creative talent, and we have identified four categories of human resources issues as key focus area in our strategies, and set as "HR Materiality". KGI/KPI targets for 2030 have been set for each material issue. In the two years from 2023, we will launch an initiative as "the start of co-creative talent development", and we aim to "deepen and establish a co-creation culture in the Group" by 2025. We have set the goal for 2030 as "making a leap forward to a co-creative chemical company that can compete on a global level", aiming to establish uniform human capital management globally.

We are currently focusing on the following three key measures.

The first is the creation of a corporate culture. Creating an environment in which all Group employees can eliminate unconscious bias and maintain psychological safety is first of all an important foundation for each individual to achieve their own potential. We then aim to cultivate a culture that promotes the activities of co-creative talent who autonomously connect laterally based on purpose and values to drive projects with passion and ambition. For example, the global award AHA! is one of the leading initiatives to generate co-creation. While the demonstration of values has been incorporated into personnel evaluations, we also want to encourage and praise people who practice these values from a different perspective. By sharing each initiative with all global employees, we aim to foster co-creation beyond boundaries and create a culture of mutual growth and refinement. We have therefore carried over and restarted the global awards previously held by both the former Showa Denko and Hitachi Chemical.

The second measure is the provision of growth opportunities. We view Resonac as a "management training ground ," with a diverse range of businesses in different industries and stages. Experiencing different phases of business through strategic rotations significantly broadens one's perspective and enhances one's adaptability. I always say that "If you're uncertain about your career, choose the harder path." This is because it increases the experience. In the age of VUCA, growth is less about acquiring knowledge and skills, but

*1 Co-creative talent: " People who embody 'Purpose and Values (see P.03),'" as talent who can "autonomously connect with others beyond companies and departments with empathy and resonance, leading creative transformation and problem-solving through co-creation."

more about first doing, gaining insights from such experiences, and then connecting it to the next action. Therefore, based on the idea that each and every employee is the owner of their career, we also have an internal recruitment system that contributes to autonomous career development.

The third measure is to provide learning opportunities to logically support growth obtained from experience. We have prepared unique training programs tailored to our human resource strategies, such as co-creative leadership training where one learns the leadership skills needed to develop subordinates, and training sessions to bolster the co-creative collaboration capabilities, which teaches methods required to lead co-creation beyond departments, without relying on organizational hierarchy. In addition, we are conscious of training that focuses on the individuality and strengths of each employee, and we have adopted the FFS theory[*2] and competency assessment training.

We will gradually expand these personnel measures starting from senior-level managers, including officers, and roll them out to all employees. Although the penetration of the Company's purpose and values among employees has started to show results, it may take about 10 years to fully take root, so a steady approach is necessary. It's important to drive transformation with the participation of all employees. Based on a recent comprehension survey performed globally, although nearly 100% recognize the purpose and values, 80% understand them, 60% empathize, and only 30% have implemented them. While each person may proceed in different ways and speeds, it is important to increase the percentage of employees who implement the purpose and values.

P14 / What is a Co-creative Chemical Company? -Who? P91 / Human Resource Strategies

Mission as CHRO

The key to the Company's growth is to focus on the individuality and strengths of each employee, unleash their hidden potential, and create teams where everyone can demonstrate their strengths. We all should know the joy and excitement of succeeding as a team. I believe that the feeling of contributing to something greater than oneself is essential for happiness. A company is a perfect community for achieving this. I believe that my mission as CHRO is to build a system that strengthens the three elements of individuals, teams, and corporate culture, as well as environment where diversity can be sublimated into collective knowledge, and where everyone can feel growth and happiness derived from their contributions.

The source of Resonac's strength is its wide-ranging technology platform linked to diverse businesses. However, as soon as each business unit begins to operate in isolation, this technology platform gets fragmented, and this strength disappears. Conversely, if we move in a direction that connects these pieces of the platform, endless possibilities emerge. Especially since we do not produce final products, there are countless opportunities to provide functions to any industry and create new growth businesses. It's the people who can connect these pieces of the technology platform, forming teams that mutually enhance each other's strengths.

Since the decision to integrate the former Showa Denko and former Hitachi Chemical, I led the integration preparation as the person in charge of the integration at former Hitachi Chemical. In fact, when the former Hitachi Chemical was choosing a partner, I was the first to say, "Showa Denko would be a good choice!" There are many areas where the two companies can complement each other, and I sensed great potential. I am confident that the functional chemicals we aim for can become a great industry originating from Japan with a global presence. As CHRO, I want to put Resonac on a growth trajectory and continuously improve its corporate value.

There are two reasons why I think I can lead these efforts.

The first is my strong desire to thoroughly engage with the uniqueness of each and every employee and unleash their potential. My strong commitment to engage with each individual, regardless of their position, gender, or affiliation, serves as a driving force in leading our human resource strategies. I travel to various locations with the CEO, directly interacting with employees, getting a feel for the atmosphere in the field, and considering what initiatives are needed right now. The Moyamoya Meeting was one of the measures I thought of during this process.

The second is the presence of encouraging team members from diverse backgrounds. My capabilities alone are limited, so I always propose what I want to do to team members and try to involve various departments in co-creation.

Since joining the former Hitachi Chemical, I have experienced different workplaces every two to three years, from setting up a joint venture with DuPont to PR and IR, sales in the U.S., and business planning. As a novice everywhere, the reason I managed in all these roles is that I gradually acquired the ability to form a team while addressing each individual's uniqueness. I believe in the endless possibilities of a team once it is formed.

The Company is now in a period of transformation, and the key to leading it to a global, top-level functional chemical manufacturer is co-creative talent. We will firmly establish the development of co-creative talent and achieve sustained growth in this age of VUCA. We hope for your continued support in this endeavor.

*2 For FFS (Five Factors & Stress) theory, see P44.

Human Capital Management Dialogue

—Collaboration between the CEO and CHRO Accelerates the Speed of Management—

What should be the approach to management and human resource development to create co-creative talent?
We invited Hiroko Ozawa, who has a deep understanding of human capital management, to hold a dialogue with CEO Hidehito Takahashi and CHRO Nori Imai.

Hidehito Takahashi
Chief Executive Officer (CEO)

Hiroko Ozawa
ESG/Responsible Investment Research Center Head, Japan Shareholder Services Ltd.
Researcher at People Analytics & HR Technology Association

Nori Imai
Chief Human Resource Officer (CHRO)

What Are the Trends and Essence of Human Capital Management?

Ozawa: I believe there are two main approaches Japanese companies take toward their human capital currently.

One approach is companies that are rushing internally, driven by the need for disclosure. With the advent of a human capital boom, companies are trying not to miss out and striving to somehow make an appeal for what they are doing. The obligation to disclose in securities reports has become a significant trigger, and many companies are pondering how to respond.

The other approach is from companies that genuinely understand the essence of the importance of human capital and are seriously working to enhance human capital. Such companies view respect for individuals as the source of a company's competitiveness, and under the commitment of the top management, place human capital at the core of their business. Compared to the former approach, the latter approach seems to be in the minority.

The way of thinking about disclosure also differs between the two approaches. The former companies focus on collecting and organizing data about their human resources, while the latter companies aim to express how important their human capital is in management at the heart of their business strategy. Even just looking at disclosure, such polarization is occurring.

When looking specifically at the efforts of Japanese companies, many seem to focus primarily on enhancing systems. Japanese companies have historically built personnel systems based on lifetime employment. It might make sense to invest a lot of managerial resources in system enhancement, given the assumption of long-term employment. However, times have changed, and it's only natural to think that the mobility of human resources will accelerate further. Just like Western companies, a time will come when Japan will need human capital management that isn't based on the assumption of long-term employment. Incentives will be important in this process. People feel excitement when the achievements of individuals or teams lead to organizational achievements. It's important to think about how to give back to individuals or teams based on organizational achievements. The system that creates excitement and the incentivization of returns from organizational achievements should be considered as a set. Companies with a high amount of excitement, which is different from a club of good friends, are very strong.

Takahashi: I completely agree. Japanese companies have traditionally had a package of the four elements of mass hiring of new graduates, academic elitism, a seniority system, and lifetime employment, and I believe this package led to the stagnation of Japanese companies and the Japanese economy after the bubble burst. I do not think Japan can regain its vitality unless this package is dismantled.

I don't guarantee lifetime employment to new employees. Instead, I tell employees that "I will make sure you become a valuable asset that can be useful in any company." I believe that achieving this is what human capital management is all about. I have experience working in major Japanese companies and top global companies, and I feel that Japanese companies should learn from the human capital management of top global companies. Although many Japanese companies have strongly focused on ensuring transparency in promotions, raises, and maintaining equality, I personally find this approach unsettling. Whether Japanese companies will try to bridge this gap in the future is uncertain. Some companies might try to change, and others might not. However, in the long run, there might be a shakeout.

Imai: The reason human capital management is gaining attention in today's society is due to the arrival of an uncertain era, known as the age of VUCA. From the two speakers today, I have realized that this means that it has become impossible to solve problems by extending existing solutions or making minor adjustments to the status quo. Given this age of VUCA, we are genuinely required to solve problems with diverse team members who have entirely different perspectives and thoughts.

Considering this, it means that it is necessary to think about how to bring out individual abilities and how to form types of teams that are different from those up until now. We might need to consider the diversity of combinations of the good qualities that each individual has, and to consider the division of roles.

Hierarchical command systems based on traditional hierarchies can't solve our problems. We need to genuinely engage with each individual, bringing out their strengths, and if we don't treat people appropriately, management will suffer. I feel that this is becoming the fundamental challenge now.

The Purpose only leads to enhancing corporate value when employees make it a personal concern.
Resonac is trying to integrate the purpose and values into individual behaviors and value judgments, which will be the key to achieving human capital management.

Hiroko Ozawa

As strategies are becoming commodities, the differentiating factors between companies are the management team that executes the plans and the people supporting that management. I see human resource development as the quickest path to maximizing corporate value. Hidehito Takahashi

Takahashi: The term human capital management seems to have taken on a life of its own, and it is difficult to see the essence of the concept. It is a given that people are important, and the very idea of enhancing growth strategies and the business portfolio has already become a commodity. While every company may have a medium-term management plan and an admirable approach, they are all essentially the same. What differentiates companies is whether they have a management team that can execute those plans and whether they have developed human resources to support that management. In this sense, we view human resource development as the shortest path for maximizing corporate value.

Ozawa: I agree. Among the various forms of management resources, only human capital has a will. Because each person acts based on his or her own will, it takes time and involves difficulty to achieve results as an organization. The sum of each person's will becomes the individuality of an organization, which serves as the source of the organization's competitiveness. In other words, the individuality of an organization is determined by the multiplication of the will of each individual member.

What Kind of Talents Are Needed to Become a "Co-creative Chemical Company?"

Takahashi: We have clearly defined the talents who support the Resonac Group as a "Co-creative Chemical Company." One is a talent who can work while involving the people around him or her, literally co-creating with them. Another is an autonomous talent who can take the necessary action on their own, rather than waiting for instructions.

P14 / What is a Co-creative Chemical Company? -Who?

In order to develop such talents, we place importance on four values: "Passionate & Results-Driven," "Open Minds & Open Connections," "Agile & Flexible," and "Solid Vision & Solid Integrity." Ms. Imai and I continue to tell employees at events such as town-hall meetings at each business site, "Let's aim to be people who strongly hold these values and are capable of taking action."

Furthermore, we are also working to reflect these four values in our personnel evaluations this year. We are in the process of training all managers to be able to measure employees performance on the two focus points of achievement of KPIs and demonstration of the four values, and to incorporate this appropriately in their evaluations. The Company has 23 business units, and I believe that by developing co-creative talents who share common values and can thrive in any business unit, we can avoid the conglomerate discount to some degree. By having the purpose and values as a shared language Companywide, when discussions occur, we can say things such as, "That's not open-minded," or "Isn't agility lacking?" and return to the essence of who we are.

Imai: I believe that autonomy is based on having passion. The will to change society through the power of chemistry, the conviction that the Resonac Group can do it, and the passion to make sure it gets done are important. It is important to extend this passion to other units and other companies, and not just your own unit.

The Resonac Group's style is to allow people to act freely and autonomously based on their values, with the Purpose as the key and the Values that are the mode of action to achieve the Purpose as the basis of their decisions. We are trying to ensure that this style is first thoroughly implemented as an action of the management team, and then gradually extended to all employees. We hold workshops at each workplace to discuss what the Purpose is at the workplace and what it means to demonstrate our Values, and receive feedback and clarification on how we are evaluated, so that we can make the purpose and values a personal concern and put them into practice. The ability to gain management experience in different businesses based on shared values and a shared language is a strength of the Resonac Group that also fosters employee growth.

Ozawa: Indeed, for chemical manufacturers like the Resonac Group with diverse business domains, it's easy to imagine they might fall into vertically segmented organizations where each business unit develops its own customs and values and specializes in its own particular area of expertise. I believe that new business opportunities can be created by having a shared language as you have explained, recognizing differences in ways of thinking, and transcending boundaries. We might see a new paradigm if such challenges bear fruit and more people get excited about creating value across business units.

From this discussion, it's clear that Resonac Group has explicitly defined its purpose and values, and is trying to spread them throughout the company and incorporate them into its human resources system and evaluations. The numerous town-hall meetings and

roundtables that are held and the intent of the management team to communicate directly with all employees are truly commendable.

Many Japanese companies seem to just create and announce a purpose but fail to clarify how they aim to link this purpose with daily business operations and tasks, what kind of people they are looking for, and how to reflect this in actions and decisions, and there seems to be a lack of clear implementation in many cases. It's quite a waste given the time and effort invested. Needless to say, to link the purpose to maximizing corporate value, it is necessary to instill it and link it to business activities. Rather than addressing a stated purpose as an obligation, it won't empower the organization unless employees should see the potential of finding a connection to their own work and have the will to take initiative.

In this respect, the Resonac Group has a well-crafted grand design of purpose and values, and they're addressing everything from individual actions to value judgments. I felt that this is a significant strength.

Collaboration Between the CEO and CHRO Accelerates the Speed of Management

Takahashi: I believe the strength of the Resonac Group is that both the CEO and the CHRO are firmly committed to human resource development and human resource strategies. If there were just one of them, real reform would be a challenge. The reason I can commit to HR to this extent is that we operate the business as a team. Goals related to the portfolio, business reform, and strengthening the management foundation are shared at the management level, and it is possible to delegate things entirely to business unit heads and CXOs.

To return to the topic of human resources and cultural change, I have a rough idea of what awaits me in the future through my accumulated experiences. Of course, while I won't say that everything is correct about my image of the future, we discuss talents with a shared language based on common values, and we aim to build on successes with an excellent team that demonstrates teamwork and maintains a sense of tension. I envision achieving success in 10 years by improving and adjusting our approach year by year. I will never waver from this belief in the future. Decision-making is quick with the CHRO as we share the same objectives. It's common to discuss the next measures with the CHRO on the spot during roundtable discussions with employees.

Imai: Indeed, it's surprising how aligned my vision is with Mr. Takahashi (laughs). Mr. Takahashi is a visionary leader skilled at defining the *why* and the *what*. While I serve as a sounding board for the *why* and *what*, my role is to think about the *how*, and I'm currently implementing the reforms I've always wanted to make and saw as necessary. The human resources domain is evolving at a surprisingly rapid pace. For example, while I sometimes consider the necessary processes for driving change based on adult development theories, in the future, we won't just use psychology but also approaches from neuroscience. Changing a person's mindset and achieving a state in which the purpose and values are fully embodied isn't easy and takes time. Firstly, based on hypotheses and while obtaining feedback, while consistently applying a data-driven improvement cycle as scientifically as possible, I want to achieve a transformation with the participation of everyone through persistent, direct dialogue with employees.

Ozawa: The collaboration between Mr. Takahashi and Ms. Imai, who share the same values and goals, is truly wonderful. Unlike the two of you, I suspect that CEOs and CHROs in not a few Japanese companies lack a common goal setting based on shared business strategies or are unable to collaborate effectively. I believe the teamwork between the CEO and CHRO ensures that the top management's vision reaches all employees. Once town-hall meetings or roundtable discussions are over and employees return to their daily tasks, their actions and words are heavily influenced by the evaluations of their immediate superiors. I think future challenges will involve getting leaders in the field and middle management on board. I urge you both to overcome these challenges with your teamwork skills. I am very much looking forward to your future growth.

For Resonac's human capital management initiatives, please also refer to Human Capital Management on P89 and Human Resource Strategies on P91.

We want to develop co-creative people who can passionately change society through the power of chemistry and involve those around them. We aim to create a company where each individual embodies their own sense of purpose and values by consistently engaging in dialogue with employees. Nori Imai

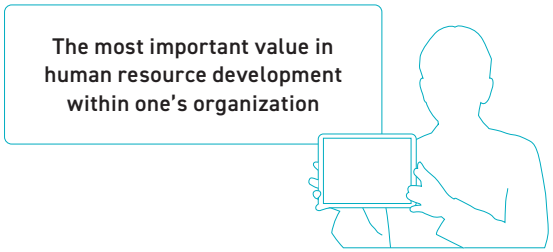
Team Takahashi

Thoughts on Human Resource Development

—Toward a company that develops co-creative talent—

Here, the Team Takahashi management team of Resonac introduces what they keep in mind in human resource development and what is expected from employees.

What the management team holds in their hands are the values that each emphasizes the most in human resource development within one's organization. The Company's four values are "Passionate & Results-Driven," "Agile & Flexible," "Open Minds & Open Connections," and "Solid Vision & Solid Integrity." We strive to practice these values in various situations.



Hidehito Takahashi

Chief Executive Officer (CEO)

P19 P37

People who can execute strategy are what Resonac needs for development

What I want to create is a group of people who can act autonomously. Whether a company is good or not depends on how many people are able to execute strategies. This ability to execute means thinking about what should be done toward a goal, deciding what needs to be decided, and having the power to see it through. We will implement various personnel reforms so that employees can unleash their potential and work with vitality and enthusiasm.

Keiichi Kamiguchi

Chief Risk Management Officer (CRO)

P113

Supporting the Group's initiatives with a strong sense of ethics and becoming a trusted company

For Resonac to remain a trusted company, I expect the members of the CRO organization to refine their knowledge and skills while maintaining a strong sense of ethics and foresight for the future as governance professionals. By doing so, we believe we can firmly support the transformation of employee consciousness and efforts toward co-creation, and provide services that satisfy both internal and external stakeholders.

Hideki Somemiya

Chief Financial Officer (CFO)

P25 P49

I want to develop the best financial navigators who can demonstrate abilities beyond their roles

I hope that members of the CFO organization will aim to be the best navigators for Resonac as a whole and its operating companies. The more each individual can utilize their specialized skills beyond the confines of existing organizations and daily operations, the closer we get to enhancing corporate value and achieving "best navigator." As a CFO, I will ensure that everyone is conscious of this in their work.

Tomomitsu Maoka

Chief Strategy Officer (CSO)

P29 P55 P73

Communication beyond boundaries is vital, not bound by preconceived notions or precedents

Because the CSO organization plays a role in guiding the entire Company's direction while constantly communicating with internal and external stakeholders, transcending boundaries is of utmost importance. In addition, as Resonac takes on many new challenges, there is no need to follow any preconceived notions or precedents. In other words, we demand members to transcend existing boundaries even in their ideas.

Shigeru Fujita

Chief Marketing Officer (CMO)

P69

Sharing information beyond business unit boundaries to deliver additional value

As a cross-functional organization for the entire Company's sales and marketing functions, we aim to develop human resources who autonomously drive Resonac's sustainable growth and the expansion of high value-added products. By sharing market and customer information beyond business unit boundaries, each member broadens the scope of information, and by understanding Resonac's products and technologies, we aim to deliver more value to our customers.

Nori Imai

Chief Human Resource Officer (CHRO)

P35 P89 P113

Flexible thinking, changing processes, and management skills to lead teams are essential

Human Resources' operations often tend to be approached with caution and take time because of its significant impact on employees. However, sometimes testing on the go is necessary to respond quickly to changes in the world. We encourage members of the CHRO organization to co-create with other units from the conceptual stage, move flexibly, link business strategies and Human Resources activities, and support transformation according to the different ways of delivering value in each business.

Masami Tobito

Chief Operations, Manufacturing and Engineering Officer (CMEO); Chief Quality Officer (CQO)

P97

Open-minded communication is the key to achieving results

Having an open mind toward the people we work with is the most important thing for responding quickly and achieving results. We aim to foster a culture that values psychological safety throughout the Group and encourages helping professionals from various fields through "Open Minds & Open Connections." For a safe and secure workplace, we also promote the principle of "Bad News First, Fast."

Hideki Shibata

Chief Digital Officer (CDO)

P71

I want to nurture individuals who can flexibly and positively accept diverse ideas and grow on their own

"Open Minds & Open Connections" is a key for driving DX for improving corporate value, and is essential for personal and organizational growth. We strive to develop people who, without being constrained by fixed boundaries and biases, can flexibly and positively accept diverse ways of thinking. We will promote internal and external collaboration, and encourage active engagement with new ideas.

Masato Fukushima

Chief Technology Officer (CTO)

P32 P62

I want to develop people who have the courage to win others over and create excitement

Co-creative technology development can only be achieved when a person with the ability and confidence as a professional strives to win others over, possessing respect for what they don't know and the capabilities of others. We believe that people who can transform the communication environment into a bright, fun, and motivated world will shape the future of Resonac.

Hiroyuki Yamashita

General Manager, Electronics Business Headquarters

P73

A deep commitment to results and taking on challenges with pride

In units directly involved in the business, where the results of one's efforts are easily reflected in numbers, I indeed hope that members will remain focused on outcomes. Although efforts might not always be rewarded, we still believe that our pride of being "Passionate & Results-Driven" will contribute to the growth and development of the Company, which in turn will produce results that meet the expectations of our customers, shareholders, many stakeholders, and future employees.

Yasushi Makabe

General Manager, Device Solutions Business Unit

P77

Promote coaching to discover personal strengths and desires

People have diverse perspectives, some conservative, others eager to take on the challenge of trying various things. Though careers are self-designed, often people might not realize what they want to do and what suits them. People are often reminded of what they are good at by feedback from others. We emphasize human resource development offering as many of these opportunities as possible.

Yoshito Ishii

General Manager, Mobility Business Headquarters

P81

Developing teams that take on the challenge of change and lead transformations in the CASE era

The automotive industry faces a once-in-a-century transformation, and a radical business turnaround is necessary to achieve SDGs and CASE. We are faced with the need to consciously increase our speed, think flexibly without being anchored in the past, and open up new businesses. We value the agility and flexibility to support the CASE era, transforming into teams that embrace the challenge of change without fear.

Mitsuo Katayose

General Manager, High Performance Materials Business Headquarters

P83

Expanding connections with people and co-creation to enhance the added value of materials

The High Performance Materials Business Headquarters possesses diverse materials and members with diverse experiences. Through internal and external co-creation, we will discover new market opportunities and enhance the added value of Resonac's materials. We believe that people who practice "Open Minds & Open Connections" and connect autonomously with others can achieve this.

Hirotsugu Fukuda

General Manager, Olefins & Derivatives Business Unit

P85

Building relationships where one can discuss freely without barriers leads to results

Trust and respect for values are the basics of not only business but also human relationships. Improving communication is essential to achieve this. It starts with the person next to you, then moves on to the neighboring group, department, and business unit. Only when barriers are removed and a relationship in which one can freely discuss is built, can we fully harness the strengths of individuals and teams.

Satoshi Hara

General Manager, Basic Chemicals Business Unit

P85

Working with passion and pride to realize the Kawasaki Chemical Park*

Although the basic chemicals business has a long history at Resonac, there is no business that simply continues from the past to the future. We want to move forward and continue creating new value, aiming to establish the Kawasaki Chemical Park*. To this end, we want to be a group that possesses passion and pride, is thoroughly committed to results, and exhibits high capability through co-creation.

* Please refer to P86.

Makoto Takeda

General Manager, Graphite Business Unit

P85

Engaging with team members with an open mind and supporting future potential

Engaging with team members with an open mind and supporting future potential In human resource development, it is important to gain a variety of experiences from early stage of business career and not to limit future possibilities by narrowing the boundaries of one's career. We will realize a positive cycle of human resource development by approaching each individual with an open mind and managing our organization flexibly to ensure that employees can envision their own careers and excel in the appropriate paths.

Team Takahashi—Excelling in Times of Change

Resonac's current management team, Team Takahashi, is structured in a manner suitable for a period of transformation. CEO Hidehito Takahashi leverages the characteristics of LM (leadership personnel) to lead everyone, while TG (tugboat personnel) is responsible for pioneering, and ML (management personnel) is in charge of improvements. Going forward, Resonac will utilize the FFS theory in its organizational structuring to create teams where each individual can demonstrate his or her strengths.

Five Factors & Stress (FFS) Theory

The following five items are quantified numerically, indicating whether the characteristic is strong or weak.

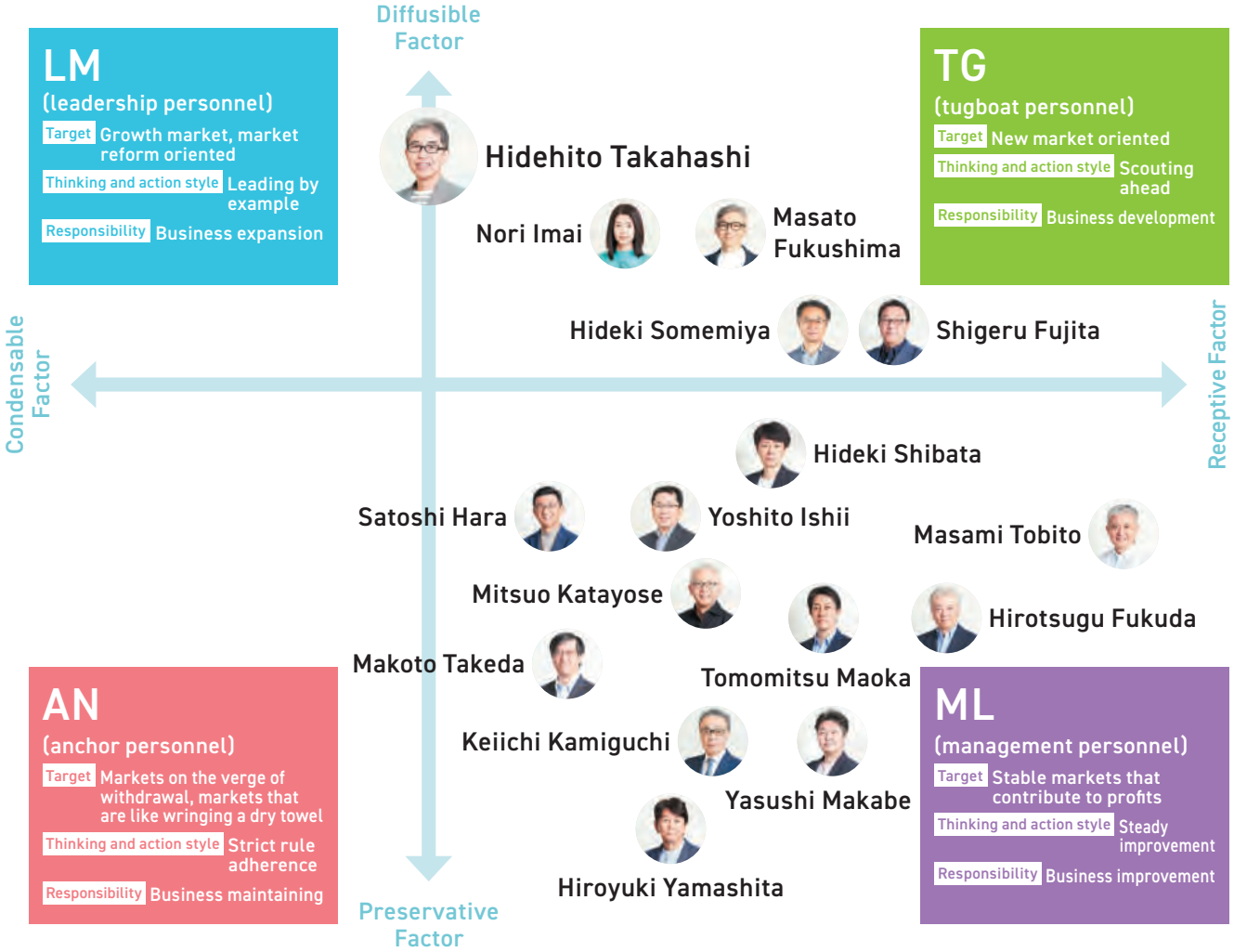
- **Condensable Factor:** Intensity of commitment
- **Receptive Factor:** Ability to accept unconditionally
- **Discriminative Factor:** Ability to distinguish between black and white
- **Diffusible Factor:** Ability to break out and move forward
- **Preservative Factor:** Ability to build up while maintaining

The following becomes possible with quantification.

- Understanding whether an individual's latent strengths are being positively or negatively expressed
- Enabling the optimal team configuration by objectively understanding and evaluating the relationships between people

Developer: Dr. Keichi Kobayashi

The Five Factors & Stress (FFS) theory was developed in the study of stress and personality. It measures the patterns of how people think and act, either deliberately or unconsciously, in five factors, and analyzes whether they react positively or negatively in terms of stress values. As a result, an individual's latent strengths can be objectively understood.



03 How to Change

What We Will Focus on to Achieve Change

What are our specific measures to change society through the power of chemistry?
This section describes our sustainability and business strategies to help you understand how we intend to accomplish our purpose.

45 Resonac's Long-Term Vision
49 Financial and Capital Strategies
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Resonac's Long-Term Vision

2020

Former Hitachi Chemical joins the Showa Denko Group

2021

Long-term vision for the Newly Integrated Company (2021–2030) begins

Brief introduction of future-oriented projects

2023

Complete integration as Resonac

RESONAC
Chemistry for Change

2025

Establish a leading position and secure strong growth potential on a continuous basis as a materials manufacturer driving the high growth of cutting-edge semiconductors

Financial targets for 2025

EBITDA margin ····· 20%

ROIC ···· 10% over the medium to long term

Net D/E ratio ····· Aim to achieve 1.0

2030

Goals of the long-term vision

Realize our ideal state

Global top-level functional chemical manufacturer from Japan

- TSR: Rank among the chemicals industry's top 25% over the medium to long term
- Achieve Sustainability Vision

Yoshishige Okuno
General Manager,
Research Center for Computational Science and Informatics

Now!!

First semiconductor materials manufacturer in Japan to apply virtual reality (VR) in product development

Molecular design applying VR leads to R&D achieving the required properties. This initiative takes advantage of our advanced computational science and technology for deeper material analysis and discovery of new materials. First, we intend to promote the use of VR throughout Resonac, and in the future, we envisage positioning it as an in-house infrastructure. We will accelerate R&D by fully utilizing computational science and simulation.

Yohei Shimizu
Materials Informatics Platform Group
Research Center for Computational Science and Informatics

Future?

Promoting the space business through co-creation with ispace, inc., a startup

A team composed of people who aspire to contribute to the sustainable development of global society by creating functions required of the times as an advanced material partner in the field of space development are promoting a project to establish a space business. Not only through cross-sectional collaboration but also through open innovation with ispace, inc. and other external partners, we are firstly focusing on branding that will lead to enhancement of corporate value with a view to future commercialization.

Overview of the Long-Term Vision

Showa Denko acquired Hitachi Chemical during the period of the medium-term management plan to 2021. The company set its course toward growth and declared its goal of becoming a global top-level functional chemical manufacturer by 2030. In January 2022 Showa Denko and Hitachi Chemical substantially integrated their management and formulated the purpose. In February 2022 Showa Denko revised its long-term vision announced in December 2020 and began value creation as a Co-creative Chemical Company. In January 2023 Resonac was established.

Resonac's Long-Term Vision: Our Ideal State for 2030

In order to become a global top-level functional chemical manufacturer, we must enable our unique essence to blossom while satisfying the requirements of stakeholders with respect to both financial and nonfinancial aspects. Positioning sustainability as the cornerstone of its corporate strategy, Resonac has established measures and nonfinancial targets linked to its envisioned ideal state and material issues for sustainability (materiality), with a view to achieving its long-term vision by promoting initiatives.

Long-term vision Ideal state

Company that can compete on the world stage	Company that contributes to a sustainable global society	Company that develops co-creative talent that represents Japan's manufacturing industry
World-class competitiveness and profitability	Capability to create innovations and to develop new businesses	Ability to train competitive talent with shared values

Material Issues for Sustainability (Materiality)

Strengthen co-creation & competitiveness and create social value through innovation	Gain credibility through responsible business management	Develop autonomous, creative, and active human resources and culture

Financial targets and results	Results in 2022	Targets for 2025
Net sales	¥1.4 trillion	Over ¥1 trillion
EBITDA margin	12.2%	20%
ROIC	3.3%	10% over the medium to long term
Net D/E ratio	1.07	Aim to achieve 1.0

Nonfinancial targets and results (examples)	Results in 2022	Targets for 2025
Scores of the survey on implementation of the purpose and values	Degree of implementation: 30% Degree of empathy: 60% Degree of understanding: 80% Recognition: Almost 100%	Inculcation of the purpose and values and cultivation of a co-creation culture
Greenhouse gas emissions	4,284 thousand tons	30% reduction from the level of 2013
Serious occupational accidents	0	Zero occurrence

Overview of the Long-Term Vision

Key strategies for achieving the long-term vision

	Direction and progress
Establishment of a world-class revenue base	● Letter from the CFO P25 ● Scale and Profitability to be a Company that can Compete on the World Stage P49 ● Instillation of ROIC-focused Management P51 ● Semiconductor Materials Global Top Management Roundtable P73 ● Business Strategies P77
Improvement in Portfolio Management	● Financial and Capital Strategies P49 ● Strategic Allocation of Management Resources P52 ● Direction and Progress in Portfolio Reform P52
Innovation (technology x business model)	● Special Feature: What is a Co-creative Chemical Company? P13 ● Special Feature: Resonac Pride Products & Services P59 ● CTO Roundtable with Young Researchers P62 ● R&D and Intellectual Property Strategies P65 ● Marketing Strategies P69
Strengthening of management foundation (platform)	● Human Capital Management Dialogue P37 ● Team Takahashi: Aspirations for Human Resources Development P41 ● Resonac's Human Capital Management P89 ● IT and Digital Technology Strategies P71 ● Roundtable: Our Transformation of the Board of Directors P113

Topics

Analysis of Opportunities and Risks for Achieving the Long-Term Vision

We held a workshop in June 2023 to analyze opportunities and risks linked to Resonac's three material issues. Participants included the CFO, CSO, CHRO, CTO, and other executives and discussion ranged from financial aspects to nonfinancial aspects such as human resources and R&D. In particular, we need to keep a close eye on changes in the internal environment as a result of company integration. Paying greater attention to internal changes in the process of integration in addition to changes in the external environment in management's monitoring and evaluation, we will reflect those internal changes in goal setting.

Opinions expressed at the workshop held in June 2023

Opportunities
- Transformation triggered by the integration of two companies
- New synergy derived from different technological fields
- Greater efficiency and creativity through business process integration
- Creation of new value, mindful that chemistry is a building block of industries

Risks
- Decline in engagement of human resources due to changes resulting from the integration of two companies / human resources retention risk / loss of the heritable culture as well as experience and know-how learned from failure
- Decline in co-creation capabilities and competitiveness due to delays in industry restructuring and portfolio reform
- Weakening of the management foundation owing to lack of understanding of potential risks and lack of risk-taking

Video Workshop on opportunities and risks linked to materiality

Financial and Capital Strategies

Scale and Profitability to be a Company that can Compete on the World Stage

Numerical Targets for 2025 under the Long-Term Vision

Resonac believes that management strength in both quantitative and qualitative terms is essential for competing on the world stage. In addition to qualitative evaluation of the company's ability to contribute to society, especially from the perspective of sustainability, we consider quantitative evaluation of the company's scale and profitability to be important.

Our numerical targets for the scale and profitability for 2025 under the long-term vision, namely, net sales of ¥1 trillion or more and an EBITDA margin of 20% or more, are "entry tickets" to be a company that can compete on the world stage. We aim to maximize corporate value by achieving the numerical targets in pursuit of a solid revenue base. Moreover, whereas we had been using ROE as a key performance indicator (KPI) for some time, we introduced return on invested capital (ROIC) to replace ROE at the time of revision of the long-term vision in fiscal 2022.

To more accurately highlight our strategic intent and our efforts to improve portfolio management, we changed disclosure segments in fiscal 2022. With the segment reclassifications, we will aim to show more clearly the effects of the strategic allocation of management resources and continuous revision and replacement of our business portfolio, of which the most obvious example is our focused investment on semiconductor materials.

Key financial KPI targets

	2022 (results)	2025 (targets under the long-term vision)
Net sales	¥1.4 trillion	Over ¥1 trillion
EBITDA margin	12.2%	20%
ROIC	3.3%	10% over the medium to long term
Net D/E ratio	1.07	Aim to achieve 1.0

Segments for disclosure in line with the new business portfolio strategy

New segments	Subsegments	EBITDA margin (2025 target)
Semiconductor and Electronic Materials	Semiconductor Materials (front-end/back-end processes); Device Solutions (HD); Device Solutions (SiC)	30% or more
Mobility	Automotive Products; Lithium-ion Battery Materials	20% or more
Innovation Enabling Materials	Ceramics; Functional Chemicals (resins, etc.); Aluminum Specialty Components; Coating Materials	15% or more
Chemicals	Olefins and Derivatives; Basic Chemicals and Industrial Gases; Graphite Electrodes	15% or more
Others	Life Science	Achieve critical mass

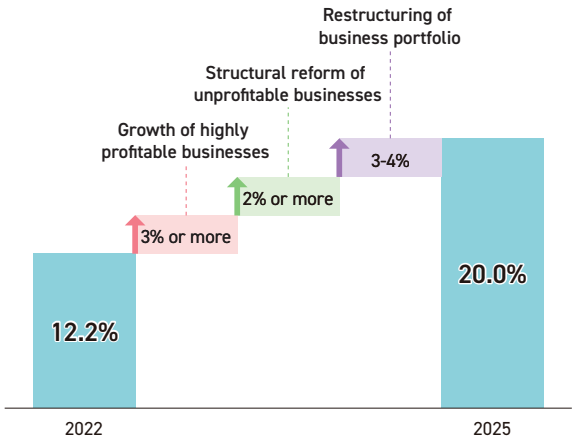
Attribute of the business portfolio: Core Growth; Fundamental Technologies/Materials; Stable Earnings; Next-Generation

To Achieve EBITDA Margin of 20%

Whereas our target of EBITDA margin for 2025 is 20%, the result for 2022 was 12%, 8 percentage points lower than the 2025 target. We are implementing various measures to achieve the target, including growth of highly profitable businesses (P52 Strategic Allocation of Management Resources), structural reform of unprofitable businesses (P50 Elimination of Unprofitable Products), and restructuring of business portfolio (P52 Direction of and Progress in Portfolio Reform).

The scope of improvements required will vary in line with changes in the business environment. We will aim to achieve the target by quickly adjusting the scope and allocation of resources for improvement in accordance with the situation.

To improve EBITDA margin



Financial and Capital Strategies

Management Cycle for Achieving the Long-Term Vision

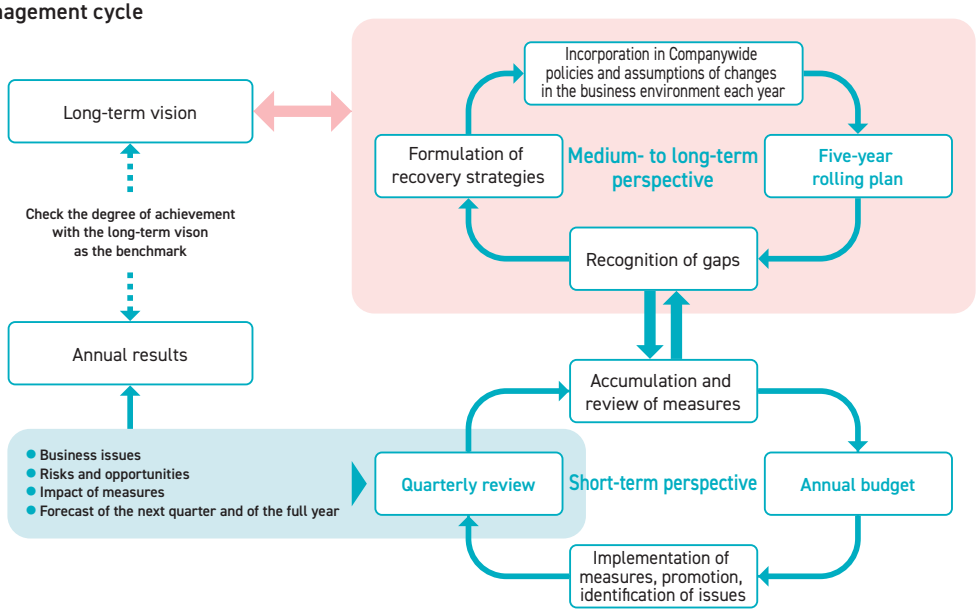
We currently operate a management cycle to achieve the long-term vision and KPIs from medium- to long-term and short-term perspectives. (See the figure below for details.)

From the medium- to long-term perspective, we annually review our business strategies, strategy implementation, and numerical targets for the next five years, in light of the latest market trends and analysis based on the 3Cs model (taking into account customers, competitors, and the Company). The plan formulated is referred to as a "five-year rolling plan." This plan articulates our strategic direction for sustainable growth and maintaining competitiveness, serving as the foundation for the realization of our long-term vision.

From the short-term perspective, we formulate an annual budget based on the first year of the five-year rolling plan. This annual budget allows the five-year rolling plan to be incorporated into a concrete action plan, on which basis the progress of individual measures and achievement of KPIs are monitored quarterly, enabling early detection of problems and implementation of countermeasures.

By organically integrating the management cycle from both medium- to long term and short-term perspectives, while adhering to the long-term vision, we can flexibly respond to changing market conditions in order to achieve sustainable growth and maximize profits.

Management cycle



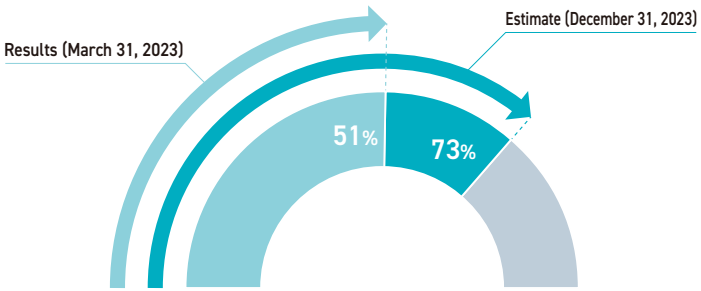
Elimination of Unprofitable Products

As part of our initiatives to improve profitability, each business unit calculates the profit margin for each customer and product and implements specific improvement measures for low-margin products, such as review of raw material suppliers, cost reduction through improved production efficiency, and price revisions in light of market conditions.

However, for products judged to be unable to achieve expected profit margins or cost reduction targets despite these measures, we formulate plans that include withdrawal from such products or scaling back, and manage progress on a quarterly basis. Through these initiatives, we are concentrating resources on highly profitable products and businesses to achieve qualitative improvement of profit.

Furthermore, the Mobility Segment has formed a team designated for structural reforms to emphasize the initiatives (P52 Direction of Portfolio Reform). Progress in other business units is shown below.

Status of completion of the measures to improve profit



Progress as of March 31, 2023*
Measures to improve profit (Price increase, withdrawal, etc.)
Completed: 51%
Under implementation: 28% (of which 80% is scheduled for completion by December 31, 2023)

*The Mobility Segment, and the Olefins and Derivatives business which is largely affected by market conditions, are excluded.
*Completion of measures and their impact on revenue are not necessarily simultaneous.

Financial and Capital Strategies

Instillation of ROIC-focused Management

We are working to raise and instill awareness of ROIC-focused management throughout Resonac from the management level to frontline employees.

In particular, in order to spread ROIC improvement to frontlines, we are promoting initiatives to link frontline KPIs to ROIC, which is a management KPI, and the ROIC target is set under the long-term vision.

Specifically, we set KGIs, KPIs, and KAIs at each level from the management level to the frontlines. At the frontline level, we set indicators that can be managed by business and product lineup while serving as targets for improvement measures. Frontline personnel set and prioritize targets based on the degree of impact of each indicator on KGIs, and manage milestones, such as who should do what and by when.

In the future, we will promote horizontal deployment of the best practices of businesses, in which ROIC improvement is steadily progressing, to other businesses, thus facilitating Companywide instillation of ROIC-focused management.

Sharing of ROIC ranking by business

ROIC components are measured for each business unit and businesses are ranked by ROIC. The semi-annual ranking results are communicated to the management of each business unit so that highly transparent management is achieved on Companywide. It also contributes to healthy competition among business units.

Incorporation of ROIC as a mandatory item of training for managers

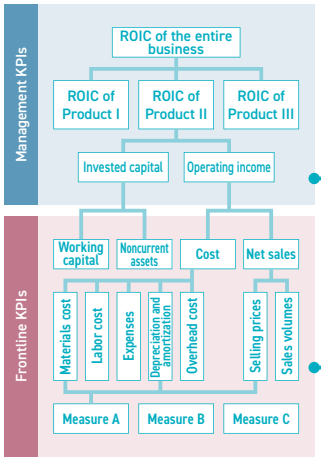
As part of Companywide training for managers, a lecture is provided on the definition of ROIC and why ROIC is important, including actual examples of business profitability improvement by making use of ROIC.

ROIC-linked executive compensation and bonuses for managers

ROIC was introduced as an evaluation indicator for short-term incentives (bonuses) in executive compensation and bonuses for managers.

P126 / Short-Term Incentives

Management KPIs and frontline KPIs (examples)



	Definition of indicators	Key Goal Indicators (KGIs): Most important indicators that must be achieved	Key Performance Indicators (KPIs): Indicators of results of measures and processes for achieving KGIs	Key Action Indicators (KAIs): Indicators of impacts of specific actions for achieving KPIs
Management level	Business unit heads, general managers of business units	ROIC of the entire business	Management KPIs: Operating income ratio by product lineup; Invested capital turnover by product lineup	Net sales, marginal profit ratio, fixed cost to sales ratio, direct labor to sales ratio, working capital turnover
Management level	Department managers	Operating income ratio by product lineup; Invested capital turnover by product lineup	Management KPIs: Net sales, marginal profit ratio, fixed cost to sales ratio, direct labor to sales ratio, working capital turnover	Selling price, sales volume, yield ratio, labor cost, inventory turnover by product, material cost, payment terms
Frontline level	Department managers	Net sales, marginal profit ratio, fixed cost to sales ratio, direct labor to sales ratio, working capital turnover	Frontline KPIs: Selling prices, sales volumes, yield ratio, labor cost, inventory turnover by product, material cost, payment terms	Number of personnel, overtime hours, sales volume by product and customer, unit cost of materials, and material usage by process
Frontline level	Section managers / group leaders	Selling prices, sales volumes, yield ratio, labor cost, inventory turnover by product, material cost, payment terms	Frontline KPIs: Number of personnel, overtime hours, sales volume by product and customer, unit cost of materials, and material usage by process	To be set by each frontline

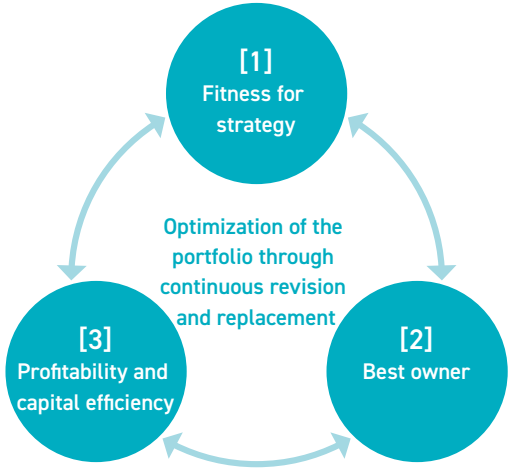
Improvement in Portfolio Management

Resonac's Portfolio Management Policy

We have adopted three criteria as the portfolio management policy, as follows. (1) Fitness for strategy: Whether a business matches the strategies of Resonac's overall strategies and the strategies reflecting the roles of each business unit in accordance with the attributes of the portfolio, with sustainability as a prerequisite. (2) Best owner: Who the best management authority is to maximize the value of a business. (3) Profitability and capital efficiency: Whether a business or investment will satisfy expectations in terms of profitability and capital efficiency.

There is no final form of Resonac's portfolio management. We strive to further improve portfolio management by continuously revising and replacing the business portfolio.

Portfolio management policy

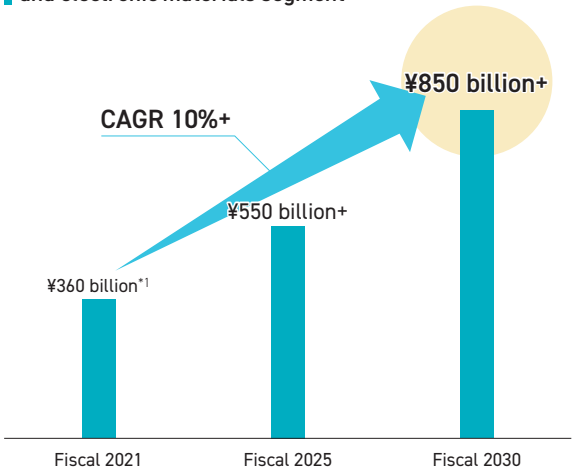


Financial and Capital Strategies

Strategic Allocation of Management Resources

By concentrating management resources on Core Growth businesses, we expect the Core Growth businesses to drive Companywide profit growth, rather than uniform growth of all businesses. In particular, the semiconductor materials business is expected to outperform the high growth of the market. By focusing on investments in the Semiconductor and Electronic M-aterials segment, we aim to achieve sales growth and EBITDA growth as shown in the figure. From 2022 onward, we have engaged in major capital expenditures focused on CMP slurries, copper clad laminates, and dicing die bonding films, and we are considering further investments in these areas in the future.

Medium- to long-term sales forecast for semiconductor and electronic materials segment*2



*1 A rough estimate based on internal management figures and taking into account the impact of the sale of a business, etc.
*2 The above forecast is based on the information currently available and does not consider the impact of short-term market fluctuations. Actual results may differ materially from the forecast due to a variety of risk factors and uncertainties in the future.
(Source: Our Policy toward Realization of a "Co-Creative Chemical Company," material for presentation on February 14, 2022)

Moreover, as a means for concentrating management resources on Core Growth businesses, we have established investment policies for businesses according to their respective portfolio attributes (Core Growth/Fundamental/Stable Earnings/Next-Generation). With this in mind, we will raise investment funds on a Companywide basis by stably generating cash through Stable Earnings businesses such as Olefins and Derivatives and Graphite Electrodes.

Investment policies according to portfolio attributes

Core Growth businesses	Growth investment appropriate for market expansion and sales expansion
Stable Earnings and Fundamental businesses	Investment within the scope of depreciation and amortization centering on investment for maintenance, BCP, and profit improvement
Next-Generation businesses	Upfront investment to ensure sales potential in addition to market expansion

In order to achieve optimal allocation of management resources from a Companywide and long-term perspective, in 2022 we reviewed the investment decision-making process.

As part of this revision, a new framework was introduced to centralize information and increase transparency so that the CFO, CSO, CMEO, and other executives can evaluate investment risks and returns multifacetedly at investment meetings where major investments are discussed.

As a result, information asymmetry between departments proposing investment and screening departments has been greatly reduced and active discussions are held, resulting in more rational and speedy investment decision-making based on the characteristics of individual businesses.

Moreover, whereas previously we used the same discount rate for investments throughout the Company, in 2023 we introduced a risk premium by business segment and by country for investment, in order to address investment risk more appropriately. This change enables more accurate assessment of investment risk and will lead to higher investment efficiency and more sophisticated portfolio management.

Direction of and Progress in Portfolio Reform

We are accelerating portfolio reform through business divestitures, in addition to organic growth of existing businesses as described in the previous section. Following the acquisition of the former Hitachi Chemical in 2020, we carried out the following business divestitures.

Fiscal 2021: Sold aluminum cans, aluminum rolled products, food wrap films, printed wiring boards, energy storage devices businesses

Fiscal 2022: Sold ISOLITE GmbH, a manufacturer/distributor of thermal insulations for automobiles, aircraft and other industrial applications, which was part of the mobility business

Fiscal 2023: Sold the diagnostic reagent business in July

We are working to optimize the allocation of management resources, review and replace the business portfolio to realize continuous growth, and spur innovation through the integration of the technologies of the two predecessors of Resonac. Regarding business divestitures, we meticulously examined each of the businesses for sale in advance and transferred them in a state with value to the best owners, who can fully utilize the technological capabilities and strengths of these businesses, including solid relationships with customers, to facilitate their further development.

Financial and Capital Strategies

Positioning of Each Business in Fiscal 2023

Regarding the positioning of existing businesses within the Company, existing businesses are classified and measures are implemented as shown in the table below, taking into consideration changes in the business environment. For businesses that have not achieved the profitability required by the portfolio to which they belong, in addition to the management cycle described above, individual restructuring projects are being promoted, and business units and the organization under the CFO are working together to improve profitability. In particular, for the automotive products business, for which a fundamental review of the business model and business transformation are required, a team designated for structural reforms has been formed in the Mobility Business Headquarters, and the resources of the organization under the CFO have been allocated to this business to promote reform.

Semiconductor materials / SiC epitaxial wafers	Allocate resources to increase production capacity mainly of businesses with high profitability, ahead of high market growth
Olefins and Derivatives / Basic Chemicals and Industrial Gases / Graphite Electrodes	Implement measures to improve stability of profitability and increase the probability of cash generation. Examine strategic compatibility of the Olefins and Derivatives business with the medium- to long-term portfolio, with a view to industry restructuring
Automotive products / HD media	Implement rationalization measures attuned to changes in the business environment, including product selection and concentration and restructuring of the production system for optimization, to achieve profitability appropriate for portfolio attributes
Life Science	Considering whether we are the best owner, we decided to sell the diagnostic reagent business, while continuing to consider whether to sell the regenerative medicine business.

Pursuit of Capital Efficiency

Reduction of Interest-Bearing Debt

Interest-bearing debt amounted to ¥1,062.6 billion as of December 31, 2022, an increase of ¥212.0 billion compared with the figure as of December 31, 2021, due to execution of subordinated loan financing for the purpose of early purchase of preferred shares in 2022. Despite the increase in interest-bearing debt, the switch from preferred shares, for which a high level of dividends are payable, to subordinated loans will reduce financing costs for the full year from fiscal 2023. The net D/E ratio improved to 1.07 owing to an increase in shareholders' equity and an increase in foreign currency translation adjustments resulting from the yen's depreciation.

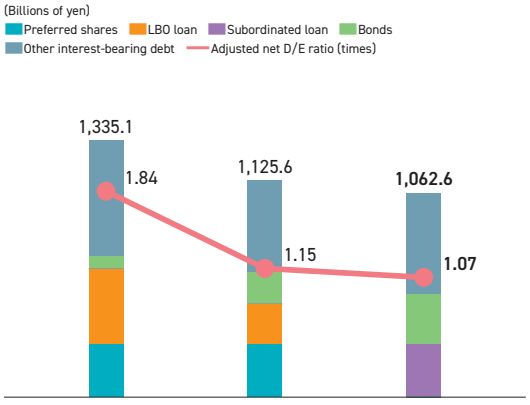
We will continue to reduce interest-bearing debt in order to stabilize finances and cut finance costs.

Efforts to Streamline Assets

Under the long-term vision, we adopted a plan to generate a cumulative total of ¥50 billion in funds by 2021 and worked to improve working capital and sell cross-shareholdings and other assets. We had raised a cumulative total of ¥90.7 billion by 2022, far exceeding the original plan. Regarding cross-shareholdings, at the end of 2021 we determined a policy to sell all of our cross-shareholdings, in principle. Sale of almost all of the listed shares held by Resonac on a non-consolidated basis amounting to ¥46.9 billion had been completed by 2022. To complete sale of all the cross-shareholdings, we will continue to promote sale of shares, including those held by our operating subsidiaries.

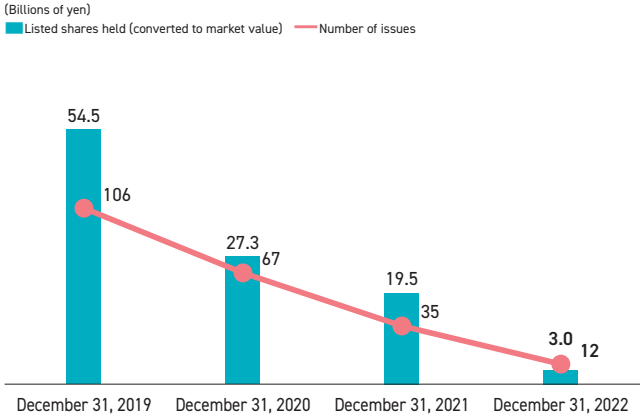
We will continue to promote streamlining and cash conversion of assets, including sale of idle assets and consolidation of sites.

Post-adjustment Net D/E Ratio*, interest-bearing debt, and preferred shares



*December 31, 2020 and 2021: {(Loans payable + Commercial papers + Bonds payable + Lease liabilities) - Cash and deposits + 50% of preferred shares} / (Total shareholders' equity + 50% of preferred shares)
*December 31, 2022: {(Loans payable + Commercial papers + Bonds payable + Lease liabilities) - Cash and deposits - 50% of subordinated loan} / (Total shareholders' equity + 50% of subordinated loan)
50% of preferred shares and 50% of subordinated loan (included in loans payable) are evaluated as equity capital based on the credit rating by Japan Credit Rating Agency, Ltd. on April 21, 2020 and April 27, 2020, respectively.

Cross-shareholdings (listed shares)*



*Listed shares held by Group companies are included. The figure as of December 31, 2019 includes shares held by former Hitachi Chemical.

Assets streamlining and cash conversion

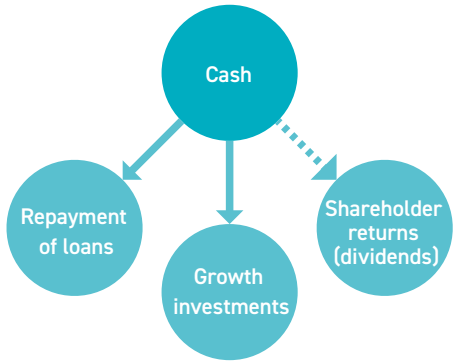
Initiatives	Amount of improvement/sale compared with those before the integration (billions of yen)	
	Long-term vision (forecast)	Update (results for 2022)
Improvement in working capital*1	25.0	13.0
Sale of cross-shareholdings*2	20.0 (cumulative total)	46.9 (cumulative total)
Sale of other assets*2	5.0 (cumulative total)	30.9 (cumulative total)
Companywide total	**50.0**	**90.7**

*1 Calculated by multiplying the difference between working capital turnover days at the end of 2020 and working capital turnover days at the end of 2022 by sales figures of continuing businesses
*2 Cumulative amount of proceeds from sale since 2020. Excluding sale of shares of affiliated companies and divested businesses.

Capital Allocation

We allocate cash flows obtained from business growth and business divestitures to growth investments contributing to profit expansion and to repayment of loans in parallel, taking into consideration the post-integration situation. Specifically, we plan to allocate half to two-thirds of the cash flow generated to capital expenditures, and the remainder to reduction of interest-bearing debt and dividend payments. Moreover, to maximize cash flow, we will generate the necessary cash flow by promoting sale of idle assets, business divestitures, reduction of expenses, and other means.

Cash allocation priorities



In view of the post-integration situation, we must prioritize to a certain degree the repayment of loans and growth investments aimed at expanding profits. Our policy is to allocate half to two-thirds of cash to growth investments.

Shareholder Returns Policy

As for shareholder returns, we aim to achieve total shareholder return (TSR)—a comprehensive indicator for improving corporate value—at a level in the top 25% of the chemical industry over the medium to long term.

To enhance corporate value, as mentioned above, we will actively engage in capital expenditures centering on Core Growth businesses. Distribution of dividends will be determined rationally, taking into consideration the business conditions comprehensively.

Management's Communication with Shareholders and Investors

We emphasize communication with our shareholders and investors, and our management team takes a deep interest in their feedback. Opinions and requests from shareholders and investors, as well as topics related to the stock price, are actively addressed and discussed at Management Committee meetings attended by CXOs and business unit heads, and at forums for exchange of opinions with directors and other executives.

We are also actively engaged in nonfinancial disclosure and dialogue aimed at enhancing corporate value. At the time of the announcement of financial results for the full year of fiscal 2022, in his presentation the CEO articulated his commitment to human capital management, positioning it as a top priority issue, to develop co-creative human resources who can put portfolio strategy into practice to achieve long-term enhancement of corporate value through the multiplier effect of portfolio reform, individual capabilities, and corporate culture. In addition, the CFO is actively engaged in dialogue with major shareholders and institutional investors (people in charge of ESG and exercise of voting rights).

In IR activities, we have been enhancing the quality of communication in English, while also increasing the number of personnel, with the aim of improving the quality of dialogue with investors, especially overseas investors, who are oriented toward long-term holdings. Although communication had centered on online briefings and telephone conferences due to the impact of the COVID-19 pandemic, we resumed overseas IR activities with the participation of the CEO and CFO in fiscal 2022.

Through disclosure on the Group's vision, strategies, and corporate information in an easy-to-understand, timely, and appropriate manner, we will continue proactive dialogue with shareholders and investors and reflect their feedback in management to further enhance corporate value.

Promoting Sustainability

To change society through the power of chemistry based on our purpose, we are strengthening our business execution system in accordance with the belief that we must position the concept of sustainability as an essential component of management. As part of these efforts, we have established Sustainability Vision 2030. We have also identified material issues for sustainability (materiality) and set nonfinancial KPIs to implement initiatives so as to achieve our long-term vision.

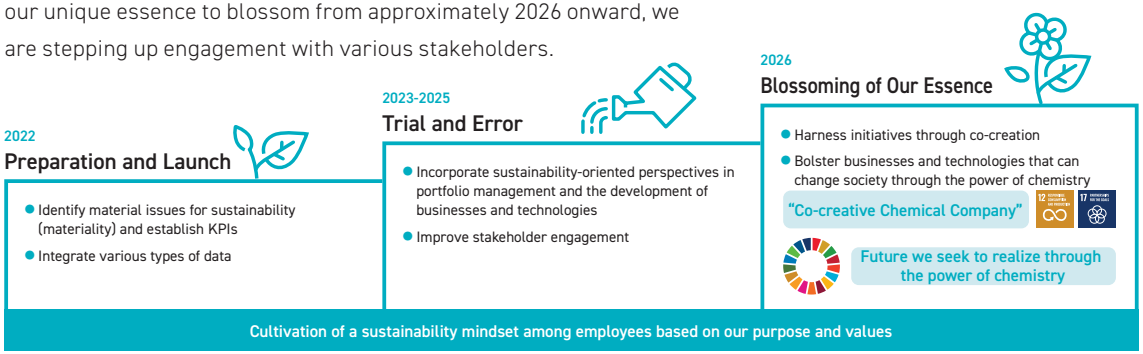
Roadmap for Achieving Sustainability Vision 2030

Having established Sustainability Vision 2030, we are promoting sustainability initiatives. In 2022, we established a promotion system, held active discussions on materiality, and defined nonfinancial KPIs in each CXO area (functional aspects). From 2023, the year of Resonac's inauguration, we began incorporating sustainability assessments into management's performance evaluations and delving deeper into each area, including the progress and appropriateness of initiatives aimed at achieving the KPIs. To enable our unique essence to blossom from approximately 2026 onward, we are stepping up engagement with various stakeholders.

Sustainability Vision 2030

Achieve corporate growth through the resolution of social issues
Develop into a company that realizes its own continuous growth and corporate value improvement, by solving social issues and offering value to society through its technologies and businesses

A company with like-minded partners throughout the world
Become a "Co-creative Chemical Company" that is the first choice of, and can choose, partners in creating a sustainable and better society, including future generations of customers, employees, investors, and stakeholders



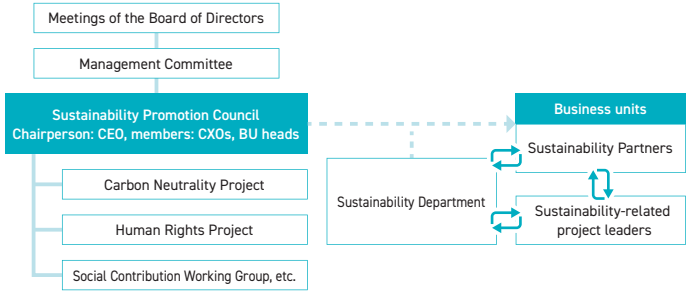
Roadmap for realizing the long-term vision

	Results in 2022	Plan for 2023
Sustainability management	Identification of material issues for sustainability (materiality) and establishment of KPIs; partial disclosure	Incorporation of sustainability targets in management's key evaluation items, enhance nonfinancial KPIs
Management strategies and business strategies		Designing of a system for Resonac Pride products and services and start of operation
Cross-organizational specific material issues	Grasping of the Companywide current status about specific issues, such as climate change and human rights, establishment of projects	Updating of the roadmap for climate change action, visualization of Scope 3, expansion of the range of products within the scope of CFP calculation by product, start of human rights due diligence
Engagement with external parties	Start of investor engagement, identification of issues for improving external evaluation, consideration of improvement measures	Start of multi-stakeholder engagement
Cultivation of the mindset within Resonac	Planning and implementation of measures to cultivate sustainability mindset	Expansion and continued implementation of measures to cultivate sustainability mindset

Sustainability Management

The CEO supervises Resonac's sustainability and the CSO is responsible for the promotion of sustainability. The Management Committee deliberates and decides on important items such as policies and plans and then consults with and reports to the Board of Directors. Starting in 2022, the Sustainability Promotion Council convenes a monthly meeting that Group CXOs, including the CEO, attend, and a quarterly expanded meeting, which is also attended by the heads of business units, to discuss wide-ranging agenda items P56. In addition, to address specific issues with agility and on a cross-organizational basis, several projects have been established, which report to the council.

Starting in 2023, Sustainability Partners have been appointed in business units and CXO organizations in order to link the matters discussed at the council's meetings to organizational operations and disseminate them to employees. By means of communication through Sustainability Partners, we aim to promote sustainability reflecting the current status, issues, and interests of each unit. Moreover, by creating opportunities for horizontal communication among Sustainability Partners, we encourage active exchange of information on changes in customer requirements and other issues that transcend differences among the industries we serve, so that Sustainability Partners can proceed with foresight.



Promoting Sustainability

Sustainability promotion council agenda (examples)

January	● Material issues and non-financial KPIs
February	● External evaluation of ESG and strengthening of initiatives
March	● Sustainability issues in the CHRO area ● Human rights initiatives
April	● Sustainability issues in the CMEO area ● Carbon Neutrality Project
May	● Sustainability issues in the CRO area ● Integrated report (planning) ● Materiality and nonfinancial KPIs
June	● Integrated report (planning) ● Climate change action and disclosure in accordance with TCFD recommendations ● Formulation of "Our Code of Conduct"
July	● Social contribution activities ● Sustainability-contributing business
August	● Application of nonfinancial KPIs to business units ● Sustainability issues in CDO, CMO, and CTO areas
September	● Carbon neutrality and five-year plan ● Companywide implementation of carbon footprint calculation P99
October	● Governance (sustainability evaluation of executives and employees) ● Integrated report (feedback) ● Cultivation of sustainability mindset
November	● Responsible Care Initiatives ● Response to customers' requirements for disclosure initiatives ● Social contribution activities commendation system
December	● Wrap-up of 2022 and 2023 action plan ● Nonfinancial KPI monitoring

Identification of Materiality and Management Cycle

Resonac's materiality consists of management issues that contribute to realizing its long-term vision in terms of both society's expectations and degree of importance to the Company. Materiality is determined by reflecting the intent of the frontlines through discussions with each CXO area (function) and feedback from management at Sustainability Promotion Council, and is continually reviewed while exchanging opinions with internal and external stakeholders.

In 2022, we identified materiality, set Company-wide nonfinancial KPIs, and discussed initiatives to be promoted through concerted efforts. In 2023, taking into account actual applications of the KPIs and discussions with external stakeholders, the appropriateness of the KPIs is discussed at Sustainability Promotion Council to monitor, enhance, and refine the KPIs. We began discussion on risks and opportunities based on materiality and reviewed our operating environment. To achieve nonfinancial KPIs, we will discuss various issues and intend to disclose revisions and enhancement of initiatives step by step.

P48 / Overview of the Long-Term Vision

Incorporation of Sustainability Evaluation in Executive Performance Evaluation

Recognizing the importance from a medium- to long-term perspective of first strengthening the current structure and promoting measures, in 2023 we began incorporating sustainability evaluation items into short-term performance-linked items of executive compensation P126. In the process of identifying the evaluation items that vary according to executives, we again discussed the priorities of the nonfinancial KPIs related to materiality and the roadmap toward their achievement. Moreover, these items are designed to link with employee evaluation through management by objective (MBO). Positioning linkage with compensation as an important measure for promoting sustainability, we will continue to consider how best to incorporate sustainability evaluation in executive performance evaluation.

Sustainability evaluation items incorporated in short-term executive performance evaluation in 2023 (examples)

- Establishment of data infrastructure for strengthening human capital management
- Promotion of visualization of GHG emissions
- Introduction of CFP indicator to R&D themes
- Implementation of specific measures to strengthen risk management
- Holding of ESG briefings and implementation of measures to enhance ESG assessment

Topics

New Employee Training and Sustainability Roundtable to Cultivate Sustainability Mindset

As part of measures to cultivate a sustainability mindset among employees, we conducted training on sustainability for new employees, continuing from the previous year. In 2023, the training consisted of group work with the theme "Let's put into words what 'sustainability' means to Resonac!" Moreover, on their own initiative employees launched the Sustainability Roundtable, a forum for employees who are tackling sustainability-related issues. Employees from various organizations gather and hold study sessions, lectures, and workshops.

Material Issues and Non-financial KPIs

Our goals and the value we aim to create are classified below according to three issues of materiality identified with 2030 as the time horizon. In 2023 we began considering the opportunities and risks associated with each issue.

Materiality	Our ambition	2030 targets	Social value	Environmental value	Economic value	Opportunities	Risks
1 Strengthen co-creation capabilities & competitiveness and create social value through innovation	The source of our growth lies in business activities utilizing our technological capabilities to change society through the power of chemistry. We will strengthen our co-creation capabilities and competitiveness through innovation and our businesses to create social value.	We create social value through our businesses via a series of processes—from the identification of social issues to the development of technologies and the provision of solutions—and the harnessing of initiatives through co-creation.	Maximization of our positive impact and minimization of our negative impact on society and the environment through the thorough implementation of responsible consumption and production as a chemical manufacturer that serves as the basis for a variety of industries		Enhancement of corporate value by achieving business growth through the provision of social and environmental value Enhancement of employee motivation by helping employees to gain a solid sense that we are realizing our purpose through our businesses	● Creation of social value based on applicability to resolution of wide-ranging social issues ● Enhancement of corporate value by flexibly responding to changes in customers and capital markets and to their expectations	● Obsolescence of material manufacturers' technologies due to development of digital and AI technologies ● Decline in co-creation capabilities and competitiveness due to delayed response to environmental and social issues ● Decline in co-creation capabilities and competitiveness due to delays in industry restructuring and portfolio reform
2 Gain credibility through responsible business management	We will conduct responsible business management from perspectives including safety, the environment, and quality to realize a sustainable society together with stakeholders, such as suppliers and customers. In addition, we will reinforce and enhance our system for managing increasingly diverse and complex risks by thoroughly implementing soft-law-based compliance going beyond legal and regulatory compliance.	In addition to cultivating a safety culture and eliminating accidents of every kind, we will earn the trust of stakeholders by minimizing and preparing to tackle a wide range of risks, including strategic, operational, and hazard risks, to flexibly address the changing management and business environments and continuously offer value that is unique to us.	Balancing of our contribution to the resolution of social issues and duty as a chemical manufacturer through responsible business management	Reduction of environmental impact through reduction of GHG emissions, waste reduction, and improved recycling rates	Improvement of motivation, raising of productivity, reduction of costs, and enhancement of brand value through eradication of all types of accidents and other incidents and increased efficiency of internal processes	● Helping customers ensure quality by offering safe and secure products and services ● Increased added value through realization and maintenance of advanced manufacturing processes	● Loss of trust in society due to environmental and safety incidents ● Weakening of the management foundation due to lack of understanding of potential risks and lack of appropriate risk-taking ● Decline in co-creation capabilities and competitiveness due to delayed response to regional and national laws and regulations and soft law, including international norms
3 Develop autonomous, creative, and active human resources and culture	We are cultivating co-creative human resources and nurturing a corporate culture to solve issues imaginatively via co-creation by forming connections autonomously with customers and stakeholders through empathy, including various parties who will lead future generations.	Through the cultivation of autonomous and creative individuals and the nurturing of a corporate culture conducive to their development, we will aim to become a developer of talent whose employees are the envy of other companies.	Resolution of social issues by co-creation and innovation through the growth and active involvement of autonomous and creative individuals and the nurturing of a corporate culture conducive to the attainment of such objectives		Active involvement of employees and higher employee motivation through strategic job rotations and development of leaders from the perspective of Companywide optimization and realization of high productivity	● Facilitation of innovation through development and creation of co-creative human resources	● Personnel retention risk due to inability to cultivate and maintain organizational culture and engagement ● Stagnation of innovation due to lack of psychological safety

Material Issues and Non-financial KPIs

The nonfinancial KPIs were formulated based on the thoughts of frontline employees Web and discussions by the management team in light of the external environment. We will continually revise the KPIs, reflecting the views and expectations of various internal and external stakeholders through dialogues with them.

Materiality	Constituent elements	Key items (KPIs)	2025 targets	Relevance
1 Strengthen co-creation capabilities & competitiveness and create social value through innovation	1-1 Creation of social value through our businesses	1-1-1 Resonac Pride products and services 1-1-2 CFP-related initiatives	1-1-1-1 Accreditation by open process 1-1-2-1 Calculation of CFP of major products	Businesses P59
	1-2 Identification of social issues and provision of customer value through marketing	1-2-1 Vitalization of customer- and market-driven activities 1-2-2 Promotion of digitalization 1-2-3 Enhancement of customer database	1-2-1-1 Enhancement of product pipeline that contributes to customer value 1-2-2-1 Strengthening overseas and regional information dissemination using digital marketing 1-2-2-2 Centralized Companywide pipeline management 1-2-3-1 Formulation of customer strategy for each business	Marketing P69
	1-3 Promotion of open innovation	1-3-1 Co-creation with external parties	1-3-1-1 Promotion of open innovation and increase of the ratio of external themes 1-3-1-2 Number of papers and external presentations 1-3-1-3 Increase of the number of cross-organizational themes	R&D P65
	1-4 R&D and intellectual property strategies that resolve social issues	1-4-1 Strengthening of R&D and intellectual property strategies 1-4-2 Human resource development	1-4-1-1 Increase of the ratio of introduction of life cycle assessment (LCA) 1-4-1-2 Enhancement of intellectual property indicators, such as Market Coverage (MC), which indicates market value, and Technology Relevance (TR), which indicates technological value 1-4-2-1 Assignment of leaders and professional-minded human resources at an appropriate ratio 1-4-2-2 Completion of a venue for co-creation	
	1-5 Facilitation of resolution of social issues through digital transformation	1-5-1 Data-driven management 1-5-2 Promotion of digital transformation and development of professional-minded human resources 1-5-3 Enhancement of IT and digital literacy	1-5-1-1 Establishment of the platform for standardization and analysis of financial data 1-5-1-2 Establishment of a process for obtaining ESG data 1-5-2-1 Promotion of projects through collaboration between centers of excellence and business units 1-5-3-1 Digital experience and education of all employees	Digital P71
2 Gain credibility through responsible business management	2-1 Establishment of environments where all people can work with peace of mind	2-1-1 Fostering of a culture emphasizing safety 2-1-2 Occupational accidents 2-1-3 Lost time incidents 2-1-4 Equipment-related accidents	2-1-1 Establishment of a culture emphasizing safety to eliminate occupational accidents 2-1-2,3,4 Zero serious occupational accidents (consolidated) 2-1-3-1 Lost time incident rate: 0.1 or less (consolidated, equivalent to zero accidents resulting in lost time over a 10-year period at a site with 500 employees) 2-1-4-1 Zero serious equipment-related accidents (consolidated)	Occupational Health and Safety P103
	2-2 Provision of quality and safety to maximize customer value	2-2-1 Product-related accidents 2-2-2 Quality compliance violations 2-2-3 Product stewardship	2-2-1,2 Zero product-related accidents and quality compliance violations 2-2-3-1 100% execution of risk assessment of priority risk assessment substances* (consolidated in Japan) *Assess substances stipulated by the Company by issuing safety summary reports	Quality Assurance P104 Chemicals Management P105
	2-3 Reduction of environmental impacts throughout the value chain, respect for human rights	2-3-1 Reduction of greenhouse gas emissions 2-3-2 Reduction of industrial waste sent to landfills 2-3-3 Environmental accidents 2-3-4 Respect for human rights	2-3-1-1 30% reduction (Scope 1 + Scope 2) from fiscal 2013 (consolidated) (2030 target) 2-3-2-1 0.5% or less of industrial waste generated (consolidated in Japan) 2-3-3-1 Zero environmental accidents (consolidated) 2-3-4-1 Establishment of human rights due diligence implementation frameworks	Environment P97 Human Rights P107
	2-4 Creation of a sustainable society, working together with suppliers	2-4-1 Improvement of quality of communication with suppliers	2-4-1-1 Improved CSR questionnaire response rates, higher rate of suppliers exceeding the satisfactory threshold	Procurement P106
	2-5 Thorough implementation of soft-law-based compliance going beyond legal and regulatory compliance	2-5-1 Inculcation of "Our Code of Conduct" 2-5-2 Thorough implementation of Group global compliance standards	2-5-1-2 Increase of the degree of inculcation (survey) 2-5-2-1 Reduction in number of serious legal breaches 2-5-2-2 Increase in number of reports through the whistleblowing system	Compliance P111
	2-6 Reinforcement of our system for managing increasingly diverse and complex risks	2-6-1 Development and operation of comprehensive risk management systems 2-6-2 Reinforcement of the second line of defense	2-6-1-1 Operation of new comprehensive risk management systems for risks associated with change in the external environment, operational risks, and hazard risks 2-6-2-1 Enrichment of the Group's internal control framework through data linkage with the second/third lines of defense 2-6-2-2 Commencement of expansion of processes outside Japan and centralization of risk data within the Group	Risk Management P109
3 Develop autonomous, creative, and active human resources and culture	3-1 Supply of human resources required by the business	3-1-1 Workforce planning with enhanced linkage with business strategies 3-1-2 Preparation of next-generation leader candidates and visualization	3-1-1-1 Future talent portfolio fulfillment rate 3-1-2-1 Succession planning preparation rate	Human Resources P89
	3-2 Cultivating and communicating attractiveness to be chosen	3-2-1 Strengthening of employer branding 3-2-2 Enhancement of wellbeing 3-2-3 Human resources system integrated with the corporate philosophy	3-2-1-1 Hiring plan fulfillment rate 3-2-2-1 Detrimental voluntary turnover rate 3-2-3-1 Engagement score	
	3-3 Creation of autonomous, professional-minded human resources	3-3-1 Provision of opportunities to encourage career ownership	3-3-1-1 Internal promotion rate (key positions)	
	3-4 Cultivation of corporate culture conducive to co-creation	3-4-1 Inculcation of the purpose and values and cultivation of a co-creation culture 3-4-2 Realization of workplace environment conducive to active involvement of diverse employees	3-4-1-1 Survey score of the degree of implementation of the purpose and values 3-4-2-1 Survey score of psychological safety 3-4-2-2 Ratio of female managers	

Special Feature

Contributing to Society and Customers by Fulfilling Our Purpose through Resonac Pride Products & Services

Approach to Resonac Pride Products and Services

As an advanced material partner, Resonac aims to contribute to the sustainable development of global society by creating functions required of the times, with the goal of contributing to the happiness and prosperity of people and to harmony with the global environment. In order to achieve this, it is important to visualize how much value our products and services, which we provide in a wide range of areas from upstream to downstream in the value chain, have provided to customers and society.

Upon integration, the SDGs-contributing products of the former Showa Denko Group will be renewed as Resonac Pride Products and Services, and the Group will place even greater emphasis on contributing to customers and society going forward.

In terms of certification, we aim to integrate the points of view of third parties in evaluation from the perspectives of value provided to customers and society by changing society based on our purpose as well as the appropriateness of Resonac's four values, risk assessment such as product environmental assessment and reputation, future potential and impact such as sales plans and market share, and relevance to shared global goals (SDGs).

Main items of confirmation for certification		Points of certification
Implementation of purpose and values	What is the value provided to customers and society? (quantified as much as possible)	Appropriateness
	What kind of values are demonstrated?	
Risk assessment	What kind of risks are there when evaluated from various perspectives such as product environmental assessment and reputation?	Risk perspectives from third party points of view
Sales plans	Sales plans and market share	Future potential and impact
Relevance to SDGs	How does it contribute to the 17 goals and 169 targets, and is it related to the essence of the SDGs?	Relevance to shared global goals (including future potential)

Certification process

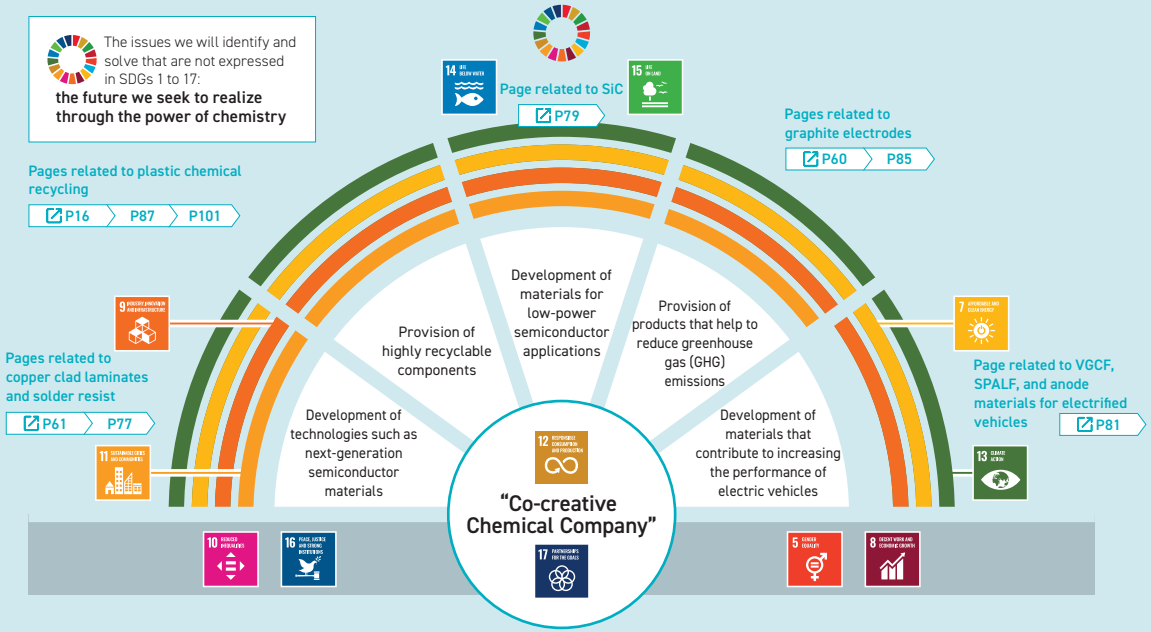
P90 / Dialogue with University Professors on Resonac Pride Products

Until 2022, product and service certification was carried out in-house, but going forward, we will include third party participation to increase objectivity and transparency. We plan to involve various stakeholders, including investors, experts, customers, and next-generation members, as third parties.

Entry (business units) → Examination by the secretariat → Review board meeting with third party participation → Recognition and commendation of products and services that have contributed the most to the realization of our purpose

Contribution to the SDGs through businesses

As a Co-creative Chemical Company that seeks to create a recycling-oriented society, we have made contributing to SDGs 12 and 17 the focus of our corporate activities, and positioned goals that we contribute to through businesses and products as well as goals that we contribute to through our business foundation as follows. In addition to the areas we are already working on, we are looking ahead with the aim to contributing to the creation of a future that we seek to realize through the power of chemistry.



Iron recycling and greenhouse gas reduction for the realization of an advanced recycling-oriented society using graphite electrodes

Realization of our purpose — Resource circulation through iron recycling, greenhouse gas reduction through hydroelectric and wind power generation and utilization

The process of manufacturing iron, which is an important material that supports social infrastructure, from iron ore (blast furnace method) is one of the largest sources of CO_2 emissions. However, the electric furnace method, which melts and recycles scrap iron, is capable of reducing CO_2 emissions to 1/4, and is therefore an important process for a sustainable society. Resonac is the number one global manufacturer of graphite electrode materials, which are essential for the electric furnace method, and supplies stable and high-quality graphite electrodes manufactured in six plants around the world to steel manufacturers in various countries through local production and consumption. Currently, we are working on the greening of electrodes at these six plants, and in order to avoid emitting GHG emissions in the graphite electrode manufacturing process, we are promoting 100% green power generation with hydroelectric and wind power generation at our European plants. In addition, we have started to install solar cells on the roof of the plant in Malaysia. Our graphite electrodes will continue to support people's lifestyles through the recycling of iron products.

P85 / Chemicals

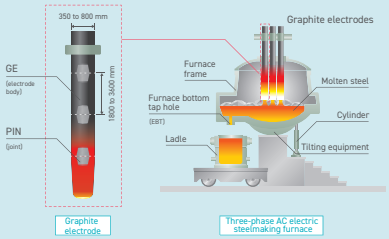
Demonstrating our values — Co-creation with local communities

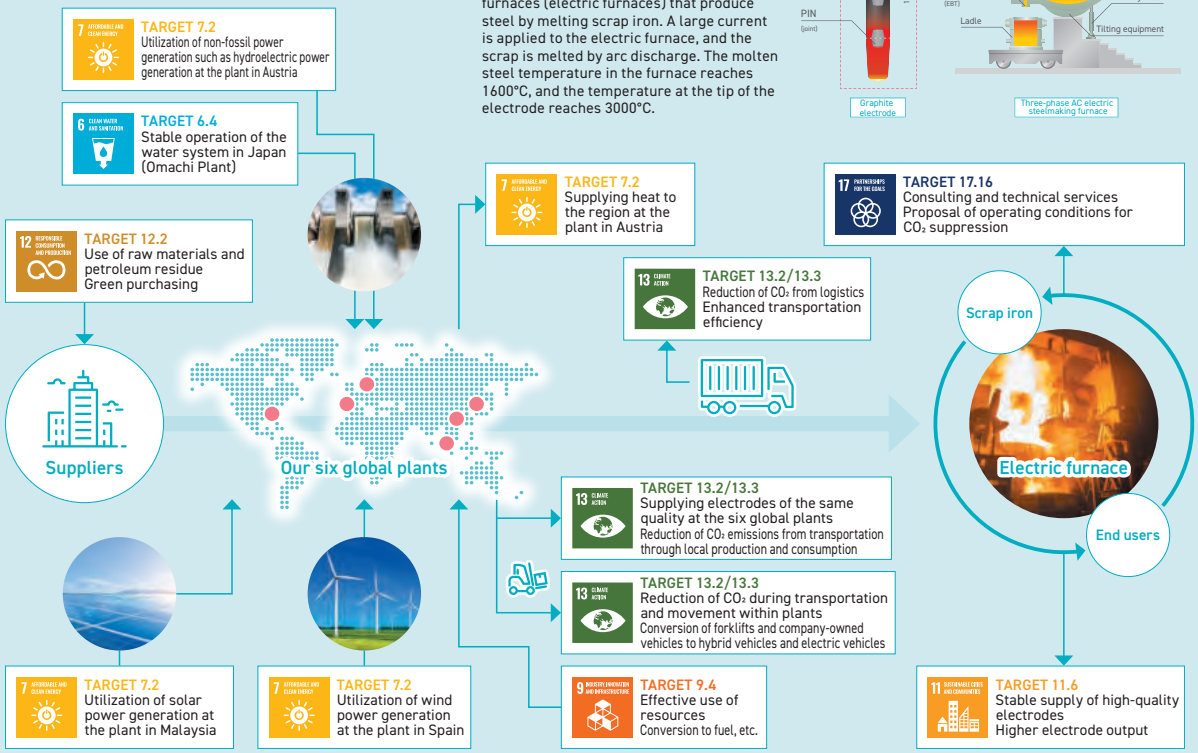
In Omachi City, where one of our domestic plants is located, agricultural production was being hampered by the low temperature of water from melted snow. Since 1954, we have been operating a 36 km-long water utilization system that includes three hydroelectric power stations, and by raising the temperature of water before using it for irrigation, we contribute to a stable water supply and improve yields for a wide range of local farmers. At our plant in Austria, waste heat after baking electrodes is supplied to the regional heating network in order to make effective use of it, contributing to the reduction of CO_2 emissions throughout the region, and in this way, Resonac is working on co-creation with local communities on a global scale.

Details of global co-creation

What are graphite electrodes?

Iron is familiar and indispensable to our lives, used in such things as cars and buildings. Graphite electrodes are used to recycle said iron. Graphite electrodes are used as electrodes in electric steelmaking furnaces (electric furnaces) that produce steel by melting scrap iron. A large current is applied to the electric furnace, and the scrap is melted by arc discharge. The molten steel temperature in the furnace reaches 1600°C, and the temperature at the tip of the electrode reaches 3000°C.





Comments from stakeholders

Mr. Leopold Schilcher, Mayor of Bad Goisern, Austria

The plant in Austria makes effective use of waste heat from electrode baking to provide a stable supply of heat to the regional heating network. Especially in the current energy crisis, this supply of regional heating unites more than 300 partner companies and local residents. In light of these efforts, Mr. Leopold Schilcher, Mayor of Bad Goisern, Austria, stated that he is proud to have such a reliable company as Resonac Graphite in the city of Bad Goisern, and that he believes Resonac Graphite brings benefits to the community with its innovative concept.

Mr. Leopold Schilcher, Mayor of Bad Goisern, Austria (center of photo)

Contribution to a digital society and reduction of environmental impact through copper clad laminates and solder resist

Realization of our purpose

Spread of infrastructure with advanced electronic materials for semiconductors, advancement of digital communication technology, and reduction of environmental impact

As digital society progresses, digital communication technology using semiconductors has become essential for sustainable social development. Through the supply of high-performance advanced electronic materials for semiconductors, Resonac is contributing to AI technology that realizes new services and industrial processes using large amounts of data, next-generation wireless communication technology (5G, 6G, etc.), improved vehicle safety, improved transportation services and the spread of communications and transportation infrastructure, advancement in digital communication technology, enhanced device energy saving, and the reduction of environmental impact.

Demonstrating our values

Higher functionality and resource conservation of electronic devices using copper clad laminates and solder resist, and co-creation through JOINT2

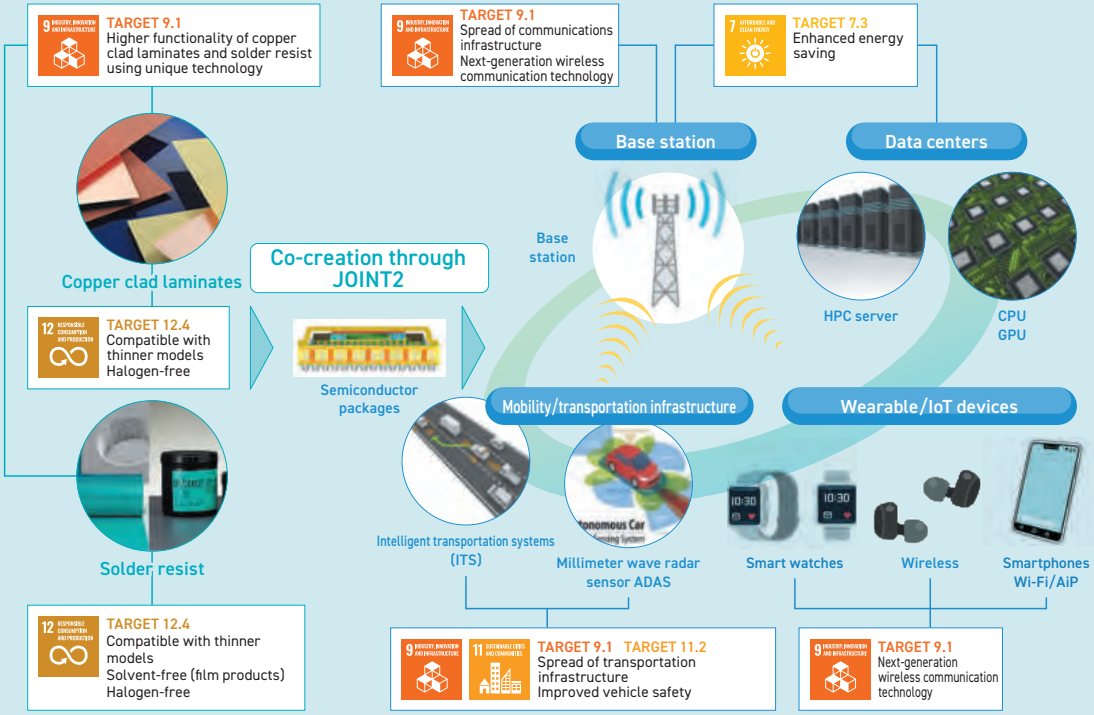
As electronic devices become lighter and smaller, we are developing cutting-edge technologies in a timely manner that can respond to thinner and higher-density semiconductor devices, while also supporting the sophistication of digital communication technology and contributing to the reduction of environmental impact. In addition to the conventional liquid type solder resist, we have developed film products that do not contain solvents, thereby reducing their environmental impact when used by customers, and by making them thinner, we are also contributing to resource conservation. For copper clad laminates, we have created high-performance substrate materials using our unique synthesis technology, contributing to the increased functionality of electronic devices. Moreover, since they can be applied to thin packages, they contribute to resource conservation. Both solder resist and copper clad laminates are halogen-free, which contributes to the reduction of environmental impact.

All of these materials contribute to the resolution of technical issues in production of next-generation semiconductor packages in collaboration with member companies of JOINT2, and realize co-creation with other companies through the supply chain.

P15 / Packaging Solution Center | P78 / Semiconductor and Electronic Materials

In 2023, Resonac's copper clad laminates (MCL-E-705G, 795G) received the General Award from the Japan Chemical Industry Association, and were commended as products that have contributed to the advancement of science and technology.

Contributing to a digital society with semiconductor materials



Comments from stakeholders

Mr. Koji Izumi, Division Manager of Global Purchasing Division, Strategic Corporate Planning Operation of IBIDEN CO.,LTD.

As digital transformation progresses, areas of data utilization will expand further, and the associated rise in data center investments is expected to increase demand for large, highly functional IC package substrates. A stable supply of highly reliable raw materials is essential in order to supply society with competitive IC package substrates that meet the needs for higher functionality and energy conservation. Resonac is an important partner that supports our manufacturing, from copper clad laminates with excellent warpage reduction and flatness, to highly reliable solder resist and photosensitive dry film such as Photec.* We hope to continue deepening our cooperation with Resonac in order to supply highly reliable products and reduce energy consumption and waste generation during production by improving production efficiency within our company.

*Photec is a registered trademark of Resonac.

CTO Roundtable with Young Researchers

Creating Innovation through Co-creation and Synergy while Leading Resonac as It Competes on the Global Stage

(From the left of the photo)
Masato Fukushima Corporate Officer and Chief Technology Officer (CTO)
Keisuke Mameda Cross Functional Group, Functional Molecular Chemistry Research Department, Institute for Polymer Technology (work location: Kawasaki Plant)
Mao Owada Next-Generation High-Speed Communications Materials Group, Stage for Co-creation (work location: Stage for Co-creation)
Kohsuke Kakuda Informatics Group, Research Center for Computational Science and Informatics (work location: Stage for Co-creation)
Yuzuru Kobayashi Structural Control Group, Device Materials Research Department, Institute for Advanced Integrated Technology (work location: Shimodate Plant)

Shared language required for co-creation and synergy

Fukushima: Resonac aims to achieve innovation and business development capabilities that contribute to a sustainable global society. Innovation does not necessarily have to be destructive. When we look at what we have accumulated so far from a different perspective, or when we add something like beauty to a certain function, it can suddenly turn into innovation. As a chemical manufacturer, we want to create important technologies for products that make end users think, "Wow, this is innovative." What do all of you think is necessary to bring about innovation?

Kakuda: I think that the ability to keep up with cutting-edge technology, the ability to incorporate what you have learned into your own technology and implement it, and co-creation are necessary. At the Research Center for Computational Science and Informatics at the Stage for Co-creation P15, I mainly develop AI technology and use it to develop semiconductor materials. So far, I have managed to cut the development period by half and formulate an experiment policy using AI technology. Since the Stage for Co-creation consolidates internal research functions and domestic and overseas knowledge, I feel that it is easy for a chain reaction to occur in which innovation by AI technology leads to further innovation.

Kobayashi: At the Institute for Advanced Integrated Technology, I am currently working with development departments to develop next-generation substrate materials by utilizing the technological synergies of the former Showa Denko K.K. and the former Hitachi Chemical Co., Ltd. When it comes to synergy, I sometimes think that there is still a lack of a shared language due to differences in backgrounds. I think that a shared language involves those in charge sharing the technologies and expertise that they have cultivated thus far, and

spreads a common understanding of what must be done to create products that satisfy customers. I believe that cultivating this kind of shared understanding will lead to new discoveries and spark innovation.

Owada: I would also like to make full use of the synergy of our in-house technologies. The mission of the Next-Generation High-Speed Communications Materials Group, to which I belong, is to develop materials and technologies for composite materials that will be used in the telecommunications field in the 2030s. We are co-creating with the Analysis Center for Materials Science and the Research Center for Computational Science and Informatics from the perspective of establishing analysis methods and predicting properties through simulations. I sometimes think that a shared language would increase the speed of sharing each other's cultures and improve the speed of R&D.

Mameda: I believe that understanding customer needs is essential for innovation. I am in charge of an internal collaboration theme that deals with the development of low-thermal-expansion resins that aim to reduce the warpage of copper clad laminates. In the development theme that I was in charge of before, I regretted that I might not have fully grasped the needs of external customers. Currently, there are related parties and customers in the company, which makes it is easier to understand customers and their future needs. In order to deepen mutual understanding, we are promoting hands-on and face-to-face initiatives, such as creating data sharing sites with our partners and receiving two-week practical training at our partners' locations.

Fukushima: With the merging of the former Showa Denko K.K. and the former Hitachi Chemical Co., Ltd., there should be opportunities to create new innovation in the process of understanding each other's cultures and finding inspiration to create one single culture. To that end, how we go about creating a shared language is both important and challenging. I believe that establishing a shared language starts with discussing the needs of customers and society and what we must do to meet them.

Synergy starts with real communication

Kakuda: In order to deepen discussion, I feel that it is important to connect key people. In addition, I think it is important to connect others with your own abilities and knowledge.

Kobayashi: I feel the same way. When I think about co-creation and synergy, I feel that although connections are currently being formed between divisions, there is still a lack of people who truly understand each other's positions and act accordingly. Resonac possesses computational science technology in addition to material manufacturing and composite technology, and I look forward to what kind of leaps will be made when these three strengths come together.

Owada: I think that, to date, there are many technologies that have not been commercialized, and I would like to create a system that promotes the sharing of such knowledge and utilizes it on a person-in-charge basis.

Mameda: Technology and knowledge are shared at presentations and other events, and I hope that this will lead to the integration of technologies, and that said integration will lead to the creation of value. To that end, it is necessary to promote not only systems but also exchanges between human resources, and I believe that these people-to-people exchanges will lead to the integration of technologies. In addition to understanding data such as the technologies and specifications of those we are co-creating with, I believe that it is important to work together to grasp what customers are truly struggling with and understand significant issues that may not be visible yet.

Fukushima: To achieve that, it is essential to have real communication where people gather and information flows naturally. I'm looking forward to seeing what kinds of reactions will occur as opportunities for communication increase.

Co-creation that deepens empathy

Kobayashi: Since its creation, I have been participating in an in-house circle called "Dhemical," which was voluntarily set up by young employees. In this circle, I belong to a team that considers and researches ideas for new product themes, and I have been involved in this for about three years. Resonac now has an environment that encourages such activities. I feel that this is symbolic of the new Resonac, in the sense that it will lead to co-creation, synergy, and innovation.

Mameda: I have been participating in "REBLUC (Resonac Blue Creators P96)," a new system that began in 2022. REBLUC is a purpose-driven thinking community that started to elicit mutual understanding, where the passions and senses of purpose of each and every employee, such as the desire to change society or contribute to the world, overlap. For example, even if I wanted to solve a problem that I had set myself, or wanted to make friends

to start a new business, I wouldn't have known how to go about doing that with the conventional systems within the company. I feel that REBLUC is a good system that allows everyone to start thinking of such things more lightly and openly.

Kakuda: I believe that creating a culture that facilitates the creation of new businesses will benefit the company both internally and externally. By succeeding with a new business, one can become a pioneer, which leads to motivation. By establishing ourselves as a pioneer, excellent human resources will gather at Resonac, where innovation and further new business development will become possible.

Mameda: I agree that becoming a pioneer has a great impact on motivation. I think there is a lot to be gained from being a number one brand, and I would like to take on the challenge of how far we can establish that, even if it is difficult.

Fukushima: For engineers of a company, I'm sure it must be an irreplaceable joy to see your creations providing value to society and being recognized by the market and customers. I would like for everyone to always pay attention to what kind of value your creations connect to.

Owada: Of course. Customers are the closest to the market, but we are aware that we need to see the market directly, not just through customers.

Kakuda: The direct customers of the Research Center for Computational Science and Informatics are those in charge of experiments in each division within the company. I see the lack of opportunities to interact with customers beyond those as an issue, and I am trying to increase opportunities to do so. When you interact with actual products and customers, it becomes easier to empathize and understand how a certain calculation might be useful, which in turn makes it easier for innovation through co-creation to occur.

Fukushima: In both research and development, it is important to empathize with the target group.

To Resonac engineers competing on the global stage

Fukushima: The process of growth is important, including what kind of career you all choose to pursue, be it in research, development, manufacturing, sales, or something else. Whether you become a specialist as a researcher, or a generalist after experiencing several positions, I would like for you all to enjoy such decisions as part of figuring out your careers. The company is in the process of designing a human resource development system that allows such career choices.

Mameda: Ten years have passed since I joined the company. I have been thinking about whether I should build a career as an engineer going forward, or whether I should gain experience in another division. In order to change society through the power of chemistry, I honestly think it would be wonderful if we could create an environment where everyone can proceed as they wish and fully demonstrate their individual strengths.

Fukushima: Creating such an environment is essential. In R&D, I would like to develop human resources who can think strategically. People who can draw a roadmap for investment, personnel, scheduling, etc. when they want to develop new materials.

Owada: Since starting my current job, I have started observing the market and searching for future changes more than ever before, and I find it both challenging and interesting. I would like to be able to think about the next step based on what I want to focus on the most.

Kobayashi: Sometimes I feel like there is a gap between what I'm good at and what I want to do, and I'm trying to be conscious of the goals I should be looking at for the future. Rather than wait for an appointment from the company, I am strengthening my determination to pursue my own career.

Kakuda: It's been four years since I joined the company, and for the first time, I became a direct mentor to junior employees. While training him I mentor, I want to be inspired by my team members and increase my own experience, so that in five to ten years, both myself and my team members will have broadened our horizons.

Mameda: I would like to become a person who can understand the purpose of customers and the society they want to realize, and contribute to that society. It is important for engineers to connect with sales and business divisions who research the market and come up with ideas on how to connect it to society. As a company as a whole, I would like to think about how to create a system to go from R&D to products.

Fukushima: I think we have entered an era in which engineers are led by people who have an understanding of what the world needs and people who can create systems that keep up with that. I would like to create an environment in which you all can enjoy the current, transitional period, and take on challenges without fear of failure. You all have ownership over your own careers. As technology continues to develop, Resonac's engineers should stay strongly connected to each other, and compete openly on the world stage without being bound by the framework of the company. I strongly feel that all of you are ready for this.

R&D and Intellectual Property Strategies

Web

Mission of Creating Value

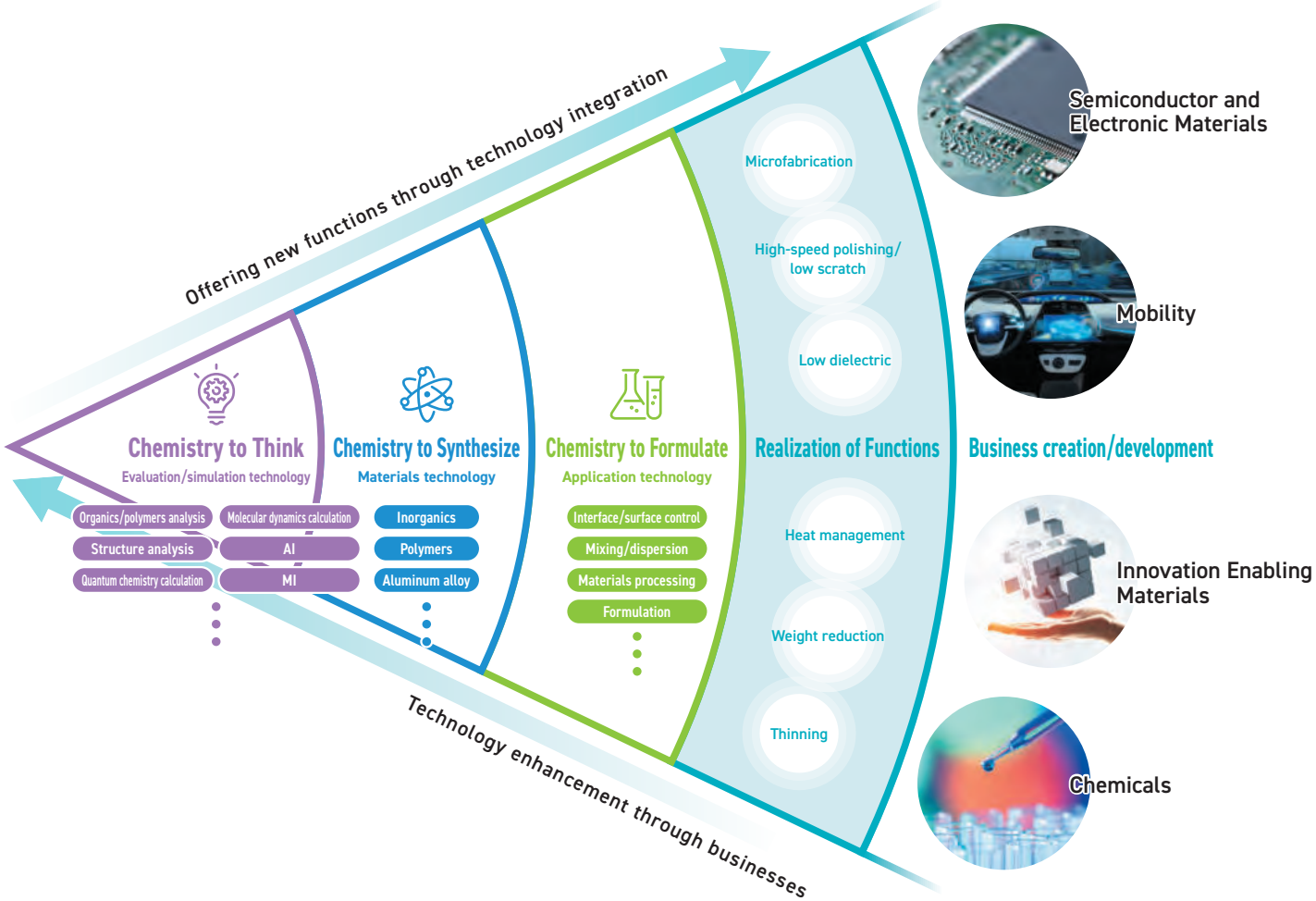
Inspired by its vision of generating synergies between "Chemistry to Synthesize," "Chemistry to Formulate," and "Chemistry to Think," to contribute to the production of world-leading products and technologies, Resonac is advancing R&D activities aimed at accomplishing three missions: broadening of technology portfolios to create innovation, promotion of cross-business technology development, and changing society through long-term R&D projects.

Policies

We will pursue the following three missions to realize our purpose and contribute to resolving social issues by creating the world's No. 1 technologies and products through co-creative technological development.

1. Deepen materials technology and promote horizontal deployment of technologies
2. Strengthen fundamental technologies such as computational science and informatics, analysis and evaluation analysis
3. Facilitate networking and open innovation through the exchange of human resources within the company and with people outside the company, transcending the boundaries of business and technology fields, and expand added value through synergies

In order to drive creation of synergies by technological resonance of "Chemistry to Synthesize," "Chemistry to Formulate," and "Chemistry to Think," the CTO organization is executing corporate R&D activities, management of R&D activities, and oversee Companywide intellectual property (IP) activities.



R&D and Intellectual Property Strategies

Mission of R&D organizations

Institute for Advanced Integrated Technology
- Create new businesses, and research and develop materials including metal, inorganic and composite materials
- Enhance values of existing businesses and products, and cultivate their surrounding areas, which may grow further in the future
- As a hub for evaluation technologies related to power modules, promote the entire process from development of materials and composites to design and evaluation of devices

Institute for Polymer Technology
- Research and develop materials including organic and polymeric materials
- Enhance values of existing businesses and products, and cultivate their surrounding areas, which may grow further in the future
- As an analysis center for composition, general structure, surface structure and microstructure of organic and inorganic materials, accelerate the product development cycle of material development, analysis and evaluation

Research Center for Computational Science and Informatics
- Promote Companywide R&D with computational science and informatics
- Solve problems of products through atomic- and molecular-level simulation/structural and fluid simulation/AI analysis technologies; accumulate, analyze and utilize internal and external technical data
- Establish the base of data-driven R&D and develop the talent

Stage for Co-creation
- Promote long-term R&D projects that contribute to resolving social issues in collaboration with a diverse range of people inside and outside Resonac

P15 / Stage for Co-creation

Intellectual Property Department
- Oversee the intellectual property activities of the entire company and contribute to R&D, business, and management strategies

R&D Planning Department
- Ensure smooth operation of Companywide R&D activities based on Resonac's diverse technologies and business domains
- Formulate technology strategies, promote open innovation, and establish and operate various infrastructure and systems to support the execution of R&D activities

Roadmap for realizing the long-term vision

Results in 2022	Plan for 2023	Vision for the future (2030)
• Completed substantial integration of functions with a view to complete integration. Pursued synergy of the two companies' technologies centering on development of semiconductor materials • With regard to deep-level digital transformation, deployed electronic lab notebooks and statistical analysis software throughout the Company • Organized the internal structure to vigorously promote open innovation inside and outside the Company • Clarified the ideal post-integration state of R&D human resources	• As projects to generate synergies, accelerate and enrich development of advanced materials in the semiconductor field and promote vertical collaboration • With regard to deep-level digital transformation, accelerate R&D utilizing computational science and data-driven R&D • Facilitate co-creation through vigorous open innovation inside and outside the Company • Accelerate R&D activities throughout the company to achieve carbon neutrality • Formulate a plan to develop leaders who will drive R&D activities and professional-minded human resources to develop core technology	• Be a provider of technology and solutions attuned to the needs of society, the market, and customers • Be a driving force of unceasing innovation by addressing and resolving technological issues inside and outside the Company • Be the source of a stream of technologies contributing to a truly sustainable society by enhancing R&D activities from a long-term perspective • Be the source of a stream of leaders and professional-minded human resources for the above R&D activities

Targets and results of KPIs on material issues

P58 / Material Issues and Non-financial KPIs

KPIs and 2025 targets	Results in 2022
Co-creation with external parties: • Promotion of open innovation and increase of the ratio of external themes • Number of papers and external presentations • Increase in the number of cross-organizational themes	• Start of consideration of actions to facilitate open innovation
Strengthening of R&D and intellectual property strategies • Increase of the ratio of introduction of life cycle assessment (LCA) • Enhancement of intellectual property indicators, such as Market Coverage (MC), which indicates market value, and Technology Relevance (TR), which indicates technological value	• Started LCA calculation of research themes • Set targets of IP indicators
Human resource development • Assignment of leaders and professional-minded personnel at an appropriate ratio • Completion of a venue for co-creation	• Started discussion on personnel assignment • Opened the Stage for Co-creation

Priority Measures for 2023

Based on the measures prescribed for realizing our long-term vision, in 2023 we are promoting activities focused on four priority measures.

1. **Promotion of projects to generate synergies and broaden our technology portfolio:** Business units and R&D organizations will work together to generate synergies and accelerate and enrich development of advanced materials in the semiconductor field and promote vertical collaboration. The Power Module Integration Center is constructing a system to accelerate co-creation with customers for each material. P16
2. **Implementation of deep-level digital transformation:** We will accelerate R&D utilizing computational science and data-driven R&D and construct a material informatics (MI) platform to foster a culture conducive to utilizing data and promote the evolution of digital technologies using MI and process informatics. P67
3. **Promotion of co-creation:** This measure will be advanced through the pursuit of internal synergies as well as through open innovation with external partners. P15 P67
4. **Achievement of carbon neutrality:** The path toward carbon neutrality will be paved by our efforts utilizing the new Stage for Co-creation and activities based on long-term R&D themes, such as a carbon cycle through plastic recycling, CO_2 separation and recovery, and conversion to chemicals. P16

Through such ongoing efforts, we aim to drive unceasing innovation leading to resolution of technological issues inside and outside the Company by 2030. We also aim to be the source of a stream of technologies contributing to a sustainable society by enhancing R&D activities from a long-term perspective.

R&D and Intellectual Property Strategies

Co-creation Initiatives to Resolve Social Issues

Digital Transformation of R&D using computational science and AI—Co-creation with external parties and adoption of cutting-edge technology

DX

The Research Center for Computational Science and Informatics is one of the few organizations in the world that integrates computational science (molecular simulation, structural and fluid simulation) and informatics (AI[*1], MI[*2], image analysis, natural language processing, and development of the infrastructure for data utilization) technologies at a single location. The Center's technologies are applied to R&D issues in all of Resonac's business segments. The Center's mission is to position Resonac as a world-class functional chemical manufacturer by maximizing R&D capabilities and business competitiveness.

In 2022, the Center had 35 opportunities to present its outcomes externally, including lectures by invitation, publishing of papers, and conference presentations in Japan and abroad. The Center's activities were also covered by numerous news releases and newspaper articles. The Center's initiatives for digital transformation of R&D based on "developing infrastructure for data utilization that supports accumulation, analysis, and utilization of data" and "fostering processes, culture, and organizations that utilize data" have attracted great interest in society, and we have invited many government agencies and companies that have requested our services to the Stage for Co-creation to exchange opinions. Web

Moreover, through co-creation with a U.S. startup we are adopting and utilizing cutting-edge technologies. We collaborated with QSimulate, a company with cutting-edge simulation technologies, on the development of a new capability for its quantum simulation platform for materials development, which reduces an experienced researcher's workload by more than half. Web We are also working with Enthought, a startup that supports digital transformation of its partners, to transfer Enthought's cutting-edge AI and MI skills to our young data scientists who are promoting deployment and utilization of AI and MI applications throughout our material development departments. Web

Cases of Co-creation with Internal and External Partners in 2022 and Outcomes

Cases of Co-creation with Internal Partners We hold Technology Forums as opportunities for employees involved in R&D throughout the company to interact and discuss beyond the boundaries of their place of work and R&D fields. In 2022, the forum had 730 participants. Presentations of 67 themes and feedback on them strengthened technology sharing and relationships among engineers throughout the Group.

In addition, in-house working group activities are conducted with the aim of solving problems in product development by combining the Group's materials technologies and evaluation and analysis technologies. The application of technologies to new products is already yielding good results.

Cases of Co-creation with External Partners We are conducting Open Innovation (OI)[*3] activities to search for partners and promote collaboration worldwide. In 2022, our dedicated OI team, which promotes OI with external partners, obtained information on more than 2,000 innovative startup technologies from affiliated venture capital firms. Having meticulously examined the potential synergy effects between these technologies and our own technologies, we started collaboration with five startups with a view to introducing their technologies.

On the Stage for Co-creation, we promote long-term R&D themes that will lead to the creation of future businesses.

As part of the initiatives, we have started collaboration with Microwave Chemical to establish advanced recycling technology that realizes plastic-to-plastic circulation. Using microwave irradiation, ethylene and propylene, which are feedstocks for plastics, can be efficiently produced from used plastics. In addition to accelerating R&D with a view to practical application of this technology, we aim to resolve social issues by expanding the circle of co-creation to a wide range of stakeholders, including local governments and consumers.

P16 / Long-term R&D Themes Contributing to the Next Generation

Open innovation through co-creation with a range of stakeholders

*1 Artificial intelligence
*2 Materials informatics
3 OI is a methodology that incorporates the knowledge and technology possessed by external organizations in product development and technological innovation to break away from the self-sufficiency. It was proposed by Henry Chesbrough in 2003.
Henry Chesbrough, "Open innovation: The new imperative for creating and profiting from technology," Harvard Business School Press, 2003.

R&D and Intellectual Property Strategies

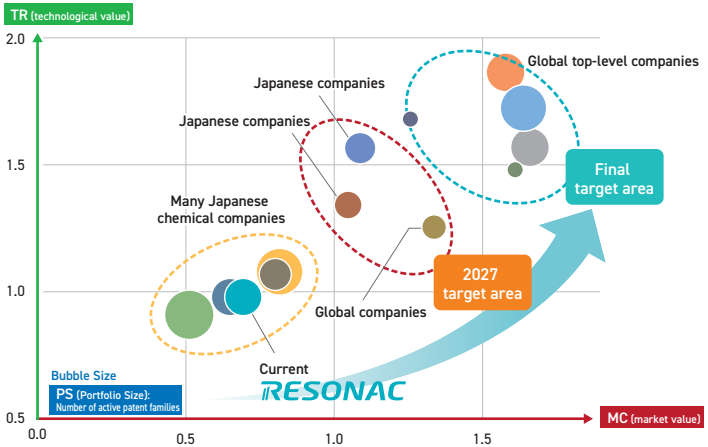
Contribution to Business by Vigorous Utilization of Intellectual Property

The objective is to increase the number of patents that attract the attention of other companies and obtain rights in countries with large markets in cooperation with business units. By further increasing the market value (measured by MC[*1]) and technological value (measured by TR[*2]) of our patent network, we aim to raise MC and TR to the area indicated by the dotted line in the center of the figure below by 2027 as the first step, and eventually to be on par with global top-level companies. In addition, our MC and TR are trending upward compared with the previous year, reflecting our commencement of a post-merger portfolio review, and we are beginning to see positive results of integrated intellectual property activities.

We will enhance our business advantage through the timely and appropriate exercise of our intellectual property rights. To this end, we will further strengthen our patent network to achieve differentiation of our proprietary technologies from those of competitors.

*1 Market Coverage (MC) is a score calculated based on information on countries where patent applications are filed.
*2 TR (Technology Relevance) is a score calculated based on the number of citations.

Target area of market value and technological value of the patent network



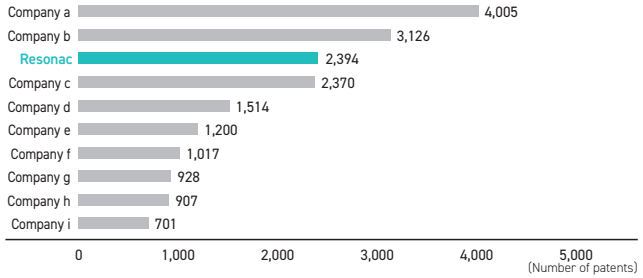
*Evaluation of active patents using LexisNexis PatentSight® patent analytics

Utilization of IP Landscape to Develop Patent Application Strategies in line with the Situation of Each Business Segment and Business

For each business, the Intellectual Property Department, business units, and R&D organizations collaborate and utilize the IP landscape to visualize the patents held by Resonac and clarify Resonac's position in each technological field. Based on the results of IP landscaping and the issues of each business, such as the EBITDA margin, we develop application strategies appropriate for each business to expand and strengthen our patent network.

We have a wide range of technologies related to the semiconductor field, from front-end to back-end processes. Our patents in this field are on a par with those of global companies. Taking CMP slurry, one of the semiconductor materials, as an example, a bird's-eye view of related patents shows that we hold patents related to our key technologies such as nanoceria slurry, ceria slurry, silica slurry, and polymer additives, which are the source of our strength. The IP landscape also indicates the technologies that are the source of our strength.

Number of Patents Held in the Semiconductor Field



*Evaluation of active patents using LexisNexis PatentSight® patent analytics

Competitive Advantage in the CMP Slurry Field

*Evaluation using the ThemeScape function of Clarivate's Derwent Innovation patent analysis tool

Vigorous Dissemination of IP-related Information to External Parties Web

With the aim of enhancing corporate value, we vigorously communicate our IP-related initiatives to external parties.

In addition to timely news releases on the gaining of patents related to our key technologies and the construction of our patent network, we promote IP landscape and technology trend research by utilizing our advanced IP information analysis technology, and disseminate the results of such research to external parties. Moreover, we have posted IP information on our website as fact data on our ESG initiatives. Web We will continue to strive to communicate our intellectual property policies to investors in an easy-to-understand manner and enhance information disclosure.

Marketing Strategies

Mission of Creating Value

To resolve social issues, through proposal activities that help customers resolve their technological issues, we create new business and contribute to Resonac's sustainable growth. Moreover, we promote Companywide standardization of activities to offer problem-solving value propositions to make them Resonac marketing processes. Furthermore, we will promote construction and operation of digital tools throughout the Company to improve the efficiency of marketing-related operations.

Policies and Management

Our marketing divisions (the CMO organization), comprising the Corporate Marketing Department, Regional Account Planning Department, and the Innovation Center, are executing marketing efforts in collaboration with business units, sales departments, and site oversight departments in Japan and overseas.

In addition to planning of Companywide marketing strategies, the Corporate Marketing Department formulates and implements market-specific or application-specific cross-divisional marketing plans and also constructs and operates the marketing platform common throughout the Company. The Regional Account Planning Department is planning and building a system to promote growth strategies based on regions and customers. The Innovation Center serves as a venue for triggering co-creation and relationship building with stakeholders. Hands-on exhibits enable visitors to experience some of our core technologies, thus facilitating achievement of our goal of engaging in co-creation with customers, business partners, and all of our other stakeholders.

Strategy for Realizing the Long-Term Vision

We have collectively defined our activities for offering problem-solving value propositions to customers as Resonac marketing processes, and utilize frameworks such as MGAP*1 and VP*2 when considering new businesses. We use MGAP to identify technological issues faced by customers, organize VPs in relation to the features of our products (Features), differentiation from competing technologies (Advantages), and benefits to be gained by customers (Benefits), and repeatedly verify product concepts in order to promote marketing. We are promoting Companywide standardization of marketing activities, using the common frameworks in cooperation with the R&D and intellectual property departments (the CTO organization) in the early phase of marketing, and with sales divisions in a later phase once customer evaluation has progressed.

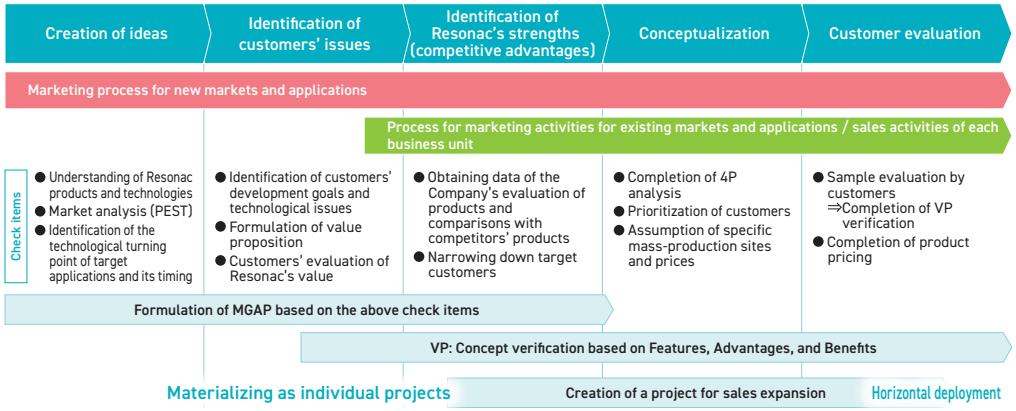
*1 MGAP: Multi Generation Application Planning
*2 VP: Value Proposition
*3 CRM: Customer Relationship Management

Roadmap for realizing the long-term vision

Results in 2022	Plan for 2023	Vision for the future (2030)
● Approached promising markets using Resonac marketing processes and began creation of specific new projects ● Promoted greater sophistication of the marketing platform utilizing digital technology	● Accelerate creation of new projects in specific markets (EV, power module) by promoting entrenchment of Resonac marketing processes throughout the Company ● Strengthen digital marketing activities overseas and promote utilization of CRM*3 systems to visualize new projects throughout the Company	● Resonac marketing processes are standardized and entrenched throughout the Company. Marketing divisions (the CMO organization), business units, and sales divisions including those overseas collaborate and create new projects attuned to market needs of the times. ● Digital marketing at overseas sales companies is systematized. CRM systems have become the standard infrastructure for visualization of sales and marketing activities.

Resonac marketing processes

Resonac marketing processes are activities to identify customers' issues, transform Resonac's strengths into value, and offer value propositions.



Promote marketing in cooperation with the CTO organization and business units, using the above processes

Marketing Strategies

Targets and results of KPIs on material issues

P58 / Material Issues and Non-financial KPIs

KPIs and 2025 targets	Results in 2022
Vitalization of customer- and market-driven activities ● Enhancement of product pipelines that contribute to customer value	● Execution of marketing based on MGAP and VP
Promotion of digitalization ● Strengthening of overseas and regional information dissemination using digital marketing ● Centralized Companywide pipeline management	● Execution of digital marketing activities mainly by principal business headquarters ● Identification of business issues for companywide application of CRM
Enhancement of customer database ● Strengthening of customer strategies of businesses, utilizing customer database	● Identification of key customers and clarification of issues for establishment of a visualization system

Co-Creation Initiatives to Resolve Social Issues

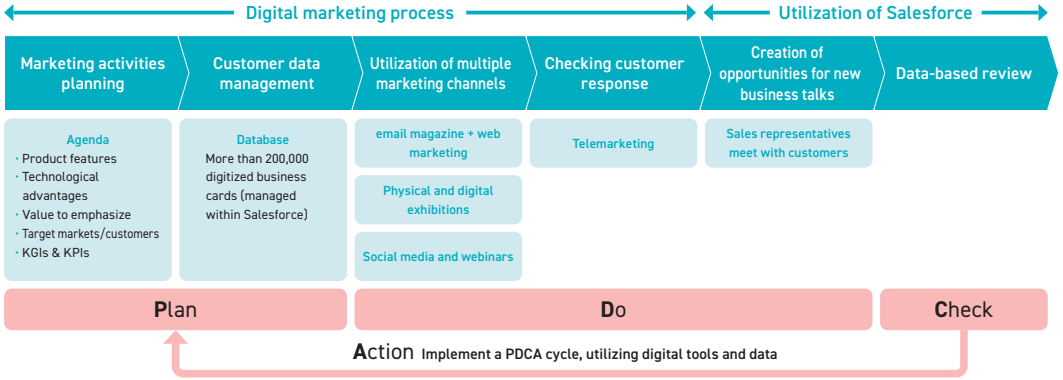
Promotion of Digital Marketing

DX

The use of digital platforms is indispensable for efficiently and comprehensively promoting value propositions in the market. The Corporate Marketing Department, in cooperation with the CDO organization and the related parties in each business unit, is promoting digital marketing utilizing the Web, email magazines, webinars, etc., and promoting the use of CRM systems to visualize and share the results of marketing activities.

Overview of Activities of the Digital Marketing Team and the CRM Team

Supporting Companywide marketing activities based on the processes below



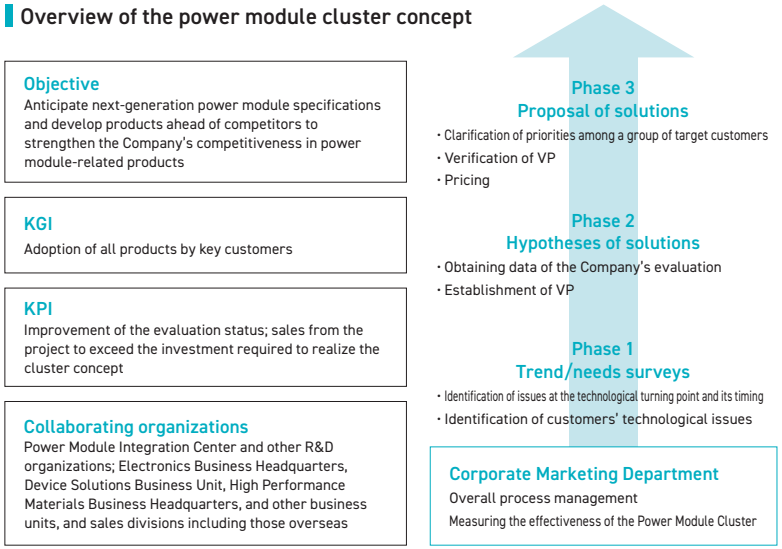
Marketing Activities in the Automotive Market

While promoting entrenchment of Resonac marketing processes throughout the Company, we are promoting marketing activities in markets with sustainable growth potential in cooperation with R&D and intellectual property departments (the CTO organization) and business units. Specifically, we are focusing on value propositions for batteries for EVs and motor-related materials, demand for which is expected to grow rapidly in the automotive market, and for power module-related materials for the electronics market.

In line with the global expansion of the EV market, power modules are attracting attention as a stable power source for driving the motors used in EVs and for charging the batteries. Resonac has established a Companywide project organization, the Power Module Cluster, to address this market, and is offering value propositions through the combination of multiple products, rather than creation of a business through provision of standalone products.

P16 / Co-creation with Customers Started for Evaluation of Power Module Materials

Overview of the power module cluster concept



Digital Strategies

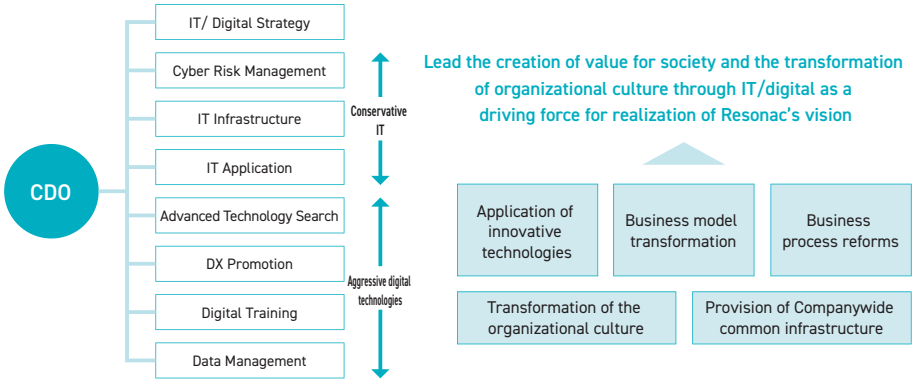
Mission of Creating Value

We will evolve and refine our business processes both internally and externally through advanced and thorough utilization of digital technologies and data and lead the transformation of our organizational culture. In addition, through the development of core digital-proficient human resources and their optimum assignment, we will continue improving and transforming our businesses and contribute to co-creation with all stakeholders and the creation of social value.

Policies and Management

Our basic digital transformation policy is to contribute to the enhancement of competitiveness and the creation of social value through the utilization of industry-leading digital technologies. In other words, by creating an environment that enables thorough utilization of digital technologies and promoting human resource development, we will strengthen the Group's innovation and business development capabilities and competitiveness. The eight departments that belong to the CDO organization closely collaborate according to objectives and issues to achieve Resonac's vision of becoming a company that can compete globally, a company that contributes to a sustainable global society, and a company that develops co-creative talent that represents Japan's manufacturing industry.

To this end, we will promote (1) development of human resources proficient in advanced digital skills, (2) development of an internal digital environment, (3) standardization of business processes and evolution and transformation of business processes through Groupwide utilization of digital technologies, and (4) operation of management-level meetings responsible for governance and monitoring of effectiveness to promote strategic digital investment.

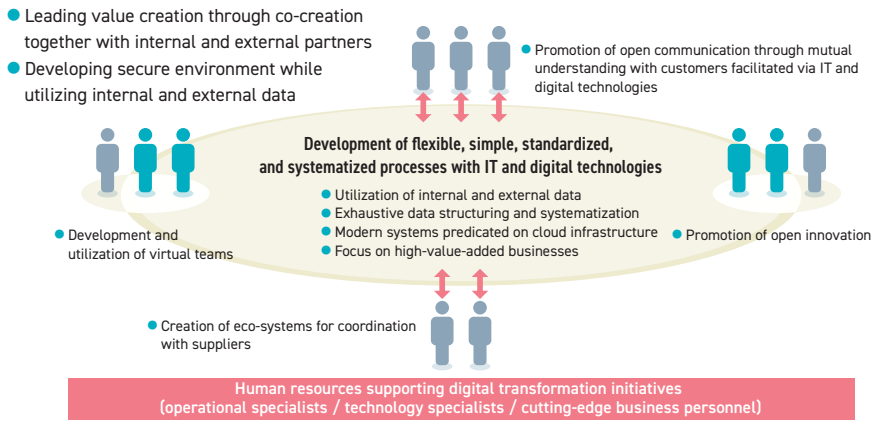


Digital Innovation Strategies

By updating our business systems to an open, secure, and modern architecture and organically linking them to visualize business processes, we aim to enable management of the data of all our business operations. We will analyze the issues and future prospects of entire business processes through utilization of the data thus obtained within the Group and digital technologies so as to continue the evolution of our business processes both internally and externally.

Moreover, having defined the three types of human resources needed to implement digital transformation, namely, high-level operational specialists, technology specialists, and cutting-edge business personnel, we are focusing on skill development. Furthermore, we will clarify digital transformation issues common to the Group as a whole and assign appropriate personnel according to the themes to promote DX swiftly.

Goal of IT and digital technology strategies



IT and Digital Technology Strategies

Roadmap for realizing the long-term vision

Results in 2022	Plan for 2023	Vision for the future (2030)
● Start of vigorous recruitment of digital-proficient human resources ● Formulation of digital transformation strategies toward data-driven management and launch of Resonac Way Transformation (RWT) to standardize and systematize business processes, rules, and data	● Start of visualization and analysis of information on business administration by RWT ● Concentration and development of human resources with expertise in key themes by utilizing the iCompetency Dictionary proposed by the Information-technology Promotion Agency, Japan (IPA) ● Utilization of AMI's human resources with advanced digital skill sets P88	● Digital transformation is promoted in all businesses and operations, and non-core operational areas that do not contribute to Resonac's competitiveness are automated by 2030. ● Resources are concentrated on core operations that are the source of our competitiveness and digital technologies are utilized to promote co-creation with stakeholders and contribute to creation of high social value.

Digital transformation at Resonac (Links to relevant pages and the website)

Classification	Title	Relevance
Application of innovative technologies	Establishment of integrated data pipeline to collect, format, and accumulate data and analyze them with AI	P67 / Web
	Collaboration with QSimulate on the development of a system that can reduce man-hour of the workflow of quantum science calculation for materials development by more than half	P67 / Web
	Participation in Enthought's materials informatics (MI) acceleration program	P67 / Web
	Strengthening of mobility materials development capabilities using MI	P82
Business process reforms	Promotion of digital marketing	P70
	Establishment of a database for centralized management of semiconductor supply chain information	P80
Business model transformation	Provision of digital solutions for operation of electric furnaces through AMI	P88 / Web

Targets and results of KPIs on material issues

P58 / Material Issues and Non-financial KPIs

Targets for 2025	Results in 2022
Data-driven management ● Completion of financial data standardization concept, establishment of Companywide standardized data analysis platform ● Establishment of a process for obtaining ESG data	● Start of utilization of software for visualization and analysis ● Launch of RWT activities
Promotion of digital transformation and development of professional-minded human resources ● Promotion of projects through collaboration between centers of excellence organization and business units	● Start of a cross-organizational structure centering on the Digital Transformation Department ● Strengthening of the pool of digital-proficient human resources by hiring personnel who can work effectively to promote digital transformation right away
Enhancement of IT and digital literacy ● Digital experience and education of all employees	● Improvement of a structure for education and training

Resonac Way Transformation Launched

Resonac Way is both the state to which our employees aspire and the fundamental manner in which we do our work. In 2022 we began Groupwide initiatives, named "Resonac Way Transformation (RWT)," for unification of Resonac's terminology, standardization of business processes, and structuring of data. The objective is to eliminate, or minimize as much as possible, misunderstandings and rework caused by different definitions of terms and inefficiency caused by differences in business processes, and to lay the foundation for quick decision-making by structuring data.

We will promote RWT transcending business and regional boundaries to create an environment and foundation where employees can focus on their essential work autonomously and efficiently. We will promote visualization and analysis of business administration information to realize faster and sophisticated management decision-making by the end of 2023.

Topics

Productivity Improvement by Using Internal Social Media (Workplace)

DX

For swift information sharing among frontline workers and managers and supervisors at manufacturing sites, use of Workplace from Meta, an enterprise communication tool, is spreading, starting with manufacturing sites in Japan.

Until now, paper, whiteboards, and telephones have been the primary means of communicating information at manufacturing sites, and workers do not have computers. Such workers are provided with smartphones and tablets that are configured to ensure information security so that use of Workplace is safe and secure.

This allows sharing of work know-how and information on problems that occur at frontlines together with images and videos. In the event of equipment stoppages or other problems, supervisors, from wherever they are, can quickly issue instructions and address problems, enabling quick recovery. These initiatives are resulting in a series of cases of productivity improvement and reduction of overtime.

Semiconductor Materials Global Top Management Roundtable

Semiconductor Materials Business: Key to Resonac's Growth

Sim Mong Teck
Chairman
Resonac Asia-Pacific Pte. Ltd.

Tomomitsu Maoka
Director, Managing Corporate Officer, Chief Strategy Officer (CSO)
Resonac Holdings Corporation

Youjie Tsai
Chairman and General Manager
Resonac International (Taiwan) Co., Ltd.

Hiroyuki Yamashita
Managing Corporate Officer, Resonac Holdings Corporation
General Manager, Electronics Business Headquarters, Resonac Corporation

Dennis Parker
President and COO
Resonac America, Inc.

The Semiconductor Materials Business is positioned as a growth business in Resonac's long-term vision. With strong demand expected to continue over the long term, there are growing customer demands for further strengthening of technological development capabilities and supply chain management including product supply, environment, and human rights, and Resonac recognizes the need to respond proactively to these demands.
Hiroyuki Yamashita, who oversees the Electronics Business, the heads of sales in the U.S., Taiwan, and Singapore, as well as CSO Tomomitsu Maoka, all gathered to discuss Resonac's strategies, challenges, and responses.

Characteristics of the Semiconductor Materials Business and Reason for Resonac's Role

Maoka: Currently, the global semiconductor business is undergoing a period of drastic change as countries are enclosing their production bases. The semiconductor materials field, which is Resonac's main business, is expected to grow in line with the increasing demand for semiconductors, with a CAGR of 5.2% until 2025. In particular, double-digit growth rates are expected for materials for high-performance semiconductors, which is our focus.

Yamashita: The Semiconductor Materials Business is characterized by the fact that it is difficult to commoditize products because it is necessary to communicate with customers collaboratively in pursuit of miniaturization and package complexity. Resonac, which has a large number of products with the world's top market share, is able to keep abreast of technological trends and customer needs through communication with customers, and is always ahead of the curve in technological development.

The semiconductor materials business has high barriers to entry. Resonac, born from the integration of Showa Denko and Hitachi Chemical, has developed a number of world-class semiconductor materials and leads the industry. [Maoka]

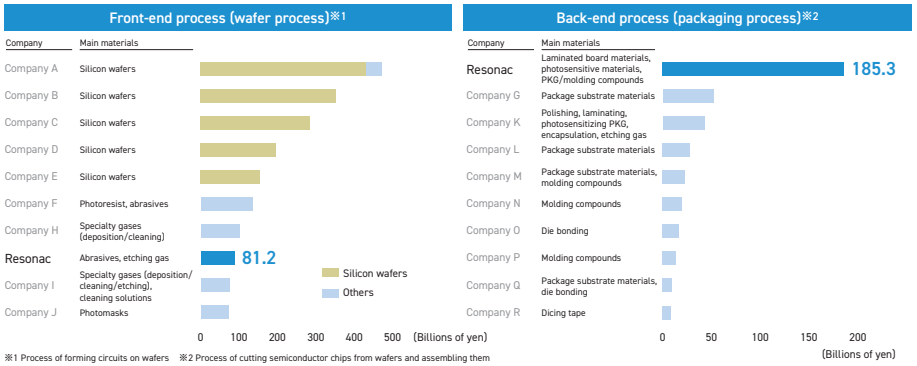
Maoka: Production processes that are determined as a result of communication tend to avoid change. The material design of semiconductor materials is highly challenging, requiring optimization by integrating electrical engineering, thermodynamics, structural mechanics, and physical property chemistry. It is a business with high barriers to entry.

Yamashita: This is a field where Resonac's long-standing relationships of trust with its customers come into play. Another advantage is Resonac's unique positioning within the semiconductor materials industry. Most semiconductor material manufacturers are niche market players that demonstrate strength in a few products, and there are not many players like Resonac that are involved in multiple products with high market shares.

Maoka: In the age to come, as semiconductor manufacturing becomes increasingly enclosed within each country, semiconductor material manufacturers will need to expand their production bases in each country, and they will need to be large in size to survive. This is why M&A is becoming more active, and Resonac has become a pioneer in this field.

Yamashita: Resonac has products with a high market share in the front-end and back-end processes of semiconductor production. Until now, technological innovation in semiconductors has been driven by front-end processes, which are responsible for the miniaturization of circuits formed on silicon wafers. However, with the 2 nm process approaching, further miniaturization has become difficult, and it will be necessary to achieve higher functionality through back-end mounting technology. In this back-end process, multiple materials are used to achieve high functionality, and the complex three-dimensional structure of a so-called 2.X-dimension package requires the optimal combination of more than 10 materials. Resonac excels at matching up with its customers, which is why Resonac continues to grow with back-end materials accounting for approximately 70% in semiconductor materials sales.

Resonac's position in the front-end and back-end processes of semiconductor manufacturing

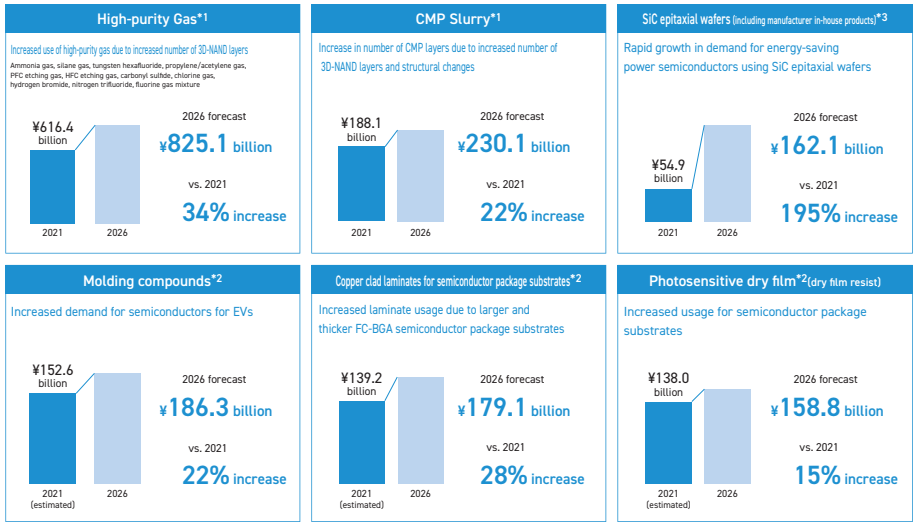


※1 Process of forming circuits on wafers ※2 Process of cutting semiconductor chips from wafers and assembling them
Source: Company research (as of November 2022)

Resonac's Semiconductor Materials Business Strategy

Maoka: Going forward, materials in which we have a high market share are also expected to grow across the board. We have positioned the Semiconductor Materials Business as our growth business, and our business and corporate headquarters will work together to analyze management resources and the external environment, set viable strategies based on cost-effectiveness and feasibility, and make focused investments.

Growth projection for semiconductor materials, in which the company has a high market share



Source: *1 Fuji Keizai, "2022 Current Status and Future Prospects of the Semiconductor Materials Market"
*2 Fuji Chimera Research Institute, "2021 New Materials Handbook for Electronics Packaging"
*3 Compound Semiconductor Market Monitor, Module I, Q2 2022, prepared by the Company based on data from Yole Intelligence three companies (as of November 2022)
Remarks: High-purity gas, CMP slurry, and SiC epitaxial wafers are converted to ¥130 per dollar.

Investing over ¥250.0 billion over the next five years. Resonac, which has many products with the world's No. 1 market share in the semiconductor materials field, will formulate a strategy based on risk analysis and promote co-creation on a global basis to fulfill its societal role.

[Yamashita]

In the U.S. market, where cutting-edge technology is in high demand, it makes a lot of sense for Resonac to take the lead in expanding co-creation efforts. [Dennis]

Yamashita: In 2022, sales increased on the back of strong demand for semiconductors. On the other hand, operating income decreased due to the time lag in the transfer of raw material price hikes to selling prices and other factors. In 2023, demand and inventory adjustment trends are becoming increasingly uncertain, and it is extremely difficult to foresee the timing of recovery from the adjustment. Although the current external environment is severe, the semiconductor market will continue to expand over the medium- to long-term, and we want to make forward-looking investments for the next several years. We will execute timely capital investments commensurate with the growth of the semiconductor market, especially strategic investments related to increased production, rationalization, and new products, to ensure a steady return on our investment.

Strengthening of Development Capabilities and Co-creation in Line with Market Speed

Dennis: Resonac's presence in the U.S. market has been also increasing, especially in recent years, including inquiries for etching gases and CMP slurries. Customers demand high levels of technology, and Resonac America, Inc. is working together with its customers to develop advanced design and manufacturing technologies.

Yamashita: We keep recognizing the importance of meeting customer expectations, strengthening our development capabilities to keep up with the speed of the market, and accelerating the launch of new products. To this end, we are considering the possibility of establishing in the U.S. a function similar to the Packaging Solutions Center that we have established in Japan. We would like to make this a place for co-creation with semiconductor, materials and equipment manufacturers, as well as a place to consolidate information on advanced technologies.

Maoka: In the U.S., the Chips Act is creating a unique semiconductor ecosystem. By entering this ecosystem, rather than maintaining the status quo, we will have the opportunity to acquire information on cutting-edge packages and to use our own materials in the early development phase, aiming to continue to be the global No. 1 in back-end processes. In fact, overseas customers who have observed our co-creation efforts in Japan have been both surprised and highly impressed. We expect that this co-creation will also help differentiate the Japanese semiconductor industry itself.

Dennis: In the U.S. market, where cutting-edge technology is in high demand, we believe it is very meaningful for Resonac to take the lead in expanding this kind of co-creation initiative in order to increase its presence.

Regional Strategies and Supply Chain Management

Dennis: As geopolitical risks increase, major semiconductor manufacturers are increasing their investments and facilities in the U.S., and demand for semiconductor materials in the U.S. is also growing. Improvements are expected for our supply chain, which produces and fills products at our production facilities in Asia and transports them to the United States.

Sim: One of the major issues in the Asian region, especially in Singapore, is supply chain issues. Aiming to maintain stable supply and competitiveness, we are building a supply chain system and centrally managing information in the Indo-Pacific region. In April 2023, we presented a case study on our global supply chain system in Malaysia. Due to environmental issues, production and logistics constraints, and geopolitical risks, there is a need to reduce risks and improve the efficiency of the entire semiconductor supply chain.

Maoka: To address these issues, we have placed a dedicated liaison in the Corporate Planning Department at our head office since April 2022. As one of the leaders in the semiconductor materials industry, we plan to work with the Ministry of Economy, Trade and Industry to expand our activities to reduce risks and improve efficiency throughout the supply chain.

In response to the demand to reduce risks and improve efficiency throughout the supply chain, including business continuity, the environment, and human rights, the Singapore base is also promoting proactive information management. [Sim]

In response to the expected strong demand in the semiconductor materials field, we have made large-scale investments in Taiwan to increase production capacity for nanoceria slurries and copper clad laminates. We are also preparing for geopolitical risks. [Tsai]

Tsai: In order to build a foundation for growth in Taiwan, we have been making efforts with a focus on acquiring new projects in cutting-edge and growing fields such as next-generation communications (5G), HPC, AI, and xEV, which are key trends. In January of this year, Resonac Semiconductor Materials (Taiwan) Co., Ltd. expanded its production capacity for nanoceria slurries, which are used in the formation process of semiconductor logic circuits for cutting-edge devices, to meet the rapidly growing demand in these growth fields. In July, the company also increased the capacity of its ceria slurries, which can achieve both high polishing speed and low scratches. Likewise, we plan to increase our production capacity of copper clad laminates for semiconductor package substrates by 2025 with the introduction of new production lines and equipment.

Yamashita: On the other hand, we have many customers in China and Taiwan, and our business strategy requires us to closely monitor the trends and purchasing strategies of our customers in Greater China, including end users. The Electronics Business Headquarters, which I lead, has a high ratio of employees in Greater China, about 30%, and I believe that risk management, including employee employment and safety management, is important.

Maoka: In the semiconductor industry, with the major technologies being held by the U.S. and manufacturing in Taiwan and materials in Japan, the division of labor is divided by country. Monitoring geopolitics and business continuity management (BCM) are becoming increasingly important. We are working with the governments and administrations of each country, gathering information and advancing scenario planning, to establish a system capable of immediate response.

Sim: We recognize that issues such as the environment and human rights are also important matters demanded by society and our customers, and we at the front lines of sales are determined to respond with a high level of awareness. More and more, we recognize the need to collaborate with customers, suppliers, and our colleagues at Resonac around the world.

As a Leader in the Global Semiconductor Materials Business

Maoka: Resonac has many products with the world's No. 1 share in the semiconductor materials field, and we view our responsibility to society as very important. The rapid deterioration of the global economy and the decline in consumer demand are affecting the semiconductor market as well, and it is currently difficult to determine at what point the market will recover. However, the semiconductor market will continue to expand in the long-term. With an eye on a sudden recovery, we will continue to monitor market trends and work to obtain early information on the timing of a demand recovery.

Yamashita: Our business headquarters' three-year plan through 2025 focuses on developing new products and providing one-stop solutions centered on semiconductor materials, achieving highly efficient operations by strengthening supply chain management, and building strong partnerships in the value chain.

Maoka: It is all about co-creation, isn't it. What can be solved by a single company will become less and less. Resonac will drive the global semiconductor materials business by creating together with all stakeholders.

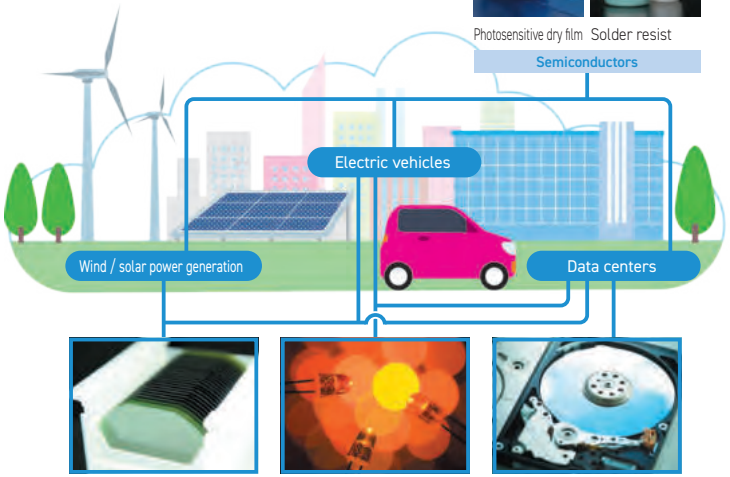
Yamashita: Through semiconductor materials, we will support the future development of digital society and contribute to sustainable social development.

Business Strategies

Semiconductor and Electronic Materials

Resonac products in everyday life

Photosensitive dry film Solder resist



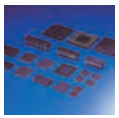
SiC epitaxial wafers

Optical semiconductors

HD media

CMP slurry

Die bonding film

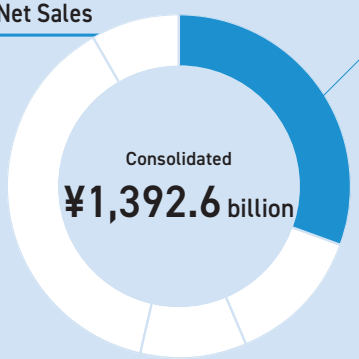


Epoxy molding compounds

Copper clad laminates

High-purity gases, etc.

Fiscal 2022 Net Sales



Semiconductor and Electronic Materials

Segment net sales

¥427.2 billion

Semiconductor materials: Front-end **¥100.2 billion**

Semiconductor materials: Back-end **¥188.3 billion**

Device Solutions **¥99.3 billion**

Segment operating income

¥45.5 billion

Management Target

EBITDA margin **30% or more** in 2025

Strategy for Realizing the Long-Term Vision

As a leading global manufacturer, Resonac is driving the advancement of semiconductor technologies with its strength in materials. Our front-end and back-end semiconductor materials are key technology contributing to people's happiness while protecting the environment through semiconductor manufacturing processes and end products.

	Results in 2022	Plan for 2023	Vision for the future (2030)
Semiconductor materials Front-end / Back-end	● Year-on-year increase in sales and decrease in income ● Sales increased reflecting strong semiconductor demand through the first half of 2022, despite the impact of semiconductor production adjustment starting in the second half of the year. Operating income decreased owing to the impact of soaring raw materials prices. ● Implementation of the largest investment plan in the past several years to ensure capture of strong future demand (copper clad laminates for semiconductor package substrates and CMP slurry)	● Enhancement of the business model to continue winning with cutting-edge technology while strengthening the earnings base ● Despite the current difficult market conditions due to the deteriorating semiconductor market, steady implementation of the following measures to achieve sustainable growth over the medium to long term ①Promotion of carbon neutrality ②Introduction of global supply chain management system ③Medium- to long-term R&D and account strategies ④Response to geopolitical risks ⑤Improvement of EBITDA margin	● Goal of becoming a world-leading semiconductor material manufacturer that supports the advancement of a sustainable, digital society ● Contribution to the realization of a sustainable society by conserving energy and reducing environmental impacts through the supply of advanced semiconductor materials
Device Solutions HD/SiC	HD media ● Start of shipment of newly developed HD media for near-line HDDs with the industry's largest storage capacity of 26 TB Web ● HDD demand, having expanded rapidly during the COVID-19 pandemic, slowed down and entered an adjustment phase in the second half of 2022. ● Completion of expansion of aluminum substrate production capacity SiC ● Year-on-year increases in sales and income as a result of maximization of production and sales to meet strong demand ● Strengthened partnerships with Infineon Technologies AG (Germany) and other customers, and concluded long-term supply contracts Web ● Acceleration of development and launch; start of mass production of third-generation six-inch epitaxial wafers and shipment of 8-inch epitaxial wafer samples ● Eight-inch epitaxial wafer development program selected for NEDO Green Innovation Fund Projects Web	HD media ● Continuation of industry-leading development and mass production of best-in-class HD media to lead technological innovation in media for large-capacity near-line servers ● Optimization of production scale in response to adjustment of HDD demand, which expanded rapidly until 2022 SiC ● Year-on-year increases in sales and income due to persistently strong demand ● Realization of stable supply (stable and maximized production of epitaxial wafers and substrates, stable procurement of key materials) ● Thorough implementation of key account strategies and conclusion of long-term supply contracts with more customers and renewal ● Acceleration of development of eight-inch epitaxial wafers and substrates	HD media ● Contribution to storage demand supporting increased data traffic volume and transmission speed as a large-capacity media technology leader ● Pursuit of sustainable growth through production activities and recycling of post-sale products SiC ● Maintenance of top share as an independent supplier of SiC epitaxial wafers ● SiC epitaxial wafer technology leader to lead the industry's technological innovation ● Proactive supply of solutions in response to more sophisticated and specialized quality requirements ● Expansion of production of eight-inch wafers and productivity improvement to contribute to further expansion of the SiC device market

Business Strategies: Semiconductor and Electronic Materials

Competitive Edge (Semiconductor Materials)

Operating Environment Outlook and Resonac's Strategy

Affected by the rapid deterioration of the global economy and declining consumer demand in 2022, the semiconductor market is experiencing a temporary decrease in demand. However, we expect that technological innovation and market growth are likely to continue in line with the advancement of society's digitalization. Moreover, the importance of semiconductors as specified critical materials designated by the Economic Security Promotion Act is increasing, and countries are making major efforts and introducing regulations to secure the supply of semiconductors. We view these developments as both a risk and an opportunity for us.

Risks include the potential for increases in raw material, energy, or logistics costs or supply chain disruptions as a result of geopolitical risks. Resonac is striving to develop a resilient supply chain management system designed to facilitate the swift detection of risks and the stable supply of products to customers and is making steady progress step by step.

There will be opportunities to capture new demand. In the future, along with changes in the supply chain, changes in the business formats of players and the entry of new manufacturers are expected, and uncertainty and complexity will increase. Capitalizing on a lineup that encompasses a wide variety of front-end and back-end semiconductor materials and the high market share, and the broad customer network built on those strengths, as well as the JOINT2 consortium activities, which aim to establish advanced semiconductor mounting technology through co-creation with industry peers, we will quickly identify changes and create high value-added products that meet the needs in order to develop highly competitive operations.

Semiconductor Material Technology Trends

As semiconductors are endowed with more sophisticated functions, there is a rising need for more minutely detailed circuit patterns to be etched through front-end wafer fabrication processes. Meanwhile, in back-end processes, which generally entail mounting chips made from individual wafers onto substrates, the number of components included on chips and in electronic components is increasing at a rapid pace, creating a rising need for new package structures that use 2.xD and 3D mounting technologies to achieve higher mounting density.

These trends are boosting demand for Resonac's existing highly functional, high-share materials as well as for the new cutting-edge materials under development.

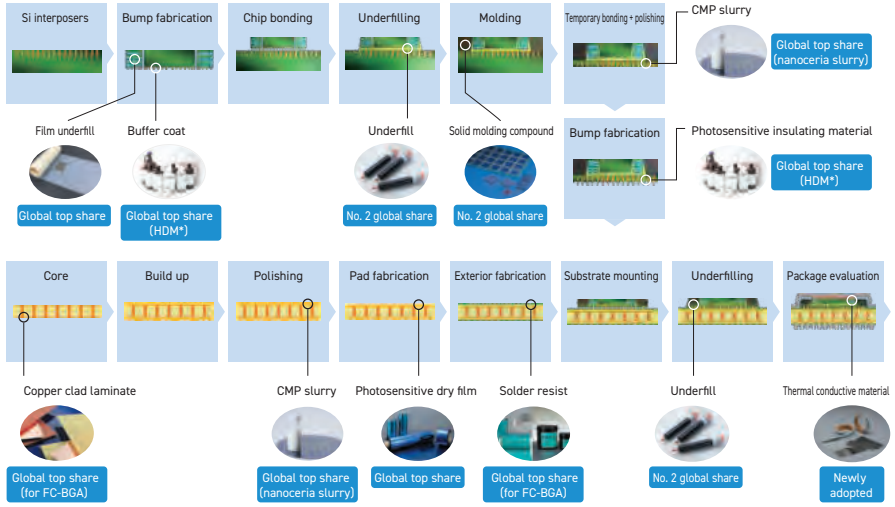
In front-end processes, we facilitate customers' development activities with our CMP slurry (nanoceria slurry) capable of creating precise circuit patterns with 2 nm nodes as well as with our precision etching gases and high-purity solvents. At the same time, we assist production activities around the world with back-end process offerings such as photosensitive dry film, copper clad laminates, and die bonding film supported by superior functionality and strong supply capabilities. (See the figure below.)

Moreover, the JOINT2 consortium is collaborating on substrates, materials, and equipment to help resolve customer issues and accelerate development. Specifically, we are conducting collaborative evaluations with several leading semiconductor manufacturers on 2.xD/3D packages.

Technological requirements and Resonac's products

Front-end semiconductor materials	
Technological requirements	Requirement-satisfying products
Precision polishing	CMP slurry (nanoceria slurry)
Precision processing (etching)	High-purity gases for electronic materials
Higher-quality solvents	High-purity solvents
Back-end semiconductor materials	
Technological requirements	Requirement-satisfying products
Close connection, resolution	Photosensitive dry film
Dielectric property, low warping	Copper clad laminates
Reliability	Die bonding materials

Resonac's lineup of 2.xD and 3D mounting products



*Shares of HDM (HD Microsystems, Ltd.) in the buffer coat and photosensitive insulating material markets
Note: The above global share figures for products are based on Resonac's estimates.

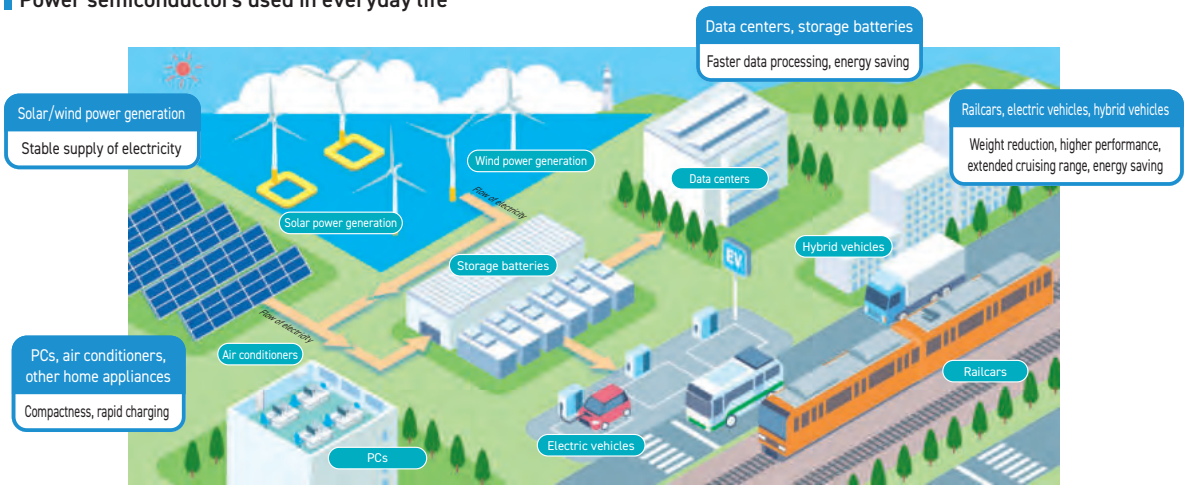
Business Strategies: Semiconductor and Electronic Materials

Competitive Edge (Device Solutions/SiC)

Society Realized by Power Semiconductors

Power semiconductors control and convert electric power and are used in all types of devices that are powered by electricity, everything from industrial equipment to familiar home appliances. With less power loss and heat generation than conventional silicon-based power semiconductors, SiC power semiconductors are key devices that contribute to energy conservation, achieving both voltage characteristics and conversion efficiency. GaN power semiconductors are also attracting attention. Although, as a material for power devices, GaN has properties superior to those of SiC in some respects, there are still issues to be resolved in terms of high current capability. SiC power semiconductors resolve this issue and are also cost competitive. The market for SiC power semiconductors is expanding rapidly as they are widely used in various applications, such as electric vehicles (EVs), renewable energy, high-speed charging stations for xEVs, and railcars.

Power semiconductors used in everyday life



Attractiveness of SiC Power Semiconductors

1 Compactness and weight reduction SiC power semiconductors have high withstand voltage and excellent thermal characteristics. Compared to conventional silicon-based power semiconductors, SiC power semiconductors enable compacter design and contribute greatly to weight reduction of electric units.

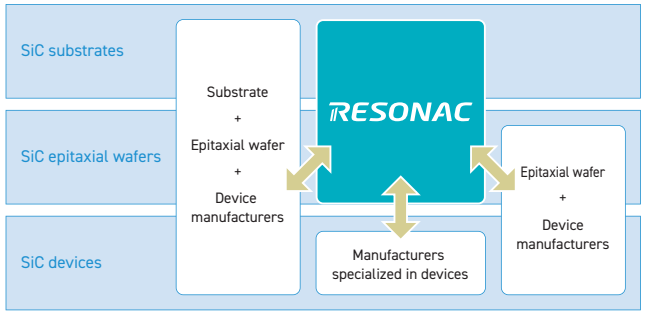
2 Extended cruising range It is known that the cruising range of vehicles using SiC power semiconductors is extended due to the combined effect of weight reduction and battery performance improvement (loss reduction), making SiC power semiconductors key devices for the diffusion of electric vehicles.

Resonac's Contribution to SiC Power Semiconductors

Resonac is the world's largest independent supplier of SiC epitaxial wafers, which are key materials for SiC power semiconductors. As a manufacturer specialized in epitaxial wafers, we aim to be an optimal co-creation partner capable of providing epitaxial wafers tailored to various customers and their respective SiC devices. Our SiC epitaxial wafers have been used for various applications owing to their high quality, including industry-leading low levels of surface-defect density and basal-plane dislocation.

Regarding automotive applications for which especially high reliability is required, Resonac's SiC epitaxial wafers have been adopted for the drive element of the on-vehicle inverter installed in the new model LEXUS RZ, based on our track record of supplying SiC epitaxial wafers that have excellent features and quality. Whereas 150-mm (six-inch) epitaxial wafers are currently the mainstream for SiC power semiconductors, a shift to 200 mm (eight-inch) wafers is expected. The use of larger-diameter wafers increases chip production output, enabling device manufacturers to improve productivity and reduce costs. Recognizing such market needs, we began sample shipments of 200 mm SiC epitaxial wafers in 2022 and are working toward early mass production.

Resonac's business model as a manufacturer specialized in epitaxial wafers



As a manufacturer specialized in epitaxial wafers that does not handle SiC devices, attract device manufacturers that manufacture substrates and epitaxial wafers in-house as customers

Business Strategies: Semiconductor and Electronic Materials

Co-Creation Initiatives to Resolve Social Issues

Establishment of a Database for Centralized Management of Semiconductor Supply Chain Information to Reduce Risk and Improve Efficiency Throughout the Semiconductor Supply Chain

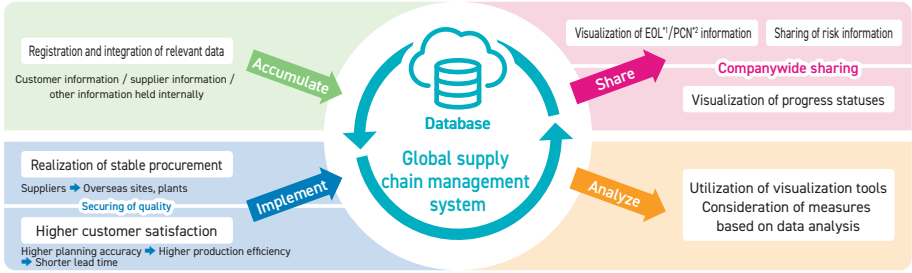
DX

While demand for semiconductor materials is expected to remain robust as digitalization of society advances, the supply chain is unstable owing to the combination of diverse issues, including environmental problems, recent constraints on production and logistics, and geopolitical risks.

In these circumstances, we have been building a supply chain system in the Indo-Pacific area to ensure stable supply of semiconductor products and maintain and strengthen competitiveness. We expect centralized management of supply chain information from suppliers to customers on a common platform will enable us to respond quickly to customer needs and shorten lead times, such as through early detection of risks and optimization of operations at each site. In addition, it will enable us to promptly respond to the increasing number of requests from customers and other parties in recent years for assurances regarding the non-presence of environmentally regulated substances and the absence of human rights abuses, such as forced labor.

This initiative was adopted under the Ministry of Economy, Trade and Industry subsidy program for overseas market survey projects for building resilient supply chains for fiscal 2021. Resonac took part in the Japan-Malaysia Public Private Industrial Policy Dialogue held in Kuala Lumpur, Malaysia, in April 2023 and gave a presentation on its efforts to strengthen the supply chain for semiconductor materials. We are making steady progress with the establishment of a global supply chain management system step by step and we plan to expand it in the future to reduce risk and improve efficiency throughout the supply chain.

Goals to be achieved through introduction of a global supply chain management system



Conduct data-driven business operations and decision-making by centrally managing and sharing data, analyzing the accumulated data, and implementing actions based on the analysis results.

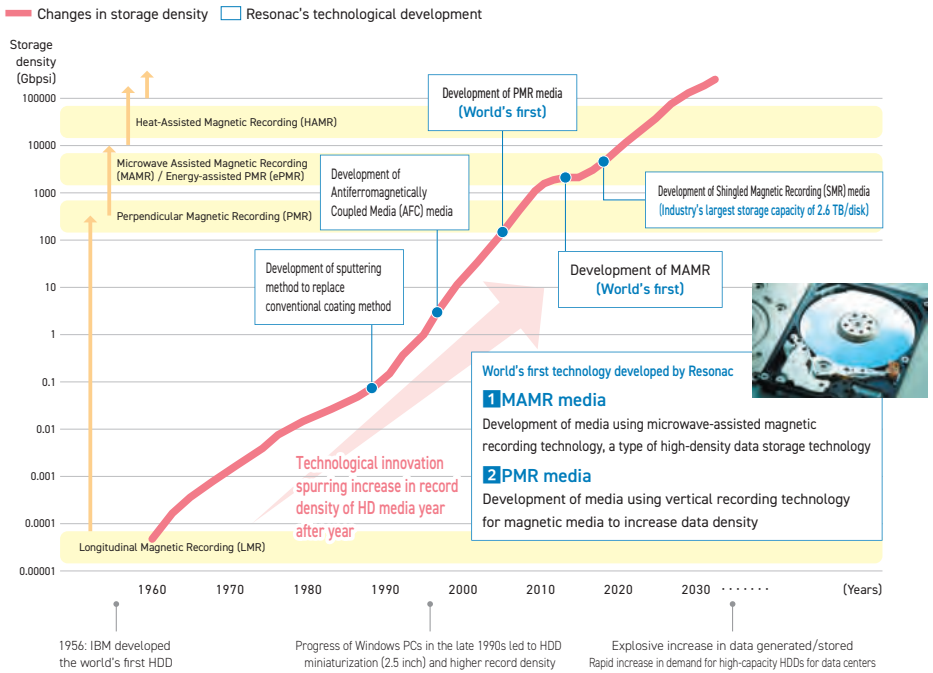
*1 EOL (End Of Life): Suppliers' termination of provision of products and services
*2 PCN (Product Change Notification): Notification on changes of product specifications and process changes

Introducing Advanced HD Media Technology to the Market ahead of Competitors as the World's Largest Manufacturer Specialized in HD Media, Making a Significant Contribution to Development of the Data Economy

With the spread of cloud services and the increase in video content, the amount of data generated and stored continues to increase dramatically worldwide, and data centers to store data require larger-capacity hard disk drives (HDDs). Resonac is a supplier of HD media, key components that determine the storage capacity of HDDs. For 35 years since we started our business in the late 1980s, we have continued to lead the world in providing and mass-producing HD media while always co-creating new technologies with our customers.

As a newly integrated company, Resonac will continue pursuing further technological innovation to realize higher-capacity HDDs and support the growing data economy.

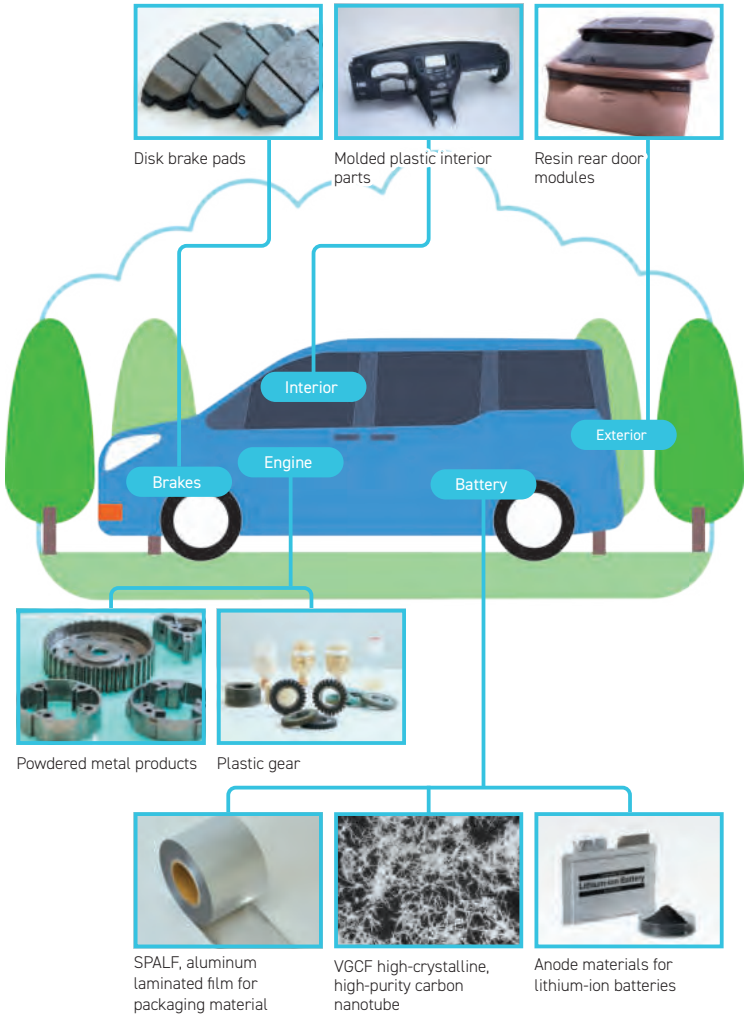
Resonac's revolutionary technological development in HD media



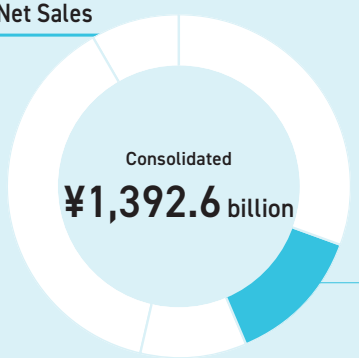
Business Strategies

Mobility

Resonac products in everyday life



Fiscal 2022 Net Sales



Mobility Segment

Segment net sales
¥180.6 billion

Automotive products **¥146.4 billion**
Lithium-ion battery materials **¥30.7 billion**

Segment operating loss
¥(0.7 billion)

Management Target

EBITDA margin **20% or more** in 2025

Strategy for Realizing the Long-Term Vision

Currently, the Mobility segment is positioning the rising technological needs associated with CASE (connected cars, autonomous/automated driving, shared, and electric) technologies, particularly those related to the development of electrified vehicles, as a business opportunity. As a growth strategy, the segment is taking advantage of Resonac's weight reduction, electrification, and heat control technologies to develop business and achieve growth. On the other hand, for the business for internal combustion engine vehicles, whose market is expected to shrink, we will work to build a strong revenue base by optimizing production capacity and implementing measures for fixed costs. Through business portfolio management in this way, we aim to achieve our target of an EBITDA margin of 20% or more.

	Results in 2022	Plan for 2023	Vision for the future (2030)
Automotive products	● Performance lower than initial forecasts, reflecting a decrease in automobile production volume caused by supply shortages for semiconductors ● Commencement of production of rear door modules and copper-free disk pads for 12 new automobile models ● Split off of the ceramics business*1 and the insulating materials business	● Higher sales and income, despite ongoing semiconductor shortages, due to the resumption of the recovery trend as we project for the second half of 2023 ● Launch of foam molded products for new car models, plastic gears for new applications, copper-free disk pads, etc. Promotion of passing increased cost of raw material and energy on selling price ● Promotion of the establishment of a solid revenue base through structural reforms	● Top share acquired through aggressive investment as a Core Growth business targeting niche markets ● EBITDA margin of 20% to be targeted as a Core Growth business
Lithium-ion battery materials	● Expansion of a range of models using Resonac anode materials for battery-electric vehicles (BEVs) and development of new products ● Winning new projects for SPALF aluminum laminated film and expansion of production capacity for VGCF conductive additive Web	● Development of new anode materials to respond to rapid charging performance and other technical needs of next-generation EVs ● Acquisition of certification for high-end SPALF models and steady expansion of production capacity and construction of a resilient supply chain for VGCF	● Target of net sales of ¥115.0 billion to be achieved by incorporating rising needs associated with the advancement of CASE technologies and pursuit of carbon neutrality

*1 Former Hitachi Chemical's automotive and semiconductor fields

Business Strategies: Mobility

Competitive Edge

The mobility market is currently in a period of great change. To work toward carbon neutrality and address social issues, numerous countries have set CO_2 emissions reduction targets and implemented stricter environmental regulations (excluding vehicles that use environmentally friendly fuels). This is driving growth in demand for electric vehicles (EVs). It has been estimated that EVs will increase to represent more than half of the cars on the road within 10 years. Among EVs, Resonac will be pursuing business growth by targeting battery-electric vehicles (BEVs), which will no doubt see growth over the long term.

The Mobility segment aims to expand its business by addressing the needs of the automotive market while positioning CASE-related needs as a key growth driver. This will require us to respond to new technical needs. Accordingly, Resonac will be offering a lineup of battery-related solutions to accommodate smaller, lighter-weight, and electrified vehicles; materials for controlling heat, sound, and electromagnetic waves; and modularization of components.

Specific measures will include the expansion of the range of existing customers' models for which our molded plastic exterior products, such as resin rear door modules and resin foam molded products, are used as well as approaching new customers. Our main target in this endeavor will be market segments where we expect to see a strong need for reducing the weight while accommodating design concerns. As for composite materials, we will maintain our leading share for mainstay plastic gears while approaching new customers with various heat management products, such as radiators, for which demand is expected to increase in line with the spread of electrified vehicles. In addition, we will develop a service model for advanced battery materials that satisfies customers' development needs while boosting the quality of SPALF in order to earn the top share in the mobility market.

Growth strategy for the mobility business

Rising technical needs due to the advancement of CASE technologies including the spread of electrified vehicles

Business opportunities

Weight reduction
Countermeasures against weight increases caused by heavier batteries required in light of the spread of electrified vehicles

Electrification
Countermeasures against spread of 5G and increases in network connection creating a need to address battery depletion

Heat control
Heat management measures required in response to increased performance burdens, as vehicles become smaller and lighter in weight

Value provided by Resonac

Resin rear door modules
Contributions to improved efficiency and reduced CO_2 emissions through lower weight

Plastic gears
Contributions to reduced weight, vibration, and noise with high-durability and heat-resistant gears

Anode materials for lithium-ion batteries
Contributions to realization of lithium-ion batteries with greater capacity and superior charge-discharge load characteristics

Advanced battery materials (SPALF, VGCF)
SPALF: High-insulation, anti-erosive pouch-style container for lithium-ion batteries
VGCF: Lithium-ion battery conduction additive contributing to increased capacity and battery lifespan

Water jacket
Contributions to weight reduction by allowing consolidation of functions through an integrated structure as well as relaxing design constraints for ducts

Aluminum radiators
Precise, low-profile, and highly reliable radiators realized by applying heat design technologies accumulated for aluminum products

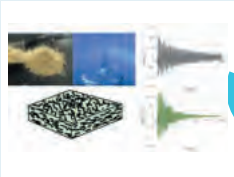
Co-creation Case Study

DX

Reinforcement of Development Capabilities through Materials Informatics

Currently, strong emphasis is put on shorter development lead times, in addition to responses to changes in technical needs and values, such as the advancement of CASE technologies and the pursuit of carbon neutrality. To this end, major automobile manufacturers and suppliers are increasingly embracing model-based design, which entails simulating the terminal component functions and performance features necessary for overall automotive systems using virtual models. This design approach makes it possible to adopt a development style in which materials informatics is used to combine various materials selected from databases before computer-aided engineering methodologies are employed to perform analyses and thus conduct prototyping and testing in a virtual environment. For example, in the development of technology to improve the properties of lithium-ion battery materials, by utilizing model-based design, which applies the knowledge, experience, and manufacturing know-how we have cultivated over many years with our customers, we achieved a reduction of over 95% in the number of experiments, resulting in a shorter development lead time. Going forward, we will continue collaborating with industry-academic-government research institutions to develop materials and manufacturing processes and to perform verification tests in local facilities. Thus, we intend to continue supplying materials, components, and parts that are useful to society.

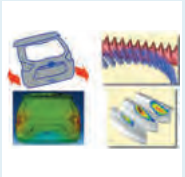
Materials informatics (composition analysis)



Materials, components

Linkage

Computer-aided engineering (characteristic analysis)



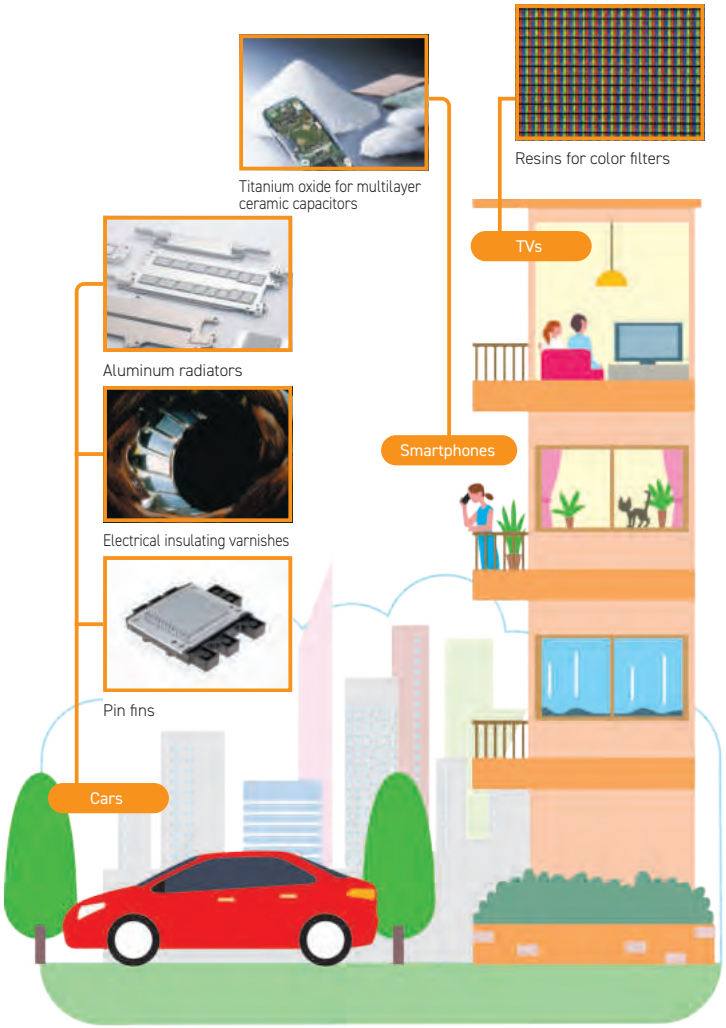
Parts, modules

Resonac's Intended Approach toward Model-Based Design

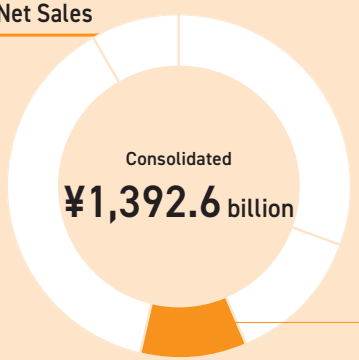
Business Strategies

Innovation Enabling Materials

Resonac products in everyday life



Fiscal 2022 Net Sales



Innovation Enabling Materials segment

Segment net sales

¥141.1 billion

Segment operating income

¥10.1 billion

Management Target

EBITDA margin **15% or more** in 2025

Strategy for Realizing the Long-Term Vision

The Innovation Enabling Materials segment features an extensive lineup of technologies and materials as a technology platform business supporting innovation and competitiveness improvements in Resonac's Core Growth, Stable Earnings, and Next-Generation businesses.

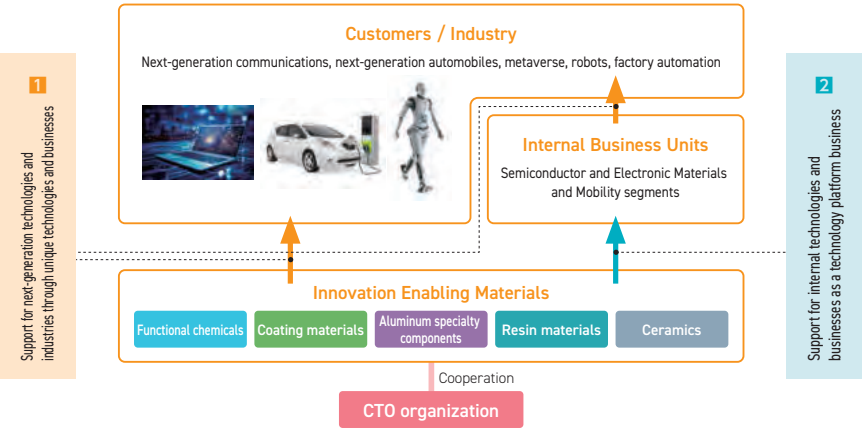
This segment strives to remain a step ahead of the changing times by supplying the organic, inorganic, aluminum, and other functional materials deemed valuable by the market. In this way, the Innovation Enabling Materials segment will become a vessel for the creation of new businesses over the medium to long term and a driver behind the fulfillment of our purpose.

	Results in 2022	Plan for 2023	Vision for the future (2030)
Functional chemicals	● Implementation of price revisions in response to rising costs ● Decline in profitability due to the impact of the lockdown in China and the decline in the electronic materials market from the second half of 2022	● Increased income spread achieved through healthy transition of products ● Increased profit margin by expanding sales in high-value-added areas	● Leader in specific sectors of the global market ● Provision of value to society through the ability to aggregate individual strengths
Resin materials	● Implementation of price revisions in response to rising costs ● Enrichment of product lines for electrified vehicles	● Implementation of improvements to the product sales mix achieved through a focus on the ratio of sales from new products ● Profit stabilization by linking raw material prices to selling prices ● Continued stable supply of products by building a resilient supply chain	● Communication of the benefits of advanced functional materials meeting changes in social needs to help resolve social issues through internal and external efforts
Coating	● Promotion of extension of the production system into other areas of the world ● Implementation of reform of the earnings structure ● Regarding consumer goods, decline in Europe and the U.S. and expansion in emerging countries (especially India)	● Extension of the production system into other areas of the world ● Capturing of demand for eco-friendly products in light of environmental laws and regulations ● Expansion of sales channels for consumer products in emerging countries ● Expansion of scope of applications and regions of operation for industrial coating materials	● Development of the non-stick coating business to become a major global player and creation of new businesses capitalizing on our insight into proprietary formulations
Ceramics	● Decline in profitability due to decline of the electronic materials market ● Development of new products for electronic devices ● Greater generation of synergies between CMP slurry and heat dissipation materials	● Securing of profit spread through flexible pricing according to the market trend ● Mass production of new products for electronic devices ● Improved productivity by strengthening cross-organizational functions among sites and integrated operations	● Supply of first-rate ceramics products and services to customers that surpass their expectations and contribute to the resolution of social issues
Aluminum specialty components	● Decline in demand due to parts shortages, particularly in semiconductors for automotive components ● Making improvement of forging line productivity manifest ● Promotion of reform of the earnings structure to ensure resilience to change in the operating environment	● Improvement of profit margin through price revisions and product mix improvement, including review of low-profit transactions ● Acquisition of certification for scrap alloys and processes contributing to reduction of CO_2 emissions ● Promotion of internal synergy of automotive components (electrification)	● Creation of new value through the combination of aluminum with other materials

Business Strategies: Innovation Enabling Materials

Competitive Edge

The competitive edge of the Innovation Enabling Materials segment lies in (1) its unique technologies and businesses that support next-generation technologies and industries and (2) its role as the technology platform business supporting technologies and businesses of internal business units. Regarding internal technological synergies, the segment aims to enhance the positioning of its unique technologies and businesses as well as its technological capabilities through collaboration with the Institute for Polymer Technology and the Stage for Co-Creation, which are parts of the CTO organization.



Co-Creation Initiatives to Resolve Social Issues

Next-Generation Semiconductor Area

We are contributing to the growing need for 2.xD/3D mounting technology required to realize next-generation high-speed communications by providing advanced material technology.

Heat-dissipating fillers

High-thermal-conductivity fillers efficiently dissipate heat generated by high-density mounting and high-speed communication and contribute to miniaturization of electronic components.

Low-dielectric resin

Advanced low-dielectric resin design technology contributes to suppression of transmission loss in high-density mounting and high-speed communication areas.

Fine abrasive grains for CMP slurry

They are used in the surface planarization process for multilayering of circuits on semiconductor wafers and contribute to higher integration of semiconductors.

Mobility Area

In response to the growing needs for weight reduction, electrification, and thermal control in line with the progress of the trend toward electrified vehicles, the segment is providing advanced proprietary technologies and making a contribution.

Electrical insulating varnishes

In addition to promoting development of polyimide resin and other materials, we are strengthening the supply system in Japan and overseas and contributing to high voltage reliability of drive motors for electrified vehicles.

Adhesives for automotive application

High-strength and highly reliable adhesives between metal/resin and resin/resin and processing technologies contribute to vehicle body weight reduction.

Aluminum radiators

Improved heat dissipation and reliability of power modules through thermal performance simulation technology, aluminum alloy design technology, and processing technology contribute to electrification of automobiles.

Topics

Innovation Achieved through Integration of Showa Denko and Hitachi Chemical

Revival of Low-Dielectric Resin Whose Commercialization was Once Abandoned

Daisuke Fujimoto
Packaging Materials Research Department, Institute for Polymer Technology

When the decision was made to integrate the two companies, I was engaged in R&D of materials for 5G and 6G at the former Hitachi Chemical and had an opportunity to mutually share the technologies between the two companies. In the course of numerous discussions, I came across the former Showa Denko's low-dielectric resin, which had been abandoned 20 years ago because it was difficult to use, and recognized its superior characteristics that outweighed its shortcomings. Transcending the organizational boundaries, we mastered the technology, and by reflecting in our ongoing investigations what we had learned, my team was able to successfully improve the performance of low-dielectric resin. I think we were able to recognize the potential of dormant technology, because we had been a user of products of the former Showa Denko. I continue to enjoy discovering technologies that can be utilized in future development and creating new value with them.

New Value of Pin Fins Unlocked by AI Deep Learning

Rio Anzai
Automation Technology Promotion Department
Plant Solutions Center
Engineering Division

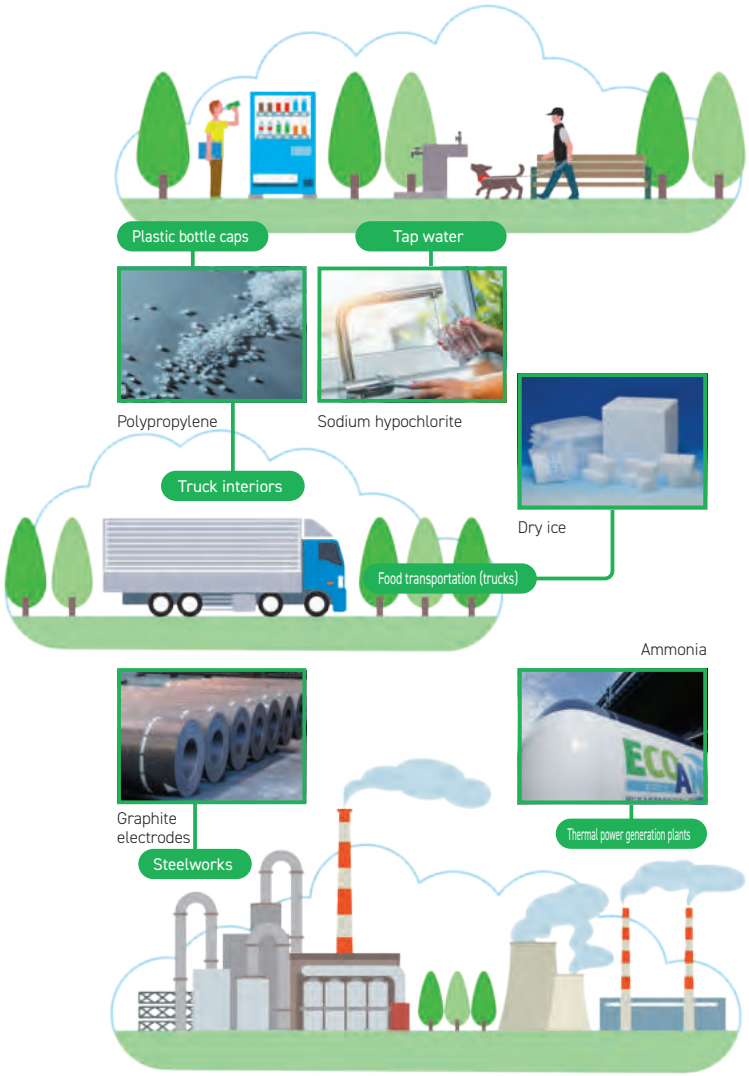
Yusuke Takeuchi
Aluminum Specialty Components Business Unit
High Performance Materials Business Headquarters

Pin fins, aluminum specialty components of the former Showa Denko, became the first product that transitioned to the mass-production phase, utilizing automatic inspection technology employing AI deep learning, which the former Hitachi Chemical spent more than five years developing. It all started when, at a technical results presentation held prior to the official integration of the two companies, we realized the potential for deploying elemental technologies in the product inspection process of pin fins. With technology enhanced to a level outstripping commonsense expectations for the pin fin team, the study is progressing far faster than we had imagined possible, and we are excited about prospects for future development.

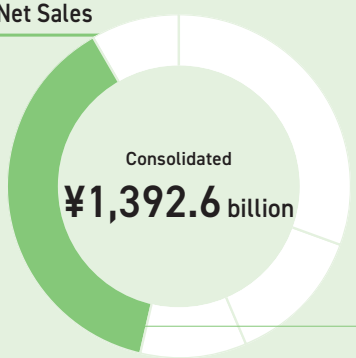
Business Strategies

Chemicals

Resonac products in everyday life



Fiscal 2022 Net Sales



Chemicals segments

Segment net sales
¥527.8 billion

Segment operating income
¥24.9 billion

Olefins and Derivatives	¥324.7 billion
Basic Chemicals and Industrial Gases	¥87.1 billion
Graphite Electrodes	¥115.7 billion

Management Target

EBITDA margin **15% or more** in 2025

Strategy for Realizing the Long-Term Vision

The Chemicals segment has a wide-ranging lineup of highly competitive, high-share products, including olefins, organic chemicals, graphite electrodes and other carbon products, basic chemicals, and industrial gases. With this lineup of products that function as the building blocks of various industries and infrastructure, this segment continues to contribute to society through safe and secure operations. At the same time, improvements to production processes are being pursued with the goal of contributing to the happiness and prosperity of people and to harmony with the global environment.

	Results in 2022	Plan for 2023	Vision for the future (2030)
Olefins and Derivatives	● Decrease in sales volume as a result of shutdown maintenance conducted once every four years ● Year-on-year increase in sales due to higher sales prices in line with the soaring price for naphtha ● Year-on-year decrease in operating income due to lower sales volume and sluggish market	● Increase in sales volume because of no shutdown maintenance in 2023, optimization of plant operation by swiftly responding to the trend of supply and demand ● Promotion of sales expansion of high-margin products and expansion of technology licensing business ● Promotion of initiatives to reduce CO_2 emissions	● Improvements to profitability and efforts to limit volatility in earnings ● Reduction of 30% in CO_2 emissions from the Oita Petrochemical Complex in comparison to 2013
Basic chemicals and industrial gases	● Vigorous promotion of price pass-on in response to increased costs due to rising raw material and fuel prices ● Trend toward full capacity utilization reflecting strong demand and operating income level remained robust ● Confirmation that greenhouse gas emissions from production of ammonia from used plastic are at least 80% less than in the case of conventional methods Web	● Forecast of strong demand and maintaining of high capacity utilization ● Logistics environment to improve and surge in raw material and fuel prices to slow down ● Acquisition of ISCC PLUS certification, an international certification system for sustainable products, in March 2023 for three products, namely, ammonia, hydrogen, and acrylonitrile, made from raw materials derived from used plastics Web	● Substantial reduction of CO_2 emissions (raw materials for KPR* to be 100% plastic, fuel conversion of power generation facilities at the Kawasaki Plant) ● Creation of a hydrogen use network together with companies near the coastal area of Kawasaki City ● Initiatives for resource recycling in Kawasaki City (utilization of used plastics)
Graphite electrodes	● Higher performance due to improved unit sales prices amid declining demand ● Establishment of strategic relationships with customers and promotion of conclusion of long-term sales contracts ● Greater use of renewable energy to reduce CO_2 emissions	● Capturing of growing demand for electric furnaces for decarbonization, strengthening of the supply system for and increase in market share of large-diameter electrodes (28-inch and larger) ● Provision of services to optimize electric furnace operation through AMI, an affiliate (engaged in sale of electric furnace operation optimization software) and enhancement of the value provided to customers through sales of the highest quality graphite electrodes ● Decarbonization of manufacturing processes through the use of hydrogen fuels, etc. ● Promotion of conclusion of long-term stable procurement contracts for raw materials	● Supply of the highest quality graphite electrodes worldwide, as the overwhelming No. 1 global manufacturer, to support electric furnace production and economic growth around the world. ● Promotion of decarbonization of manufacturing processes to supply clean electrode products with virtually zero emissions

*Kawasaki Plastic Chemical Recycling, plastic recycling business operated at the Kawasaki Plant

Business Strategies: Chemicals

Competitive Edge

	Olefins and Derivatives	Basic chemicals and industrial gases	Graphite electrodes
Policies	We will seek to boost competitiveness and help achieve carbon neutrality in 2050 based on our vision of developing a sustainable business that consistently generates high profits.	Collectively naming Resonac plants in the Kawasaki area Kawasaki Chemical Park, we are laying the foundation for realization of our vision.	By supplying the world's best electrodes coupled with unparalleled services, we will promote efficient and eco-friendly steel recycling and thereby contribute to the sustainable development of society.
Major Products	Olefins, organic chemicals	Industrial gases, basic chemicals	Graphite electrodes
Business Strengths	● The Oita Petrochemical Complex is located in close proximity to the Asian market, giving this export base one of the greatest geographical advantages in Japan in terms of logistics. ● The capacities of our equipment and our operating track record enable us to accommodate a diverse range of ethylene feedstocks, giving us the ability to respond flexibly to changes in the volatile raw material market. ● We boast a lineup of unique acetyl derivatives (ethyl acetate, n-Propyl acetate, and allyl alcohol) that take advantage of proprietary catalysts and processes, and we hold high shares in the Japanese market for these products. ● Our stable lineup of olefin derivatives (polyethylene, polypropylene, etc.) make us competitive in high-value-added fields. ● Development is underway for a low-concentration CO_2 separation system employing an innovative separation agent to further our quest toward carbon neutrality in 2050 P87	● Capitalizing on the advantageous urban location of the Kawasaki Plant, we are catering to needs for a diverse range of functional chemicals, including basic chemicals that support everyday life, industrial gases, fiber materials, and medical and agrichemical materials. ● Chemical recycling technologies are being utilized to produce ammonia using hydrogen extracted from used plastic. We have been maintaining stable commercial production for 20 years and the cumulative volume of used plastic recycled has exceeded one million tons. ● Ammonia produced by Resonac from used plastics is low-carbon ammonia whose greenhouse gas emissions during production are at least 80% less than those from conventional production methods. ● We are expanding chemical recycling for raw materials to include not only used plastics but also used clothing and other textile products and are promoting collaboration with a trading company and the apparel industry. P87	● With production bases in six countries, we are able to stably produce and supply graphite electrodes in Europe, the United States, and Asia. ● Local production and consumption eliminate long-distance transportation and country risk, ensuring stable supply. ● We sell high-quality electrodes to more than 200 customers around the world while, at the same time, providing support services for electric furnace operation through AMI, thereby helping our customers improve the efficiency of their electric furnace operations and providing value that only we can offer. P88 ● We will establish a production and supply system for large-diameter products of 28 inches or larger in order to respond to the expected shift of steel production from blast furnaces to electric furnaces and to the increasing scale of electric furnace production as a result of the trend toward decarbonization. ● We will focus on supplying environmentally friendly and clean graphite electrodes by vigorously promoting the use of a hydroelectric power plant we own in Omachi City, Nagano Prefecture, renewable energy in Europe, and other measures to reduce CO_2 emissions. P60

Topics

Kawasaki Chemical Park

The Kawasaki Plant aspires to be a platform where basic chemicals and high-value-added derivative businesses coexist and prosper together, with strong cost competitiveness based on a safe, stable, and secure business operation, and refers to its vision as "Kawasaki Chemical Park." In addition to the business development and manufacturing capabilities accumulated in the course of many years of business activities, the Kawasaki Plant will lay new foundations and acquire new skills in order to adapt to the times, aiming to become a plant capable of carrying out business activities that meet the needs of the times in a timely manner.

Vision and competitiveness of Kawasaki Chemical Park

Sustainability to **inspire the world**

Sustainability to **transform society**

Sustainability to **compete in the world**

Business development capabilities to respond to needs of the times

- Development and commercialization of new derivatives
- Development and commercialization of high-value-added products

Production foundations / manufacturing capabilities

[Hardware aspect] Strong infrastructure, including electricity, gas, and water supply, to support chemical plants

[Software aspect] Procurement and logistics, security and disaster prevention, maintenance design, and human resource development accumulated through many years of experience

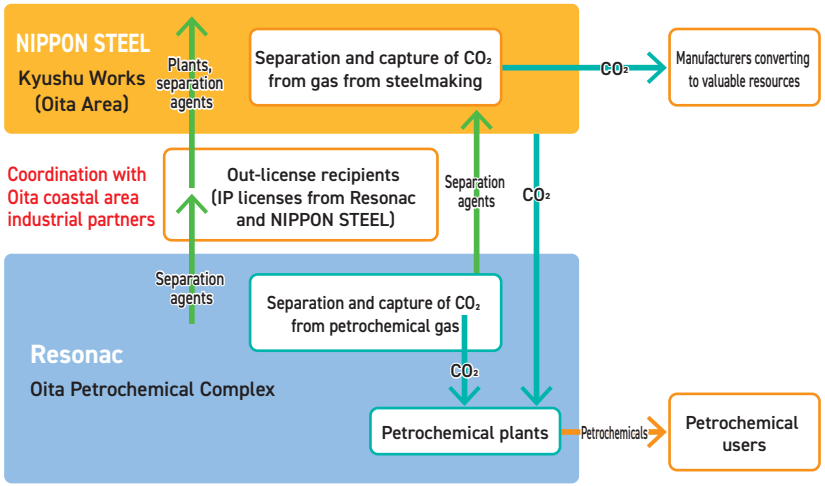
Business Strategies: Chemicals

Co-Creation Initiatives to Resolve Social Issues

Olefins and Derivatives | Web

CO_2 Capture and Use Initiatives to Achieve Carbon Neutrality

Resonac has teamed up with NIPPON STEEL CORPORATION and Kyoto University and five other national universities in a co-creative venture to develop a low-concentration CO_2 separation system that employs an innovative separation agent. In May 2022, this initiative was adopted for the CO_2 separation and capture technology development project of NEDO under its Green Innovation Fund, and full-scale technology development began in October 2022. By using structure-flexible porous coordination polymer (PCP), which is completely different from the porous materials (zeolite, activated carbon, etc.) used in existing separation agents, we are developing technologies and processes for the low-cost separation and capture of low-pressure, low-concentration CO_2 from sources such as factory exhaust gas, while verifying the feasibility of technologies for producing chemical products from captured CO_2. We anticipate that these technologies will allow us to develop and grow CO_2 separation and capture plant operations and separation agent operations. The technology is also expected to give rise to chemical business models that use CO_2 and are thus not dependent on fossil resources, and thereby contribute to carbon neutrality.



Basic Chemicals and Industrial Gases

Commercialization of Low-Carbon Hydrogen for a Hotel

Kawasaki King Skyfront Tokyu REI Hotel

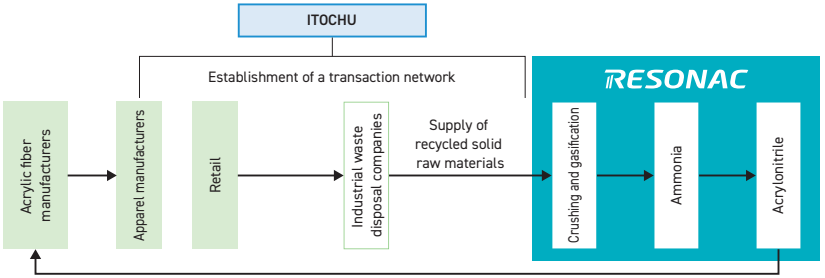
As part of a demonstration project of the Ministry of the Environment launched in 2015, the Company has been supplying low-carbon hydrogen to Kawasaki King Skyfront Tokyu REI Hotel since June 2018. Following completion of the demonstration project in 2022, the hotel decided to upgrade its fuel cell facility, and commercial supply of low-carbon hydrogen produced by Resonac will start upon the completion of installation of the new facility by the end of 2023.

We are supplying the new facilities with low-carbon hydrogen produced from used plastics, which constitute part of the raw materials, via a pipeline. The electricity, heat, and other energy generated by this facility is equivalent to about 15% of the energy used by the hotel.

Collaboration with ITOCHU Corporation in Textile Recycling in the Chemical Recycling Business

Resonac announced conclusion of a memorandum of understanding with ITOCHU regarding the ARChemia recycling project in March 2023. The objective is to include used textiles, such as clothing, as raw materials for the plastic chemical recycling business at the Kawasaki Plant (KPR), in addition to used plastics.

Resonac transforms recycled solid raw materials, a mixture of used plastics and textiles, into raw materials for textiles, such as acrylonitrile, leading to resolution of waste-related social issues and contributing to realization of a fiber-to-fiber recycling society.



Business Strategies: Chemicals

Co-Creation Initiatives to Resolve Social Issues

Graphite Electrodes

DX

Project to Maximize Value of Co-Creation by AMI and Resonac Graphite through Digital Solutions

Web

Resonac Graphite (RG) is the No. 1 global manufacturer of the graphite electrodes that are indispensable for the electric furnaces used to melt iron scrap in the steelmaking process. Following the acquisition of a stake in Mexico-based AMI Automation, a provider of services for optimizing the operation of electric furnaces, in 2021, RG will make AMI Automation a wholly-owned subsidiary in the third quarter of 2023. Through this partnership, RG is able to provide customers with unique and advanced digital solutions to help them achieve the best performance in the operation of their electric furnaces. By building strong partnerships with its customers, RG will stabilize its graphite electrode business and strengthen its position as a world leader. In 2022, the transformed business model started to yield good results in the North America and Southeast Asia regions.

In December 2022, the Resonac AMI Synergy Project (RAS1 Project) was launched to take the global co-creation strategy to the next level, and discussions by global members selected from both AMI and RG are in full swing. In line with making AMI a wholly-owned subsidiary, through more intense and integrated co-creation by our multinational team, we aim to transform ourselves into a service provider that further strengthens our global No. 1 position in the electrode business as a partner (Digital Enabler) supporting customers' digitalization.

RAS1 Project members drawn from both AMI and RG worldwide

Strengths created by combination of Resonac and AMI

Topics

Prospects for Utilization of AMI Human Resources Going Beyond the Graphite Business

AMI has approximately 200 digital transformation-related engineers, including about 20 AI engineers. Digital transformation of the entire Resonac Group will be accelerated in collaboration with the Research Center for Computational Science and Informatics, which specializes in computational and information science, the source of Resonac's strengths in digital transformation, and the CDO organization promoting digital transformation activities. In addition to provision of operation optimization systems for electric furnaces, AMI also offers production automation and control solutions for a wide range of industries, including paper, cement, and petroleum. Going forward, we will also promote joint projects to support manufacturing frontlines.

04 Why We Can

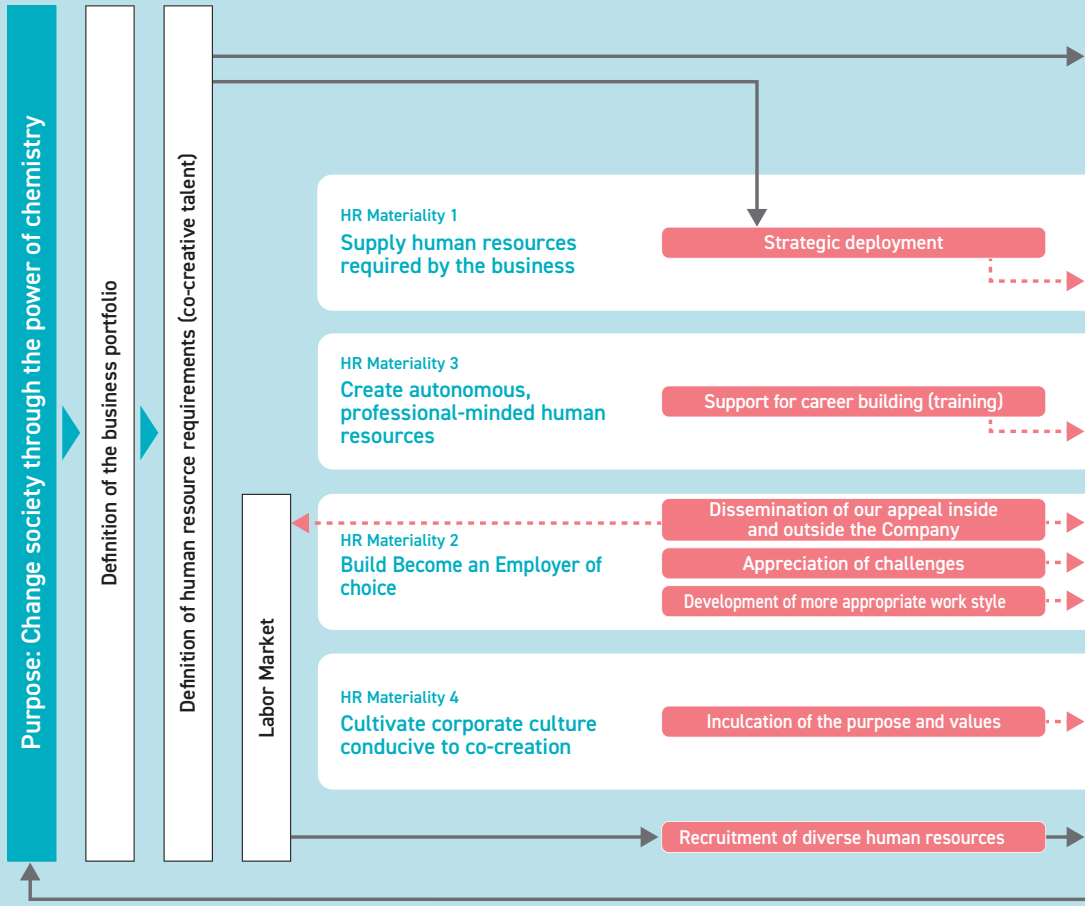
Organizational capabilities to help change society

What areas are we strengthening, and what approach are we taking to become an organization that can compete on the global stage? We will share Resonac's resilient organizational development through our current initiatives.

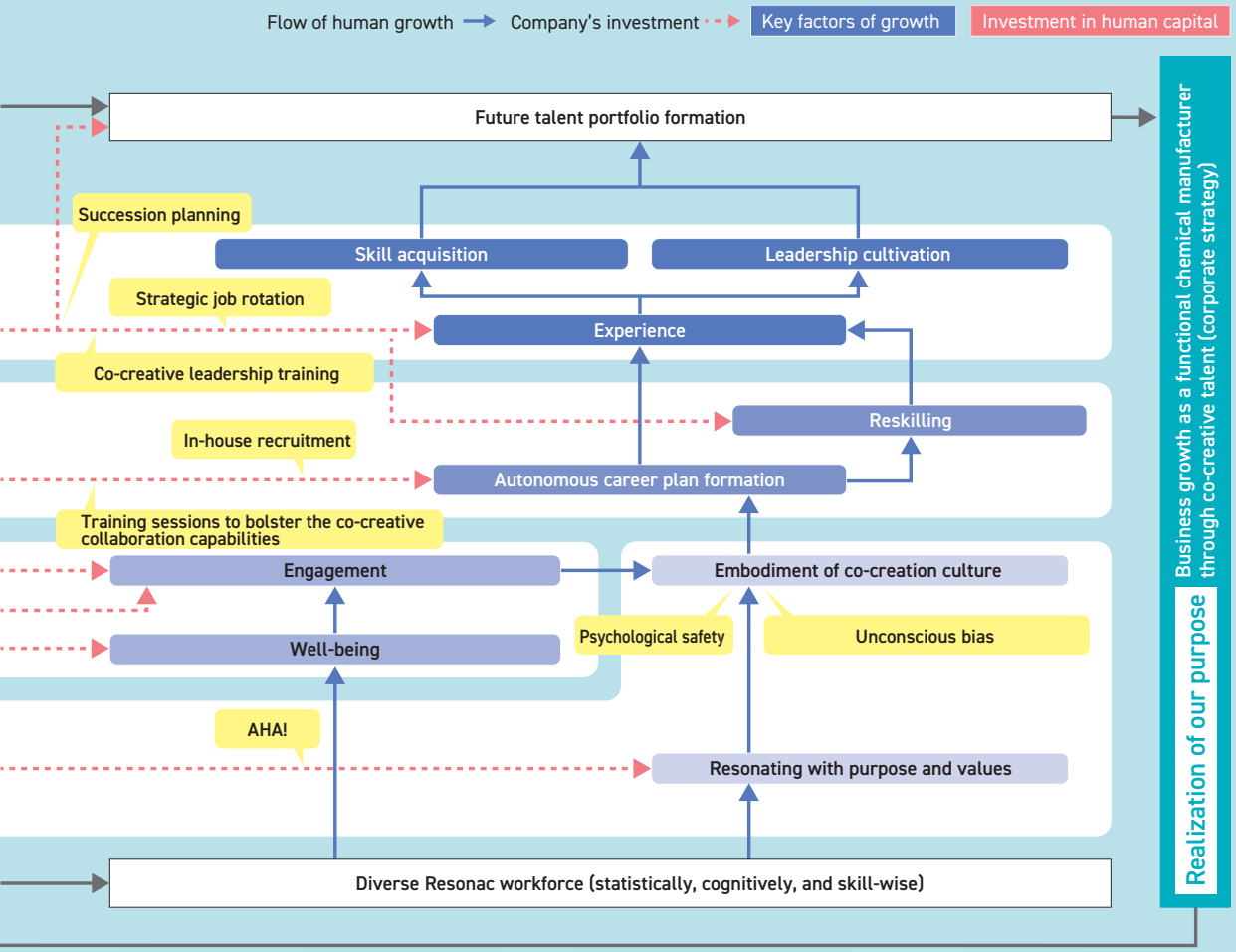
89 — Human Capital Management
91 — Special Feature: Human Resource Strategies
97 — Measures to Combat Climate Change
100 — Realization of Recycling-oriented Society
101 — Environment Risk Measures
102 — Efforts for Preservation of Biodiversity
103 — Occupational Health and Safety
104 — Quality Assurance
105 — Chemicals Management
106 — Sustainable Procurement
107 — Respect for Human Rights
108 — Strengthening Internal Communication within Our Group
109 — Risk Management
111 — Compliance
113 — Roundtable: Our Transformation of the Board of Directors
117 — Directors
119 — Audit & Supervisory Board Members/ Corporate Officers
121 — Skill Matrix
122 — Messages from Outside Directors and Audit & Supervisory Board Members
123 — Corporate Governance

Resonac's Human Capital Management

Resonac's human capital management model Web



We are fostering co-creative talent who will provide new functions aimed at our vision for 2030. Our human resources strategy is to create co-creative talent, and Resonac's human capital management aligns our management and business strategy with our human resources strategy.



Topics

A few Examples of Stakeholder Engagement

University student

The report titled "The Japanese materials industry is the key to Japan's recovery by solving societal problems in Japan and around the world" resonated with us, so we held a dialogue with Kyohei Sonoda, a university student and leader of the writing team. We gained a fresh perspective from hearing about why he focused on materials and what kind of companies he thinks will grow in the future. We were excited to learn about the expectations of Gen Z for materials and chemical companies. We will expand these kinds of opportunities for dialogue throughout the Group.

Video
Web

Kyohei Sonoda
Faculty of Economics, Doshisha University

University professor

We asked Professor Hasegawa, an expert in sustainability management and ESG investment, for his opinion on the concept and standards for Resonac Pride products and services that we are promoting, as well as the future role of companies in society, including human resources strategy. We were able to gain significant tips for the future development of Resonac Pride products and services, communication with society, and sustainability strategy.

Video
Web

Naoya Hasegawa
Professor
Faculty of Sustainability Studies, Hosei University

Investors

We had the opportunity to discuss with participating investors our human resources strategy, which aims to continuously increase corporate value by carrying out our purpose and values, and the proposed human resources capital management model under consideration. We will use the diverse and thought-provoking feedback we received, such as how our business strategy and human resources strategy are related, how the integration will affect our organizational culture, and how this will be reflected in our human resources strategy, in our future initiatives and information dissemination.

Web

Institutional Investors Collective Engagement Forum

Human Resource Strategies

Web

Our human resources strategy, with an aim to sustainably enhance corporate value by carrying out our purpose and values, consists of four HR Materiality. These four issues are linked to our material sustainability issue of "fostering creative and autonomous human resources and cultivating the associated corporate culture" and our business strategy. Based on these four Material Issues for Human Resources that fosters co-creative human resources talent over the long term, and in the short to medium term, we will promote measures to enable co-creative talent to achieve business growth as a functional chemical manufacturer.

Purpose and values

Businesses

HR Materiality 1

Hire & Develop talent for the business

Fulfillment of an agile talent portfolio that can keep pace with the speed of our operations as a functional chemical manufacturer

KGI

Future talent portfolio fulfillment rate (focus theme*1)
Succession planning readiness rate

Actions linked to business strategy

Strategic workforce planning linked to business direction
Leadership development to drive businesses
Dissemination of our appeal to the labor market

Labor Market

HR Materiality 2

Become an Employer of choice

Employer branding to become a company that selects and is selected by employees by disseminating our appeal to the labor market and improving the engagement of internal human resources

KGI

Hiring plan fulfillment rate
Detrimental voluntary turnover rate
Engagement score

Fostering co-creative talent to realize business growth as a functional chemical manufacturer (short- to medium-term plan)

Employees

HR Materiality 3

Develop self-driven professionals

Creation of professional-minded human resources who can pursue vibrant and autonomous careers and maximize their individual abilities

KGI

Internal promotion rate (key positions*2)

HR Materiality 4

Cultivate corporate culture conducive to co-creation

Cultivating a rewarding corporate culture where co-creation can occur, in which diverse individuals are respected with a high degree of psychological safety

KGI

Purpose and values implementation survey score

Actions linked to sustainability strategy

Maximization of diverse individual strengths
Development of autonomous human resources
A culture of co-creation

Organization that creates co-creative talent (long-term plan)

Organization

*1 In 2023, the development division of the Electronics Business Headquarters (semiconductor materials) as well as CTO and CDO organizations were selected as target organizations.
*2 Key positions refer to CXOs and leaders of organizations reporting directly to the head of the business.

Human Resource Strategies

In order to make a leap forward to become a Co-creative Chemical Company that can complete on the world stage by fiscal 2030, we have divided the period from the present to 2030 into three phases and defined what we are aiming for in each phase. In addition, to make our goal more concrete and feasible, we will identify the factors necessary for effectively addressing material issues and monitor their progress by setting KPIs.

	KGI	Factors for Achievement	FY2023-2024 Start of Fostering Co-creative talent	FY2025 Deepening and Solidifying a Co-creation Culture in the Group	FY2030 Making the Leap to Become a Co-creative Chemical Company That Can Compete on the Global Stage
HR Materiality 1 Hire & Develop talent for the business	▶ Future talent portfolio fulfillment rate (focus theme) ▶ Succession planning readiness rate (2022 achievements: Company-wide succession planning to select and train potential leaders became operational, etc.)	Definition of human resource requirements Assessing the status of fulfillment of required human resources Continuous readiness and visualization of position successors Realization of the flexible deployment of required human resources	▶ Visualization of domestic talent ▶ Visualization of the skills required for strategy achievement and establishment of a talent portfolio management method, using the semiconductor materials development division as well as CTO and CDO organizations for the pilot test	▶ Visualization of talents on a global scale ▶ Visualization of the talent portfolios of Resonac and major group companies ▶ Establishment of HRBP system	▶ HR business partners accompany and are led by each CXO/BU to achieve a talent portfolio with the right people in the right places to match the speed of global business
HR Materiality 2 Become an Employer of choice	▶ Hiring plan fulfillment rate ▶ Detrimental voluntary turnover rate ▶ Engagement score (2022 achievements: Design of post-merger engagement surveys, etc.)	Enhancement of well-being Fair evaluation and remuneration Defining Resonac's unique appeal and communicating them internally Defining and communicating to the labor market the unique appeal of business partnerships	▶ Start of branding to increase Resonac's visibility in the labor market ▶ Firm establishment of Health and Productivity Management and start of disseminating internal and external health initiatives	▶ Increased recognition as the leading company that is selected among functional chemical manufacturers ▶ Building a well-being management structure	▶ Recognition as a company that produces leaders in the chemical industry ▶ Establishment of status as an advanced well-being company ▶ Realization of simple and flexible systems
HR Materiality 3 Develop self-driven professionals	▶ Internal promotion rate (key positions) (2022 achievements: CEO announcement on fostering co-creative talent, direct dialogue held with over 1,100 employees, etc.)	Provision of corporate systems to encourage career ownership Provision of autonomous learning opportunities Training of potential leaders	▶ Establishment of systems to envision and realize one's career ▶ Establishment of self-improvement systems for career actualization	▶ An organization in which Resonac career models are established and employees autonomously envision their aspirations and shape their careers ▶ Fostering of a culture in which the organizations (managers) support employees' careers	▶ An organization in which individuals can improve themselves and professionals who create new value are nurtured as the next generation of Resonac leaders
HR Materiality 4 Cultivate corporate culture conducive to co-creation	▶ Purpose and values implementation survey score (2022 achievements: Degree of implementation of purpose and values by employees: 30%; P47 start of co-creative leadership training, and training sessions to bolster the co-creative collaboration capabilities, etc.)	Inculcation of the purpose and values and cultivation of a co-creation culture Participation of diverse employees Harvesting output by embodying a co-creation culture	▶ Awareness raising and recognition of corporate culture in which our purpose and values and participation of diverse human resources create value ▶ Establishment of integrated operations	▶ An organization in which a co-creation culture is firmly established and new output is produced through collaboration ▶ Start of a dedicated team responsible for data utilization in an integrated infrastructure	▶ Establishment of an organization in which co-creation culture is the corporate identity and diverse human resources can thrive and generate innovation ▶ Integration of global operations

* See each page for KPIs

Human Resource Strategies

HR Materiality 1

Hire & Develop talent for the business

- Fulfillment of an agile talent portfolio that can keep pace with the speed of our operations as a functional chemical manufacturer

> As HR business partners, we are the advisor to organizational leaders in resolving issues related to human resources in order to achieve global business growth.

Yutaka Suzuki
General Manager, HR Business Partner Department

Measures for Realizing the Long-Term Vision

Workforce planning with enhanced linkage with business strategy

Organization and definition of skills required for each position and visualization of staff headcount we wish to fulfill in the future

In order to realize our business vision for the future, we will organize and define the skills and competencies required in the future for each position, visualize the status of fulfillment of the required human resources, and create a plan to fill in any human resource deficiencies. In 2023, we began a pilot test following discussions with the semiconductor materials development division as well as CTO and CDO organizations.

Realization of the flexible deployment of required human resources

Strengthening our HRBP function to support the execution of business strategy and systematic hiring of experienced personnel, etc.

To satisfy future human resource needs, we will strengthen our HR business partner (HRBP) function, which supports the CXO organization and business divisions' strategy execution from a human resource perspective, and promote the systematic hiring of experienced personnel according to the skills and competencies required for each business and position to realize transfers and deployments that take advantage of individual experience and skills in focus businesses.

Continuously preparing position successors by training the next generation of potential leaders

Implementation of succession planning (talent review)

We regularly monitor the readiness of position successors in order to secure suitable candidates for next-generation leaders and key positions in our focus businesses and to achieve sustainable corporate growth. We are also strengthening our programs to train candidates for the next generation of leaders. In the first half of 2023, we offered a camp-style program in which professional assessors gave feedback on their actions during exercises. We also provided opportunities for friendly competition with personnel outside the Company by sending employees to external organizations, such as graduate schools and NPOs for cross-border experiences.

Employee Voice

Our customers are located around the world and the market environment is changing at an accelerating pace. That is why we, as HR business partners, pay attention to human resources in every corner of every business division and promote solutions to human resource-related issues with organizational leaders. On the other hand, in order to maintain a healthy relationship between business divisions and the personnel division, we always keep in mind a Company-wide, long-term perspective in our words and actions. In order to identify actions regarding organizational leaders and future human resources and act as a conduit to strengthen the relationship between business divisions and the personnel division, we are advancing the development of our HR business partnership system and take pleasure in incorporating HR activities into the next generation.

KGI

- **Future talent portfolio fulfillment rate** (focus theme)
- **Succession planning readiness rate**

In achieving a talent portfolio required by businesses, we believe it is important to refine and grasp the business-specific and position-specific skills required for executing strategies to realize our vision for the future, rather than simply managing the employee headcount.

In this way, we can formulate strategies for approaching the labor market and clarify the details of required training and reskilling, and we believe that we can support human resource problem-solving that can keep pace with the speed of our businesses. To fulfill our talent portfolio, we believe there is an urgent need to strengthen our HR business partners (HRBPs), who will serve as advisors to CXOs and business divisions heads, and we will train human resources to serve as HRBPs.

To visualize the implementation of the aforementioned initiatives, we will set the indicators of "future talent portfolio fulfillment rate (focus theme)" and "succession planning readiness rate" as KGIs to manage their progress.

Examples of Process KPI

- **Indicators to measure progress of the talent portfolio (under consideration)**
- **Average number of days required for recruitment, etc.**

Human Resource Strategies

HR Materiality 2

Become an Employer of choice

- Employer branding to become a company that selects and is selected by employees by disseminating our appeal to the labor market and improving the engagement of internal human resources

> As the General Manager of the Manufacturing Department, I am working with my colleagues to develop our vision for the future and create an exciting work environment while also pursuing safety and security.

Yuka Asai

General Manager, Second Electronic Materials Manufacturing Department, Yamazaki Plant, Electronics Production Center, Electronics Business Headquarters

Measures for Realizing the Long-Term Vision

Human resources system integrated with the corporate philosophy

An evaluation system that encourages the fostering of co-creative talent, and a remuneration system based on the labor market

To create an evaluation system that encourages the fostering of co-creative talent who embody our corporate philosophy, in addition to the traditional evaluation indicator of performance, we have established two new indicators of action and growth based on the demonstration of the values we hold dear. We manage our goals by making our corporate philosophy a matter of personal significance for each employee. In addition, by setting levels of remuneration according to the importance of roles and responsibilities with reference to external remuneration benchmark data, the Company is working to administer a remuneration system that appropriately reflects its competitiveness relative to the labor market.

Enhancement of well-being

Health and Productivity Management measures

We consider the health management of employees and others from a managerial perspective and have established an operational system to support their work and physical and mental health in order to bring vitality to the organization through the improvement of productivity and other means. We are also advancing the formulation and implementation of Health and Productivity Management measures. In addition, we are enhancing health checkups and analyzing data in cooperation with the health insurance association, and through the expansion of measures, we are aiming for certification as a Health and Productivity Management Outstanding Organization and a White 500 company.

Strengthening of corporate branding

Defining Resonac's unique appeal and communicating it inside and outside the Company

In order to raise recognition of Resonac in the first year of its integration, we are actively communicating our corporate brand to the labor market through various media including TV commercials. We will further expand the scope of our communication to spread awareness both inside and outside the Company about the uniqueness Resonac aims for as a functional chemical manufacturer and the appeal of Resonac as a place to work.

Employee Voice

We are always conscious of maintaining a safe work environment where employees can work with peace of mind, and of providing stable quality and supply of products that our customers can use with peace of mind, and thereby contribute to society's recognition and trust of the Company. In addition, since last year, the manufacturing department has been discussing its vision for the future. With everyone working toward the same goal and a gaining a deeper individual understanding of how our current work will affect the future, we now take greater initiative to make our own proposals for a more comfortable work environment. While pursuing safety and security, we will continue to develop our vision for the future and strive to create an environment where people are excited to work.

KGI

- **Hiring plan fulfillment rate**
- **Detrimental voluntary turnover rate**
- **Engagement score**

While there are concerns that the launch of Resonac will diminish the brand and recognition we have cultivated thus far, we also see it as an excellent opportunity to actively communicate new value and appeal.

We will use this opportunity to continue to spread the word that each and every Resonac employee can experience satisfaction in their work through co-creation and respect for diverse personalities, and make the appeal of Resonac widely known in the labor market so that we can become a company that is selected more than ever before.

To visualize the progress of the aforementioned initiatives, we will set the following KGIs as indicators to monitor: "hiring plan fulfillment rate" regarding new hires, "detrimental voluntary turnover rate" regarding retirees, and "engagement score" regarding employees within the Company.

Examples of Process KPI

- **Work style satisfaction survey score**
- **Feedback satisfaction survey score**
- **Recognition from the market (under consideration)**

Human Resource Strategies

HR Materiality 3

Develop self-driven professionals

- Creation of professional-minded human resources who can pursue vibrant and autonomous careers and maximize their individual abilities

> When I raised my hand for in-house recruitment, I was thinking seriously about how to contribute to the Company and society. My motivation towards work has increased now that I have decided to build my own career for myself.

Tetsuya Yokoyama
Systems Group Leader, Production Technology Department, Hikone Plant, Resonac Packaging Corporation

Measures for Realizing the Long-Term Vision

Fostering a sense of self-development

Provision of opportunities for autonomous learning

In addition to rank-based and leadership training, approximately 500 employees use LinkedIn Learning as a learning opportunity to enhance self-development that contributes to employee career development. We are also expanding in-house learning content that employees can engage in if they wish, such as sharing knowledge and case studies across organizational boundaries and providing networking opportunities with outside experts.

Provision of opportunities to encourage career ownership

In-house recruitment system

As a measure to foster employees' awareness of career ownership and provide them with opportunities for autonomous career development, we operate an in-house recruitment system in which internal job openings are displayed through the talent management system and employees can raise their hand to apply for transfers. Taking advantage of opportunities for career development and co-creation that are not bound by conventional transfer and deployment practices, more than 70 in-house recruitments were approved in 2022.

Development guide deployment

We provide a development guide that systematically compiles resources on the kind of human resources that Resonac seeks, how to develop a vision for one's career, effective dialogue including one-on-one discussion, and goal management and evaluation. We encourage employees to use this guide as a hint for developing a vision for their own career and how to build a career at Resonac, as well as to organize specific actions to experience and learn what to do to achieve it.

Employee Voice

In July 2022, I took advantage of the in-house recruitment system and transferred to the Production Technology Department of the lithium-ion battery materials business with the desire to leverage my expertise in a business area with high growth potential to contribute to the organization. When I raised my hand for recruitment, I was thinking seriously about what kind of activities I could perform in an organization with a different business and work location and how I could contribute to the Company and society. I felt more excitement about the challenge than hesitation. By making this choice to build my own career for myself rather than being assigned to an organization and position, I feel I have fewer complaints about work and have a greater sense of responsibility.

KGI

- **Internal promotion rate (key positions)**

In order for co-creative talent to thrive and continue to create new value, we believe the organization must be one in which each individual can continue to grow as an autonomous professional. The first step toward creating such an organization is to put in place the Company's systems and structures. To ensure that these systems are beneficial to employees and that they are fully utilized, we believe that awareness and understanding of the measures are important, and we are strengthening communication from management and the deployment of tools such as the development guide.

To visualize the progress of the aforementioned initiatives, we will set the KGI of "internal promotion rate (key positions)" as an indicator to measure and monitor the extent to which we are developing human resources who can be appointed to key positions within the company through the implementation of each measure.

Examples of Process KPI

- Rate of career interview registrations conducted
- Leadership development (participation rate and amount invested in training for potential leaders), etc.

Human Resource Strategies

HR Materiality 4

Cultivate corporate culture conducive to co-creation

- Cultivating a rewarding corporate culture where co-creation can occur, in which diverse individuals are respected with a high degree of psychological safety

"We believe organizations and people grow after going through painful changes, and we are working to create corporate culture by first resolving to change ourselves."

César Castiñeira
President and CEO, EMEA
COO, Graphite Business Unit

Measures for Realizing the Long-Term Vision

Inculcation of the purpose and values and cultivation of a co-creation culture
Educational policies and global award program that promote co-creation

P14

Through co-creative leadership training and other development support, we will work to create co-creative talent that enable each and every employee to carry out and embody our purpose and values. The global award program, which has been renewed as an opportunity to share activities that embody our values without fear of taking on challenges and for mutual empathy and resonance throughout the Group, had a total of approximately 11,500 Resonac employee participants in fiscal 2023, increasing the number of examples of co-creation.

Realization of workplace environment conducive to active involvement of diverse employees
Various DE&I measures

We accept the individuality of each diverse person as an important value. The co-creative collaboration enhancement training, which aims to maximize the value of individuality within the organization, thoroughly eliminate unconscious bias, and ensure psychological safety, is scheduled to be attended by more than 1,200 officers and employees by the end of 2023 with the goal of creating a corporate culture that can widely promote diversity as collective knowledge.

Creating output by embodying a co-creation culture
Collaboration measures in each department

As an example of putting our co-creation culture into practice, we have recruited an internal community called Resonac Blue Creators (REBLUC) to carry out and expand specific actions to change society through the power of chemistry, which is our purpose, and engage in collaboration to make new business proposals and conduct improvements across divisions. We also promote co-creation activities with external organizations outside the corporate framework, including industry-academia collaboration.

Employee Voice

Organizations in the EMEA (Europe, the Middle East, and Africa) region are strongly results-oriented, and our corporate philosophy is shared by our employees. What's important is that our direction is clear, and the CEO's intentions are understood by all. Change takes time and effort, but with the leadership of our top management, we feel we are moving in the right direction. Our activities that showcase examples of value to customers visiting our manufacturing sites have been well received, but we must further improve our practices based on our purpose and values in order to create a better future. We believe organizations and people grow after going through painful changes, and we are contributing to the creation of corporate culture by first resolving to change ourselves.

KGI

- **Purpose and values implementation survey score**

In this day and age, when issues are complex and large and it is difficult to predict the future, we believe a corporate culture that fosters co-creation is a source of competitiveness that generates new value. To date, we have implemented many measures to raise awareness and understanding of our purpose and values in order to make Resonac a stage for co-creation, and have achieved a certain level of success. Going forward, we are in the phase of each employee carrying out our purpose and values, and we believe that it is important to link specific co-creation to results so that we can directly feel that the corporate culture has taken root. To visualize the progress of the aforementioned initiatives, we will set the KGI of "purpose and values implementation survey score" as an indicator to monitor.

Examples of Process KPI

- **Psychological safety survey score**
- **Ratio of female managers (12.6% on a consolidated basis in 2022)**
- **Total number of participants in the global award program, etc.**

Measures to Combat Climate Change (Disclosure in Line with the TCFD Recommendations and Carbon Neutrality Initiatives) Web

Mission of Creating Value

Although it uses fossil raw materials and fuels in its product manufacturing processes and emits a considerable amount of greenhouse gases (GHG), the Group has many products that contribute to energy conservation and the carbon cycle. We regard measures to combat climate change as a management priority in terms of both risks and opportunities. In May 2019, we announced our endorsement of the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). In accordance with these recommendations, we are promoting dialogue with our stakeholders while evaluating risks and opportunities related to climate change, conducting scenario analysis to inform initiatives that enhance our resilience, and disclosing information based on the TCFD framework.

Governance

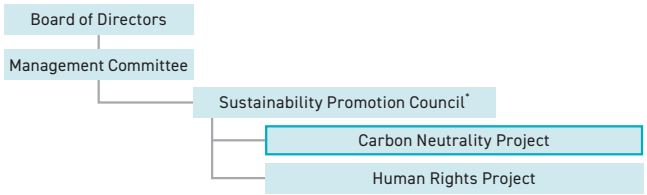
Role of board of directors and monitoring system

Sustainability is a building block for our company management, and we define our Purpose as "change society through the power of chemistry." To this end, we have established Sustainability Vision 2030, identified material issues for sustainability including climate actions to implement the major strategies of our long-term vision, and raised awareness throughout the Company.

The Group CEO supervises the risks and business opportunities, targets, and specific initiatives associated with climate change, while the Group CSO takes responsibility for promoting actions. After being discussed at the Carbon Neutrality Project, those issues are deliberated at the Sustainability Promotion Council and the Management Committee. The progress of each initiative is regularly monitored, and remedial measures are discussed when needed.

The Board of Directors receives periodic reports of what the Sustainability Promotion Council and the Management Committee discussed, and on which points they made decisions and deliberates and supervises them from the perspective of maximizing corporate value. From 2022, we have aligned the evaluation indexes for inside directors and executive officers with the initiatives in the long-term vision and countermeasures against sustainability issues, including climate change, with the aim to strongly incentivize them to manage the Group from a long-term perspective and promote the sustainable growth of the Group.

Positioning of carbon neutrality project (As of June 30, 2023)



*The members are composed of CEO and all CXOs and business division heads.

Targets and results of KPIs on material issues

P58 / Material Issues and Non-financial KPIs

KPIs and 2030 targets	Results in 2022
Reduction of greenhouse gas (GHG) emissions: ● 30% reduction in GHG emissions (Scope 1 + Scope 2) from fiscal 2013 (consolidated)	● 7.3% reduction in GHG emissions (Scope 1 + Scope 2) from 2013 (consolidated)

*Given the integration of the two companies, the actual reduction has been revised. Also, we consider starting the calculation and disclosure of Scope 3 emissions from upstream activities before setting a reduction target.

Risk Management

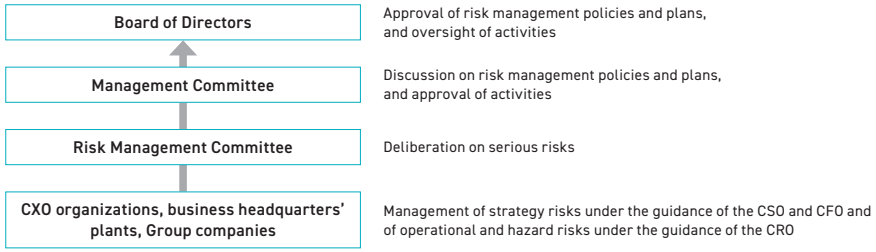
Process to assess, identify, and manage risks

The Group conducts a scenario analysis to assess "transition risks" and "physical risks" arising from climate change for each business, identifies material risks for the Group, and then develops countermeasures against them. Material issues in identifying risks and developing countermeasures are reported to the Board of Directors. We will continue to conduct the scenario analysis to update risks and countermeasures, along with monitoring the progress of the existing countermeasures.

Integration into enterprise risk management

Given the importance of building an enterprise risk management system, the Group pursues integrated risk management using a common framework across the Group. Information on climate change and other risks with the potential to impact the Group's management is registered in an integrated manner into our risk management system via companywide risk identification activities (as part of risk assessment procedures). Top risks, which are deemed to have a particularly high frequency or degree of impact, are deliberated by a dedicated committee (Risk Management Committee). Important matters examined by the Sustainability Promotion Council and the Risk Management Committee are submitted to the Management Committee for deliberation and decision before being reported to the Board of Directors.

Risk management structure (as of June 30, 2023)



Measures to Combat Climate Change (Disclosure in Line with the TCFD Recommendations and Carbon Neutrality Initiatives)

Strategies

Short-, medium- to long-term climate change-related risks and opportunities and responses to them
Amid the successful transition to a carbon-neutral society, the Group sees climate change as both a risk and opportunity. The Group will exercise its social responsibility as a company and build further competitive advantages to reduce GHG emissions across the value chain by providing products and services that contribute to decarbonization, achieving co-creation with partners, improving energy efficiency, and increasing usage of renewable energy. Given the above, the Group analyzes risks and opportunities to evaluate the impact of climate change on the Group businesses under the following two scenarios: (1) The average global temperature will increase by 4°C or more and (2) The average global temperature rise can be kept well below 2°C and continue efforts to limit it to 1.5°C based on the Paris Agreement, which were released by the Intergovernmental Panel on Climate Change (IPCC) or the International Energy Agency (IEA). Based on the analysis, we determine the necessary countermeasures.

Transition risks affecting the Group businesses include increased operating costs due to a rise in energy taxes including carbon pricing. We aim to reduce CO_2 emissions to about 3.2 million t-CO_2 by 2030, or a 30% reduction from 4.6 million t-CO_2 in 2013. Assume that Scope 1 and 2 emissions in fiscal 2030 resulting from sales growth are estimated to be about 5 million t-CO_2, the carbon pricing is set at ¥10,000/t-CO_2 based on the IEA's 2°C scenario (SDS)[*1] and others, and we need to offset the portion that falls short of reduction target through emission trading. In that case, if we fail to reduce emissions by 30%, the operating cost will increase by about ¥18 billion per year, implying that hitting the reduction target will lead to reducing operating costs. As a company that interrelates with society, we will continue to use other scenario analyses to contribute to realization of a carbon-neutral society in various ways, take measures against climate risks, and achieve a sustainable growth.

Climate change-related risks and opportunities and major response measures (The following is a selected extract—please see our Web for full details)

	Impact of climate change	Domain	Risk category	Opportunity category	Time frame[*2]	Response
Transition risks and opportunities	Increase in tax (cost) due to the introduction of carbon pricing (ICP)	All business domains	○ Policy/ Regulation		Medium term	● Revision of GHG emissions reduction targets for 2030 and establishment of the roadmap P99 ● Implementation of carbon neutrality initiatives pertaining to chemicals and petrochemicals P87 ● Participation in the GX League
	Government support under the policies for decarbonization initiatives of companies		○ Policy/ Regulation	○ Product/Service/ Market	Short to medium term	● Development of eight-inch SiC wafers for next-generation green power semiconductors (adopted as part of the NEDO Green Innovation Fund project) P79 ● Development of a low-concentration CO_2 separation system employing an innovative separation agent (adopted as part of the NEDO Green Innovation Fund project) P87 ● Reinforcement of the global semiconductor material supply chain (adopted under the Ministry of Economy, Trade and Industry subsidiary program for overseas market survey projects for building resilient supply chains in the Indo-Pacific area) P80
	Increases/decreases in sales due to changes in consumer behavior and awareness		○ Market/ Technology	○ Product/Service/ Market	Short to medium term	● Promotion of products, development of new products, and improvement of competitiveness in response to the needs of a decarbonized society P59 ● Advancement of R&D based on long-term themes at the Stage for Co-creation (new research facility) P15
	Greater request for initiatives and disclosure related to decarbonization from customers		○ Market/ Technology		Short term	● Establishment of life cycle assessment (LCA) P66 and carbon footprint of products (CFP) calculation frameworks, tracking of CO_2 emissions, and formulation of reduction plans P66 P99
	Re-evaluation by investors depending on how effectively the Group captures needs from society and customers to solve environmental issues		○ Reputation	○ Product/Service/ Market	Short to medium term	● Adding value to our products/services to help solve the problems that society and customers face P59 ● Attracting investments through proactive measures against climate change and promotion of a recycling-oriented society
	Response to technological innovation and reductions to the electricity consumption of semiconductor devices	Semiconductor and Electronic Materials	○ Market/ Technology	○ Product/Service/ Market	Short to medium term	● Establishment of the JOINT2 consortium to develop next-generation semiconductor packaging technologies (adopted as part of the advanced semiconductor manufacturing technology development project under the NEDO post-5G telecommunications system platform reinforcement R&D program) P15 ● Assessment of environmental standard conformity of product designs, and development of low-carbon products
	Growing demand for energy-saving, next-generation power semiconductors in conjunction with an increase in data processing volumes brought about by digitalization		○ Market/ Technology	○ Product/Service/ Market	Short to medium term	● HD media R&D to reduce electricity consumption of data centers ● Response to increased demand for SiC power semiconductors P79
Physical risks	Suspended operation of manufacturing sites due to flooding, and decrease in profit caused by an increase in the equipment repair cost	All business domains	○ Acute		Short term	● Analysis of flood risks at manufacturing sites ● Regular risk identification and reduction activities, and enhancement of business continuity planning P109

*1 2°C scenario (SDS): Sustainable development scenario *2 Time frame: Short term: less than three years; Medium term: three to less than 10 years; Long term: 10 to 30 years

Measures to Combat Climate Change (Disclosure in Line with the TCFD Recommendations and Carbon Neutrality Initiatives)

Indicators and Targets

GHG emissions reduction targets and results

Toward carbon neutrality in 2050, upon the formation of the new company, we reviewed our GHG emissions reduction targets for 2030 in 2021 and set the target of a 30% reduction relative to the 2013 level. We will review medium- to long-term plans for each business, aiming to create a low-carbon economy. To achieve our GHG emissions reduction targets for 2030, we will further reduce our GHG emissions and promote energy conservation. Carbon neutrality will also be pursued leading up to 2050, to accomplish the goal of becoming a company that contributes to a sustainable global society as put forth by our long-term vision. In 2022, we reduced our GHG emissions by 7.3% compared to the level in 2013, due to a decrease in production volume in some products and a procurement of renewable energy.

Gold Award in the 2022 global award program: Initiatives toward carbon neutrality - Resonac Automotive Products (Thailand) Co., Ltd.

Resonac Automotive Products (Thailand) Co., Ltd. manufactures interior and exterior automotive parts such as instrument panels and bumpers. To achieve our Purpose and respond to the requirements that the automotive industry should achieve a decarbonized and recycling-oriented society, we have established short-, medium-, and long-term goals and accelerated our efforts. Specifically, we choose low-carbon, eco-friendly materials, reduce component weight, review manufacturing processes, switch fuels with lower CO_2 emissions, reuse resources, electrify transportation equipment, and train employees. As a result, we have reduced GHG emissions by more than 20% compared with the 2013 level (base year) at our plants.

We do not regard carbon neutrality as just a concept or philosophy that people must learn, but as an important theme changing people's minds and actions. We will continue to make efforts to achieve a net zero society.

Life cycle assessment and carbon footprint of products initiatives

Eriko Takeda
Sustainability Department

Life cycle assessment (LCA) is a means of quantitative assessment of the environmental impacts of products and services throughout their entire life cycle, or within a specified portion of the life cycle. As part of measures to achieve the GHG emissions reduction target in the new company, based on the accumulated experience and insight on life cycle assessments, we work to apply LCA methodologies to measure the total amounts of greenhouse gas emissions, or carbon footprint of products (CFP).

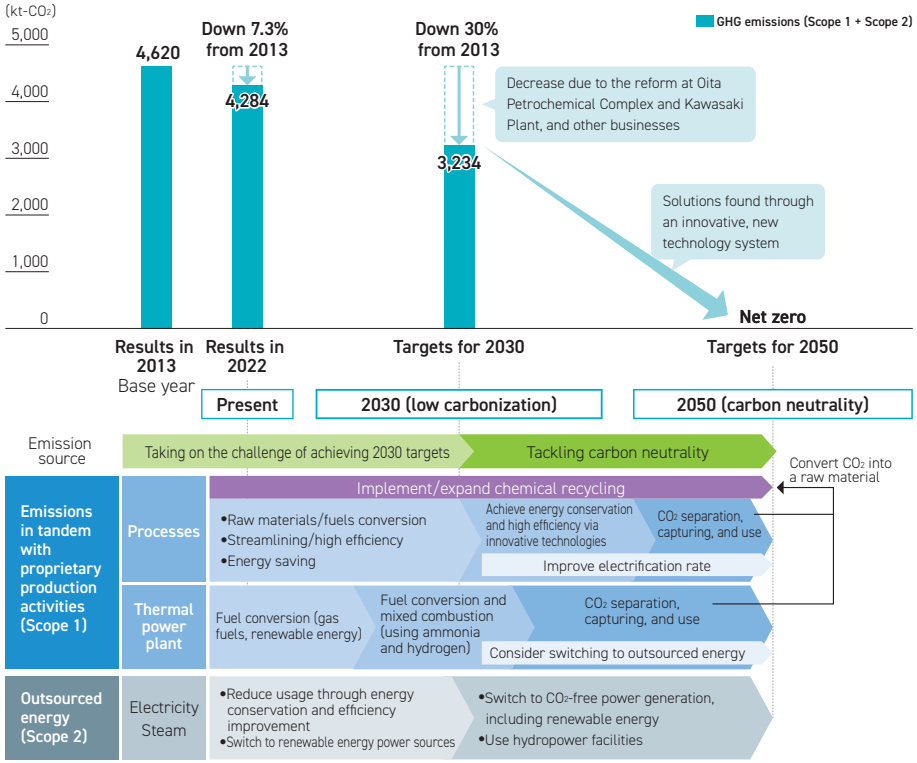
During 2022, we accumulated the calculation data of our CFP through the pilot operation, while preparing calculation guidelines and appointing persons in charge at each business division to roll out the initiatives throughout the Group. In 2023, we will prioritize the CFP calculation of products manufactured in Japan to grasp the current status of the GHG emissions. Then, we will go further to reduce GHG emissions throughout the supply chain and other environmental loads. With these perspectives in mind, we will engage in research and product development based on LCA.

Roadmap to carbon neutrality in 2050

Toward carbon neutrality in 2050, we will streamline our businesses, increase efficiency, save energy, and switch to gas fuels (high-efficiency co-generation system) until 2030. Furthermore, the Group will develop technology for sustainable plastic chemical recycling and facilitate new technology for CO_2 separation, capturing, and use. From 2030 onward, with the aim to achieve 2050 target, the Group plans to promote fuel conversion and mixed combustion to ammonia and hydrogen, as well as electrification of manufacturing processes. We will also change our manufacturing process to those using our own hydroelectric power generation and renewable energy sources. We pursue carbon neutrality by implementing sustainable plastic chemical recycling technologies, applying innovative CO_2 separation and capturing technologies, and using recycled CO_2 as chemical materials. To achieve the target, we have broken it down to business division level targets, reduction measures, and actions.

Road to carbon neutrality

*Given the integration of the two companies, the actual reduction has been revised.



*We consider starting the calculation and disclosure of Scope 3 emissions from upstream activities before setting a reduction target.

Realization of Recycling-oriented Society Web

Mission of Creating Value

Resonac globally promotes activities underpinning value creation by reducing the environmental load of our products throughout their life cycles and contributing to global environmental preservation.

Policies and Management

Cyclical use of resources and improvement of per-resource productivity are vital to the long-term use of limited natural resources and energy on the earth. Toward a recycling-oriented society, we work hard to recycle waste and use resources efficiently. To this end, our business and R&D divisions promote their activities by paying attention to the entire product life cycle from product design and development to disposal.

Strategy for Realizing the Long-Term Vision

Toward a recycling-oriented society, we focus on the following agendas, while considering setting specific goals and KPIs going forward.

- **Design and development:** Reduce consumption of minerals, fossil fuels and other resources; Use recyclable materials; Control waste generation; Improve recyclability; Extend product life; Quantify environmental impact of products through the life cycle assessment
- **Manufacturing:** Minimize consumption of energy, water, and other resources throughout the product life cycle
- **Value chain:** Pursue co-creation with diverse stakeholders such as suppliers, customers, government agencies, municipalities, and international bodies

Roadmap for realizing the long-term vision

Results in 2022	Plan for 2023	Vision for the future (2030)
Resources ● Captured/integrated data about resource consumption and waste volume **Products** ● Recycling of plastic chemicals: Achieved one million tons of cumulative throughput	**Resources** ● Reinforce global environment management systems **Increase product-related initiatives** ● Boost up production capacity of lithium-ion battery conduction additives by 30% to contribute to extending battery lifespan and reduce CO_2 emissions ● Conduct a joint study to promote recycling businesses of used plastics and fibers	Implement a number of relevant initiatives to realize a recycling-oriented society through the power of chemistry (targets and KPIs currently under development) Improve traceability and visualization of recycling toward a recycling-oriented society

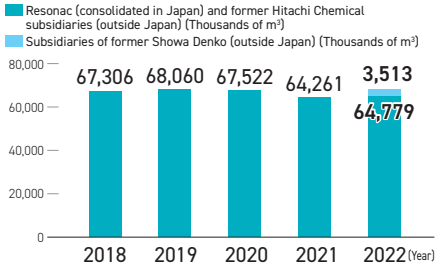
Targets and results of KPIs on material issues

P58 / Material Issues and Non-financial KPIs

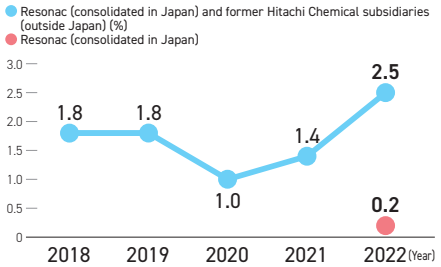
KPIs and 2025 targets	Results in 2022
Reduction of industrial waste sent to landfills: ● 0.5% or less of waste generated (consolidated in Japan)	● 0.2% of waste generated (consolidated in Japan)

* For more integrated reporting, targets for subsidiaries outside Japan are currently being reconsidered, and their results are also in the process of scrutiny.

Water intake (excluding marine water)



Ratio of industrial waste sent to landfills



Initiatives for reducing water consumption

The importance of water resources is recognized globally, and it is regarded as a social requirement to use water resources in an appropriate and efficient manner, thereby reducing the consumption of water. It is also necessary to ensure that water circulates through its natural cycle with its quality and functions maintained at a level that is suitable for human activities and environmental conservation. The Resonac Group regards a shortage of water as a global issue and is working to make effective use of water and reduce its consumption. We also treat the water used in our activities to reduce its environmental impact before releasing it back into the environment.

Electronics Production Center of the Electronics Business Headquarters is working to reduce water consumption under the environmental target of efficiency improvement by 1% per year. The Environmental Management Committee, held monthly, monitors the status of efficiency improvement of each department to help achieve the water consumption reduction target. In 2022, we successfully improved efficiency by about 1.8%. The Shimodate Plant took measures such as the reduction of the cooling water consumption through improved efficiency of heat exchangers, the prevention of water leakage by renewing aging underground piping, and the increase in the recycled and reused amount of cooling water by bolstering chiller facilities. As a result, we reduced groundwater consumption by about 70%.

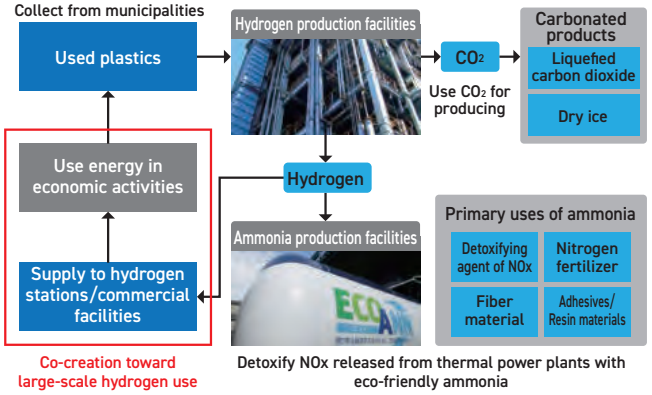
Initiatives for achieving zero emissions

By defining zero emissions as the state in which the ratio of industrial waste sent to landfills to total waste generated is 0.5% or less, we reduce the generation of waste and promote the effective use and recycling of resources. We also inspect our sub-contractors for intermediate treatment and final disposal of waste to confirm that they appropriately treat and dispose of our waste. In 2020, to enhance measures against the inappropriate disposal of waste, the government mandated companies that generate specially controlled industrial waste in the annual amount of 50 tons or more to use the electronic manifest for the reporting of their wastes. The Resonac Group's relevant sites have already put this system in place and started producing reports using the electronic manifest.

Realization of Recycling-oriented Society

Basic chemicals and Industrial gases: Promotion of plastic chemical recycling and co-creation toward large-scale hydrogen use

Under the Kawasaki Plastic Chemical Recycling (KPR*1) operations, the Kawasaki Plant implements various initiatives, such as providing hydrogen extracted through the decomposition of used plastics to fuel cells for hotels. Resonac is the only provider of ammonia in the world with a long history of synthesizing ammonia by utilizing low-carbon hydrogen extracted from gas produced through the process of used plastic chemical recycling, and as a result, the total volume of used plastic recycled reached one million tons in January 2022. Moreover, the Company aims to establish hydrogen fueling stations in the coastal area of Kawasaki City to create a virtuous cycle for expanding supply and demand to use hydrogen. Since March 2022, we have promoted this initiative by coordinating with six other partners across various sectors*2 as a collaborative network for hydrogen use to track medium- to long-term hydrogen demand and supply network feasibility within the area.



*1 KPR is an acronym for Kawasaki Plastic Chemical Recycling, a plastic recycling business operated at the Kawasaki Plant.
*2 Six other partners across various sectors are Asahi Kasei Corp., Ajinomoto Co., Inc., ENEOS Corporation, East Japan Railway Company, Toshiba Energy Systems & Solutions Corporation, and Kawasaki City.

P85 / Chemicals

Almic-can, an eco-friendly product that also contributes to reducing food loss

Almic-can enables the foods to keep their flavor and prevent their color from changing, whereby reducing food loss. KAWASHO FOODS CORPORATAION, known as its flagship product, Nozaki's Corned Beef, tested for preservation of its corned beef using Almic-can. The test showed that Almic-can helped extend its best-before date to three and a half years from three years when using the traditional trapezoidal "makura kan" (pillow-shaped can). Almic-can is suitable for an emergency food stock as you can keep the foods at room temperature and eat without cooking.

Almic-can also contributes to eco-friendly packaging. These days, plastic containers are used for many food products, but microplastics are regarded as a cause of extensive marine pollution. When TANEYA CO., LTD., a Japanese confectionery company, changed its packaging for Japan agar to Almic-can, the company successfully reduced plastic usage per unit from 38.3 g to 12.1 g, or a whopping 68% reduction in plastics. Assuming that the amount of energy required to develop aluminum base metal from mineral (bauxite) is 100, the amount of energy required to create recycled base metal from collected aluminum would be only about three, meaning recycling aluminum contributes to decarbonization. Leveraging the strengths of Almic-can, we plan to enter into the fields, such as nursing care foods, pet foods, and pharmaceuticals.

Nozaki's Corned Beef of KAWASHO FOODS CORPORATAION

Honnama Yokan of TANEYA CO., LTD.

Environment Risk Measures Web

Policies and Management

We appropriately assess the impact of our business on the environment and work to reduce our environmental load and implement measures for preserving the environment based on the findings of such assessments, while contributing to achieving a sustainable society. The Group CEO is the highest authority for environmental preservation activities and environmental risk measures. The environment & safety managers at each business division and site are appointed, and information on the environment is shared through the environment & safety managers meeting. At the same time, instructions from the Management Committee are circulated throughout the Group. At each site, the head of the site and the environment & safety manager lead environmental preservation activities based on their environment and safety action plans.

Strategy for Realizing the Long-Term Vision

To identify environmental risks and opportunities, and compliance obligations, and to ensure that we address them appropriately, we will establish and implement an environmental management system, which covers an implementation structure, securing of resources, education, communication, monitoring and measurement, emergency preparedness and response, and internal audits, whereby consistently improving our environmental risk measures.

Roadmap for realizing the long-term vision

Results in 2022	Plan for 2023	Vision for the future (2030)
● Developed the system to understand and manage environmental risk events ● Prepared the regulations for environment & safety management system	● Establish a system to manage environmental risk events ● Roll out an environment & safety management system globally ● Implement the compliance system	● An integrated environment & safety management system is in place on a global scale. ● The environment management status is visible on a global scale so that we can understand issues and take countermeasures against them promptly.

Targets and results of KPIs on material issues

P58 / Material Issues and Non-financial KPIs

KPIs and 2025 targets	Results in 2022
Zero environmental accidents ●Zero environmental accidents (consolidated)	●0 (consolidated)

Environmental measures in Kitakata City, Fukushima

In October 2020, at our production base for the aluminum specialty components business located in Kitakata City, Fukushima Prefecture, substances including fluorine were detected in an amount exceeding the regulatory standards in the groundwater flowing beneath the premises. In response, we have implemented remediation measures in line with the Soil Contamination Countermeasures Act.

Niigata Minamata disease

Regarding the Niigata Minamata disease, the outbreak of which was officially confirmed in 1965, we acknowledge that former Showa Denko's wastewater polluted the Agano River, causing great inconvenience to victims and people living around the site. Resonac, in cooperation with the national and local governments, will continue to respond in good faith to the victims of the incident and work to solve the related problems in line with the laws and regulations that provide for compensation to be paid for the damage caused by the pollution.

Efforts for Preservation of Biodiversity Web

Mission of Creating Value

In order to pass down to the next generation the beautiful scenery provided by ecosystems and rich natural resources, the Resonac Group will work to conserve, restore, and improve biodiversity.

Policies and Management

While biodiversity, the gift of nature, supports human life and business activities, biodiversity is rapidly being eroded and faced by various environmental issues. The Group regards biodiversity conservation as essential to recovering the natural power that ecosystems generate. This is why we work to assess business activities' impact on ecosystems so that we can sustainably use natural resources including forests, soil, water, air, and biological resources. Not only assessing the impact of the business activities on ecosystems, but we also cooperate with various stakeholders, such as society, customers, business partners, central and local governments, international bodies, non-profit organizations (NPOs), and non-government organizations (NGOs) to protect biodiversity.

Strategy for Realizing the Long-Term Vision

For protecting biodiversity, we take the following to set concrete targets and KPIs in the future.

- Evaluate and reduce the impact of the Resonac Group's business activities on biodiversity
- Work to restore threatened biodiversity
- Reinforce initiatives through dialogue and cooperation with stakeholders

Roadmap for realizing the long-term vision

Results in 2022	Plan for 2023	Vision for the future (2030)
Actively engaged in a reduction of environmental load by ensuring appropriate maintenance and management of green spaces and reducing wastewater ● Surveyed aquatic life living in the stream flowing in Kitakata Plant in Fukushima Prefecture ● Engaged in conservation activities of ecosystem in Kasumigaura area in Ibaraki Prefecture ● Volunteers from Resonac Asia Pacific Pte. Ltd. participated in cleanup program of national gardens	● Collect examples of activities serving biodiversity conservation and draw up action plans ● Examine biodiversity indicators ● Reinforce existing initiatives	Assess impact of Group's business activities on ecosystems and partner with various stakeholders to use natural resources in a sustainable way, while preserving, restoring, and improving them (Targets and KPIs are currently under review)

Biodiversity conservation, restoration, and improvement activities at Kitakata Plant in Fukushima Prefecture

We survey aquatic life in the stream flowing within the premises of Kitakata Plant to protect endangered life and maintain biodiversity in the area. The survey confirmed the presence of many types of organisms, including fish such as amur minnow and Japanese dace, amphibians such as Japanese tree frogs and wrinkled frog, insects such as water stick insect and agabus japonicus, and shellfishes.

We will make a new plan of preparing waterway while preserving the habitat of aquatic life and start biodiversity conservation activities as the plant-wide initiative.

Wrinkled frog

Water stick insect

Biodiversity conservation in Kasumigaura area (Environmental Rehabilitation Activity around Kasumigaura)

The Resonac Group obtains water for industrial use from Kasumigaura. From fiscal 2012, we are working with an NPO named "Asaza Fund" to undertake the Environment rehabilitation activity around Kasumigaura. Specifically, we have been carrying out activities to regenerate the Satoyama environment (undeveloped woodland near populated areas) while also growing rice and improving the environment on abandoned cultivated land in Sakuragawa City, Ibaraki Prefecture, where we place our operation base.

In cooperation with the locals, we improve the surrounding environment by cutting grass and creating biotopes in line with programs, such as rice planting, weeding, and harvesting, and keep the organism living in the area under observation from certain point. According to the observation, the abundance of life such, as pleuroceridae and brown frogs is increasing compared with those before the activity, and we aim to see more organisms in the future. We also confirm the existence of species such as giant water bug, whirligig beetle, and Japanese eight-barbel loach, which are on the red lists released by The Ministry of the Environment. We continue to work on ecosystem conservation. Due to the spread of COVID-19, those on-site activities had been suspended since 2020, but we resumed our activities in 2023.

April 2023: Rice planting and aquatic life survey

Jumbo dragonfly larvae

Occupational Health and Safety Web

Mission of Creating Value

We view safety as being what qualifies us to remain in the manufacturing business. As we strive to "gain social credibility through responsible business management," we will be building a safety infrastructure and safety culture for the Resonac Group, and globally promote activities underpinning enterprise value creation.

Policies and Management

"Safety First" is stipulated in Article 1 of "Our Code of Conduct," and our senior management have expressed a strong commitment to it. Based on our basic philosophy of "safety as our top priority," we will protect the health and safety of all our work colleagues, including those at partner companies, and ensure that our workplaces enable them to do their jobs with peace of mind.

The CEO is the highest authority for safety activities, and based on the mantra of "Bad News First, Fast," information on safety within the Group is shared with the senior management team at safety meetings, which are normally held every other week, and instructions are issued to the entire Group. In addition, we provide forums for discussion of matters related to health and safety by executives and labor union representatives, and proactively engage in activities that involve both the management and labor sides, such as jointly-run workshops and patrols.

Initiatives in 2022

Global safety awareness survey

In 2022, we conducted a safety awareness survey of all our employees across the globe.

The results highlighted issues with the Group's overall safety culture, and based on those findings, we set the following goals for our future activities: *instilling the belief that the number of accidents and disasters can be reduced to zero, fostering leadership, nurturing a safety culture in which personnel educate each other (mutual enlightenment)*, and *implementing initiatives for giving praise where it is due.*

Rollout of the SCP (Safety Communication Program)

The SCP is a program designed to help managers and supervisors improve their observation and communication skills to enable them to engage in interactive and constructive discussions with workers about safe work practices on the frontline.

The program is one of a number of initiatives aimed at nurturing a safety culture of *mutual enlightenment*, i.e., one in which good behavior is praised and unsafe behavior is corrected, and problems are solved together, through patrols that emphasize dialogue rather than repeatedly pointing out faults.

Safety patrols that emphasize dialogue

Video

Strategy for Realizing the Long-term Vision

We have declared the following strategy for building a safety infrastructure and safety culture at Resonac:

1. Reform our safety culture by transforming it into one based on mutual enlightenment
2. Roll out a risk-based environment and safety management system globally and improve it on an ongoing basis
3. Ensure safe behavior and raise safety awareness based on our safety code of conduct and 10 safety principles
4. Reinforce efforts to prevent accidents and disasters by introducing process safety management
5. Disseminate information and increase the speed of responses by implementing a Groupwide safety data management system

Roadmap for realizing the long-term vision

	Results in 2022	Plan for 2023	Vision for the future (2030)
Fostering of a culture emphasizing safety	● Conducted a safety awareness survey and formulated an improvement plan ● Held safety workshops facilitated by senior executives ● Introduced the Safety Communication Program ● Ran the "My Safety Declaration" campaign	● Promote mutual enlightenment through local gatherings and activity presentation meetings ● Implement the Safety Communication Program by senior executives	● A mutual-enlightenment safety culture has been instilled based on leadership from the top
Establishment of safety infrastructure	● Established global rules for the environmental and safety management system	● Begin operation of the environmental and safety management system ● Introduce process safety management ● Begin operation of the safety data management system	● A safety infrastructure has been established and the integrated environment and safety management system is in place on a global scale
Invigoration of safety activities	● Established our safety code of conduct and 10 safety principles	● Promote comprehension and penetration of our safety code of conduct and 10 safety principles	● All Group personnel maintain high levels of safety awareness and behave in a highly safe manner

[Zero accidents/disasters]

Targets and results of KPIs on material issues

P58 / Material Issues and Non-financial KPIs

KPIs and 2025 targets	Results in 2022
Fostering of a culture emphasizing safety: ● Establish a culture emphasizing safety to eliminate occupational accidents	● Drafted improvement measures based on the results of the global safety awareness survey (launched the Safety Communication Program) ● Harmonized safety standards (ongoing)
Occupational accidents: ● Zero serious occupational accidents (consolidated)	● 0 (consolidated, includes partner companies)
Lost time incident rate: ● 0.1 or less (consolidated, equivalent to zero accidents resulting in lost time over a 10-year period at a site with 500 employees)	● 0.54 (consolidated, excludes partner companies)
Equipment-related accidents: ● Zero serious equipment-related accidents (consolidated)	● 0 (consolidated)

Quality Assurance Web

Mission of Creating Value

Through our quality assurance activities, we will continue to supply customers with products and services that are safe and provide peace of mind over the entire product lifecycle. And by aiming to maximize the value that we deliver through co-creation with suppliers and various other stakeholders that is based on relationships of trust, we will contribute to the sustainable development of society.

Policies and Management

We have declared a quality policy of providing world-class quality that contributes to the sustainable development of society. The Chief Quality Officer (CQO) leads an oversight organization responsible for the design of quality-related systems, human resource development, management, and audit, and we will be making improvements by following a PDCA (plan-do-check-act) cycle that involves close coordination with the quality assurance manager at each business site.

Furthermore, by establishing a group in charge of functions for strengthening global governance and functions for moving forward with IT system development, our policy is to translate these functions into superior quality assurance and more efficient and sophisticated operations for the Resonac Group as a whole.

Strategies

<Priority measures>

1 Reinforcement of quality assurance governance
We will entrench and continuously review rules, establish an RHQ* structure, and simplify and standardize operations.

2 Human resources development and fostering of a safety culture
We will improve quality-related education programs, and roll them out throughout the Group. Through an e-learning program, we will endeavor to prevent the inappropriate inspections that were uncovered at former Hitachi Chemical in 2018 from being forgotten, and will strive to develop human resources with high levels of skills and ethics and to foster a safety culture.

3 DX to maximize the value we provide
By building IT systems, we will make our quality assurance operations more sophisticated and efficient and strengthen functions for managing changes and modifications, and by managing trends, we will enhance our administrative capabilities.

*RHQ: Regional Headquarters (regional oversight companies) See P30

Roadmap for realizing the long-term vision

Results in 2022	Plan for 2023	Vision for the future (2030)
● In the final stage of the integration, we established and put into effect rules related to quality assurance, the cornerstone of global governance ● We laid the foundations for the establishment of an RHQ for Greater China, administered a quality-assurance integration education program ahead of time, and strengthened the head office quality assurance department's functions for audit and surveillance of each business site	● To increase solidarity among all the people involved in quality assurance as members of Resonac, and firm up the foundations for their activities, we will entrench integrated rules; launch the RHQs; conduct a quality awareness survey and feed the results back into education plans; systematically build quality-related IT systems; and continuously reduce complaints and nonconformance	● The entire Group is being administered under a globally-integrated quality assurance framework ● Through quality, relationships of trust have been established with customers, and the value provided through business activities has been maximized

Targets and results of KPIs on material issues

P58 / Material Issues and Non-financial KPIs

KPIs and 2025 targets	Results in 2022
Zero product-related accidents: ● Zero product-related accidents (consolidated)	● 0 (consolidated)
Zero quality compliance violations: ● Zero violations (consolidated)	● 1 (consolidated)

Initiatives in 2022

Regarding measures that constitute major modifications for internal departments, such as the establishment and implementation of integrated rules related to quality assurance, we conducted multiple rounds of awareness-raising activities to get the measures off to a smooth start. As a result, business sites have been implementing them in a systematic fashion since the beginning of the fiscal year. We have decided to build the global governance structure in stages, and have embarked on the first stage by commencing a fact-finding survey of Greater China and starting work on determining a course of action for the region.

As for quality compliance, the CQO sent out messages connected to our purpose and values. And besides taking such measures as providing periodic education, we used the internal intranet to share information about the inappropriate inspections incident, and began building an archive of related information to facilitate mutual learning.

In the area of IT systems, we made progress with expanding systems for preventing quality-related misconduct based on a medium-term plan. These systems included ones for automatically importing inspection data and ones for automatically issuing test performance documentation.

Chemicals Management Web

Mission of Creating Value

Our mission is to realize a "Co-creative Chemical Company" that transforms society through the power of chemistry. We are dedicated to ensuring chemicals management compliance and providing safety and peace of mind throughout the entire product lifecycle. With the concept of new value through safety, we aim to maximize enterprise value through our effort to ensure a sustainable society considering environmental impact and safety, health, and the genuine prosperity of individuals.

Policies and Management

As part of the integration of the two companies, a new chemicals management oversight organization was established. The members of this organization are working collaboratively to establish a global framework for ensuring chemicals management, and are striving for continuous improvement by employing PDCA cycles in areas such as regulatory compliance, risk management, global governance, and safety evaluation.

We provide safety and peace of mind through a commitment to rigorous compliance and the promotion of product stewardship. We also aim to create new value for the future through the proactive identification and autonomous/self-motivated management of potential product risks. Furthermore, we will work towards achieving our mission by creating mechanisms for continuously developing and producing professional personnel in chemicals management and safety assessment, and by promoting the building of systems and infrastructure to ensure that all initiatives related to chemicals management are implemented effectively.

Strategies

<Priority measures>

1 Reinforcement of global governance
Through the establishment of a chemicals management network function, formulating Resonac group's chemicals management rules, developing an integrated chemicals management system, and comprehensive collaboration via RHQs*, we aim to further enhance governance both domestically and internationally, and ensure comprehensive chemicals management compliance.

2 Promotion of product stewardship
We will provide sustainable value through safety and peace of mind that reassures our stakeholders by continuously performing chemical risk assessments, enhancing the level of product safety assessments, and expanding product-related safety information.

3 Education/human resource development
We will implement a chemicals management professional development program that focuses on e-learning and online seminars, enabling participants to take courses from any location and at any time, and fostering human interaction and specialized training within the Resonac Group.

*RHQ: Regional Headquarters (regional oversight companies) See P30.

Roadmap for realizing the long-term vision

Results in 2022	Plan for 2023	Vision for the future (2030)
● Initiated the merger of the two companies with the integration of rules, chemicals management audits, and various education programs, as well as the launch of an internal chemicals management portal site ● Achieved 100% execution rate for risk assessment of priority risk assessment substances (within Japanese business sites of the former Showa Denko)	● Advance efforts to establish a comprehensive global management framework, encompassing the enhancement of legal compliance, implementation of chemicals management audits and education, integration of chemicals management systems, and the multilingualization of the portal site ● Select priority risk assessment substances and conduct associated risk assessments	● Establish global chemicals management governance framework to enable Resonac to compete on the international stage ● Contribute to maximizing enterprise value by providing safety and peace of mind through co-creation with stakeholders

Targets and results of KPIs on material issues

P58 / Material Issues and Non-financial KPIs

KPIs and 2025 targets	Results in 2022
Promotion of product stewardship: ● 100% execution of risk assessment of priority risk assessment substances* (consolidated in Japan)	● 100% execution of risk assessment of priority risk assessment substances* (former Showa Denko non-consolidated, 68 substances)

*The assessment was implemented by issuing a safety summary report for substances stipulated by the Company.

Initiatives in 2022

JIPS award (first prize) plaques (2021 and 2022)

The departments responsible for chemicals management from both companies collaborated to integrate their efforts and establish a united organizational structure. This culminated in the inauguration of Resonac's Chemicals Management Department in January 2023. As part of that process, we pressed ahead with the integration of rules, chemicals management audits, and various education programs, as well as the launch of an internal chemicals management portal site, laying the groundwork for future initiatives to reinforce global governance and educate and develop human resources. Also in 2022, we conducted risk assessments, similar to the previous year. Notably, we achieved a 100% assessment rate for our priority risk assessment substances (within Japanese business sites of the former Showa Denko), disclosing the results in safety summary reports. These were awarded the first prize in the Japan Initiative of Product Stewardship (JIPS) award program*, organized by the Japan Chemical Industry Association, for the second consecutive year. This initiative has had the effect of invigorating risk communication both within and outside Resonac and boosting internal motivation among our personnel, which will drive our ongoing product stewardship efforts.

*The JIPS award is presented by the Japan Chemical Industry Association (JCIA) to member companies that have conducted superior initiatives in disclosing their safety summary reports as part of the autonomous/self-motivated initiatives in chemicals management.

Sustainable Procurement Web

Mission of Creating Value

As we endeavor to evolve into a "Co-creative Chemical Company," the mission of procurement departments is to work with suppliers and all other stakeholders to contribute to the realization of a sustainable society. To that end, it will be essential to build long-term relations of trust with suppliers, and we will therefore adhere to high ethical standards in our procurement activities and develop fair and impartial procurement frameworks to promote *sustainable procurement* as responsible procurement activities.

Policies and Management

To make our procurement sustainable, our basic policy comprises the following three activity components:

- **Corporate social responsibility (CSR):** Better fulfill our social responsibilities in all our business activities from development/manufacturing to final consumption
- **Fair procurement activities:** Select optimal suppliers and conduct fair procurement after comprehensively considering not only quality, safety, and economy, but also CSR
- **Partnerships:** Build equitable collaborative relationships with suppliers based on mutual understanding and trust

To further entrench these activities, our procurement departments will play the leading role in sustainable procurement, establishing specialist teams to perform internal monitoring of purchasing, contracting, and legal compliance; provide compliance-related education internally; and conduct CSR questionnaire surveys of suppliers and give them feedback.

Strategy for Realizing the Long-term Vision

We pursue sustainable business activities throughout our supply chain, from raw materials procurement to manufacturing, sale, and logistics, and have made available Sustainable Procurement Guidelines Web detailing the efforts that we want suppliers to make alongside us. By jointly adhering to these guidelines, both Resonac and its suppliers are taking action to enhance their value as enterprises. Procurement departments will be designing and implementing effective measures with the following objectives in mind:

- Ensure penetration of the Sustainable Procurement Guidelines by distributing them to suppliers and obtaining from the suppliers written confirmation that they have received them
- Build a foundation for high-quality communication by improving methodologies for CSR questionnaire surveys and CSR visits
- Help strengthen the businesses of both Resonac and its suppliers through open exchanges of opinions with suppliers
- Improve the skills and professionalism of purchasing managers by providing them with ongoing education and conducting awareness-raising activities

Roadmap for realizing the long-term vision

Results in 2022	Plan for 2023	Vision for the future (2030)
● Published the Resonac Group Sustainable Procurement Guidelines ● Conducted a CSR questionnaire survey (response rate: 92%) ● Made CSR visits (47 companies*, former Showa Denko suppliers)	● Improve the functionality of CSR questionnaire tools and make sure they are used ● Gauge current levels of CSR efforts at suppliers, and set evaluation standards	● Work with suppliers to raise effort levels and realize a sustainable society

Targets and results of KPIs on material issues

P58 / Material Issues and Non-financial KPIs

KPIs and 2025 targets	Results in 2022
Improvement of quality of communication with suppliers: ● CSR questionnaire response rates improved, and a higher proportion of suppliers exceeded the satisfactory threshold	● Began formulating the Sustainability Procurement Guidelines for the newly integrated company

Initiatives in 2022

We conduct CSR questionnaire (self-assessment) surveys of important existing suppliers once every three years, and all new suppliers normally have to respond to the questionnaire when we start doing business with them. In 2022, we received responses from 339 companies (response rate: 92% of all those surveyed). The results were aggregated, and applicable suppliers were provided with feedback reports that clarified their standing relative to the average of all suppliers and of their own industry and gave advice on making improvements. We also made "CSR visits" to 47 companies, during which we exchanged various opinions with them on how to practice sustainable procurement.

Results of Supplier CSR Self-assessment (CSR questionnaire survey) in 2022

Number of suppliers responded: 339 companies Average total score: 63.0

Score	Number of suppliers (% of total)	Improvement efforts
50 or more	273 companies (81%)	Suppliers were urged to work on matters that needed improvement and to pursue higher-scoring initiatives
30 to below 50	52 companies (15%)	Suppliers were urged to work on matters that needed improvement, and offered Resonac's proposal on improvement measures Note: Visits made as needed, to exchange opinions on efforts made by both parties and check the status of improvement at the next self-assessment.
Below 30	14 companies (4%)	Suppliers were urged to work on matters that needed improvement, and offered Resonac's proposal on improvement measures Note: Visits made as needed, to discuss early improvement and check the status of improvement at the next self-assessment.

Respect for Human Rights Web

Mission of Creating Value

Conducting our business activities with consideration for human rights is essential to protect our employees, as well as gain the trust of our business partners, customers and local communities in our collective aim to create a better society.

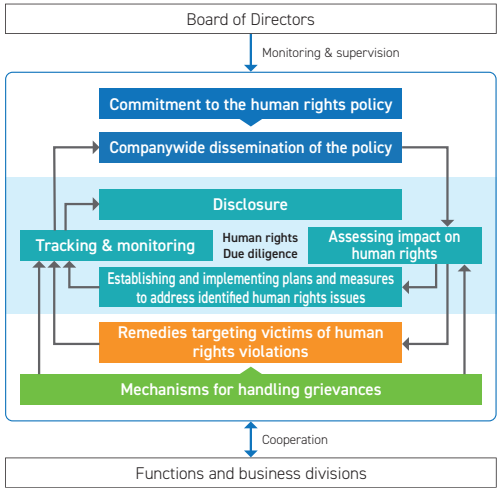
We respect human rights as the core of our business activities in all countries and regions where we operate to help bring about a society that leaves no one behind and where the dignity of all is ensured and everyone is treated equally without exception.

Policies and Management

In 2021, we published a human rights policy that places respect for human rights at the core of our business activities in all countries and regions where we operate. This policy was formulated not only for all of our employees, but also for our business partners, including our suppliers, to understand and adopt.

We are continuously deepening our human rights due diligence in line with this policy.

Our commitment to human rights is driven by a company-wide, cross-sectional human rights project team. This comprises members selected from our Strategy, Personnel, Risk Management, Occupational Safety, Procurement, and other specialized departments, as well as each Business Division that forms the core of our human rights initiatives. Alongside regular gatherings of the Sustainability Promotion Council, attended by the Group's CXOs including the CEO, matters of importance are deliberated and decided upon in management meetings and reported to the Board of Directors, thereby strengthening governance to reduce business risks.



P55 / Promoting Sustainability

Roadmap for realizing the long-term vision

Results in 2022	Plan for 2023	Vision for the future (2030)
● Investigated human rights issues in high-risk areas and chemical companies and began to gain an understanding of the company's risk profile	● Conduct employee assessments, including overseas, and investigate human rights risks in the supply chain, identifying high-risk areas and considering improvement measures ● Implement human rights education for all Group employees through our dedicated e-learning system.	● To have implemented measures for prevention and mitigation against identified human rights risks, as well as established a series of processes to evaluate their effectiveness ● To have established a corporate culture in which all Group employees, including those overseas, respect human rights and are able to transform diversity into co-creative and competitive strengths

Targets and results of KPIs on material issues

P58 / Material Issues and Non-financial KPIs

KPIs and 2025 targets	Results in 2022
Respect for human rights: ● Established a human rights due diligence implementation framework	● Initiated an investigation into human rights risks, including within our supply chain ● Began raising awareness of Sustainability Procurement Guidelines that reflect our human rights policy

Initiatives in 2022

In 2022, in preparation for the launch of Resonac, we formulated "Our Code of Conduct" P111 to reflect our human rights policy, and worked toward embedding it within the workplace. In addition, on account of the increasing geopolitical risks and new business activities following the integration, we began identifying human rights issues, including those in high-risk areas and within the supply chains of chemical companies. Along with that, we also ensured that our human rights policy was reflected in our Sustainability Procurement Guidelines P106, which clearly set out matters for collaboration between Resonac and our suppliers. These guidelines were subsequently shared with our suppliers.

Plan for 2023

In 2023, we will conduct employee assessments, including those overseas, and investigate human rights risks in the supply chain, identifying high-risk areas and regions and considering improvement measures. At the same time, we will aim to further embed our human rights policy throughout the Group via training.

Strengthening Internal Communication within our Group

In January 2023, we embarked on a fresh journey under the new company name of "Resonac." We are committed to fulfilling our social responsibilities and delivering value to all our stakeholders. By doing so, we aim to earn their trust and esteem, paving the way for co-creation. The foundation for this lies in internal communication within our Group. We are strengthening our communication as a group to enhance sustainable corporate value and address societal challenges through our business activities.

April 2020
Completed the TOB (Tender Offer Bid) for the former Hitachi Chemical

January 2022
Effectively merged via the unification of management structures

January 2023
Resonac is born (corporate merger)
Holding company: Resonac Holdings Corporation
Newly merged company (operating company): Resonac Corporation

RESONAC
Chemistry for Change

Strategy for Realizing the Long-term Vision

We aim to be a company that can compete on a global stage. To drive transformation, create synergies through the merger of the two companies, and foster co-creation, it is essential for us to bridge any gaps in understanding and awareness between management and employees. We will do this through town hall meetings and face-to-face events with the CEO and other members of the leadership team, as well as through transparent communication such as Internal Group magazines that showcase the faces of our employees.

Initiatives in 2022

Since the effective merger of the two companies in January 2022, we have been focusing on promoting mutual understanding, communicating the progress of the merger and other business information, as well as encouraging dialogue between management and employees. This has included town hall meetings between the leadership and employees, "Global Kickoff Meetings" where members of the management team from all our worldwide locations convene, as well as a New Year's address by the President. Additionally, we have been actively disseminating information via our Internal Group magazines. The New Year's address by the President was planned and executed with a greater emphasis on two-way communication. In the town hall meetings, our president has listened to employee requests and concerns, and communicated his action plans. We've further enhanced our direct communication with employees by holding sessions in Japanese, English, and Chinese, complemented with real-time Q&A sessions. We have also revamped the traditional Internal Group magazine format and launched the Internal Group magazine titled "BRIDGE," which is centered around the concept of showcasing the faces of our employees and communicating initiatives and achievements that can make us proud of the Group." It overlays the company's direction, management policies, and sentiments with the efforts of our employees. The online Internal Group magazine places emphasis on articles with the themes of co-creation, purpose & values, as well as our "WITH UNSUNG LEADERS"* features. For employees who don't typically use computers, we produce digests of our online Internal Group magazines that are displayed at our physical locations.

*"WITH UNSUNG LEADERS" features highlight those unheralded leaders in our company who bravely confront challenges and continuously learn through trial and error, all in pursuit of a brighter future. We develop articles based on this concept on our website and in Internal Group magazines.

Web

Topics

Global Kickoff Meeting 2023

In February 2023, we held our first "Global Kickoff Meeting." At the meeting, 178 attendants, consisting of the Group's senior executives and presidents of our major affiliated companies, shared the strategies and policies of each business unit and corporate function, and deepened their understanding of the Group's current priority initiatives. Lively two-way discussions were held, fostering a sense of unity within the management team.

Topics

Creation of the "Resonac Pride Award" to Recognize and Encourage Employee Sustainability Activities

We established the "Resonac Pride Award" to honor employees who, through their involvement in social contributions, environmental conservation, and cultural or sporting activities, embody our purpose and values. Their efforts contribute towards enhancing our company image and invigorating internal morale and vitality. In 2022, we received 65 nominations from ten different countries. Ms. Fujichika from our Oita Office, who founded and manages the futsal club "ENTRADA" for those with intellectual disabilities, received the gold award.

Risk Management Web

Mission of Value Creation

We will endeavor to ensure that each individual possesses solid integrity and that all personnel manage risks with an eye to the future, and will contribute to the sustainable development of both Resonac and society. By considering our direction and appropriateness for addressing risks, such as promotion of companywide risk assessment and business continuity management, and repeatedly following a cycle of verifying effectiveness, we will clarify the risks and their impact on business management to support management decision-making and thereby facilitate the optimal allocation of resources.

Risk/Crisis Management Systems

Risk management system

Resonac has established a risk management system that is compliant with the ISO 31000 standard. We have also organized the Risk Management Committee chaired by the CEO. The Committee facilitates cross-organizational deliberations by senior executives on the risk management system, key risks facing the Group, and countermeasures for addressing them. The matters deliberated on by the Risk Management Committee will be discussed and approved by the Management Committee, and then reported to the Board of Directors, which supervises assessments of the appropriateness and effectiveness of the risk management system and the progress being made with its implementation.

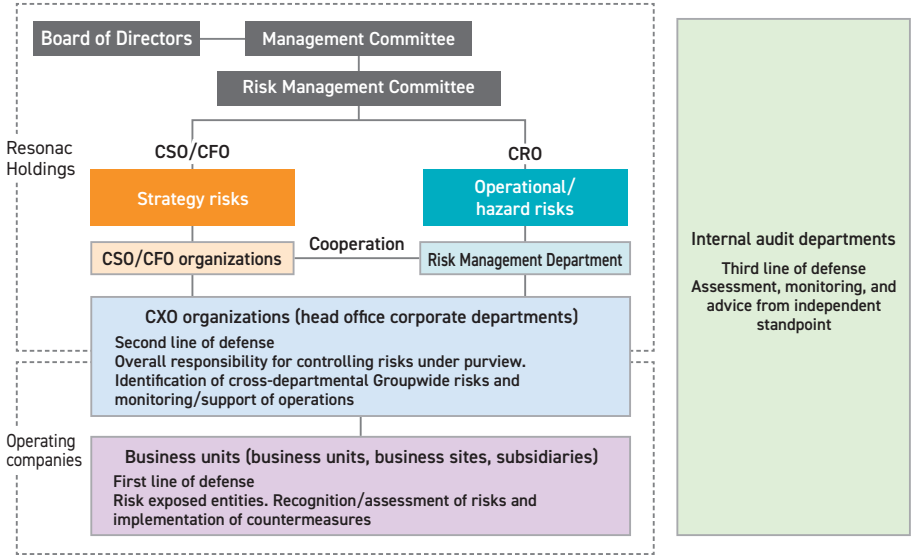
In addition, at business divisions/sites and major Group companies in Japan, we have assigned risk owners, risk officers, and risk managers, who are responsible for identifying and assessing risks in each business and workplace and implementing countermeasures to address them. We have also clarified who is responsible for implementation in divisions performing risk assessment. Furthermore, the CXO organizations, which are head office corporate departments, act as risk oversight divisions by taking overall responsibility for controlling the risks under their purview. They also conduct reviews of and provide support for the establishment of the companywide risk oversight standards, risk assessments conducted by divisions performing risk assessments, and countermeasures, all from a cross-departmental perspective over the entire Group. We have therefore put in place a structure that allows risk management to be performed in an integrated fashion with senior management and frontline personnel working together as a united team.

Crisis management system

Should a crisis occur, we set up a crisis response headquarters led by the CEO, which handles the initial response in a swift and appropriate manner. For example, it assesses the extent of damage and its impact on our business operations, issues instructions to take steps to prevent any escalation of damage, and considers what information to provide to external parties.

Following the initial response, if the crisis is expected to have a significant impact on business continuity, BCPs (business continuity plans) developed in advance for selected products are executed. In this way, we endeavor to maintain/continue or swiftly resume business operations in order to fulfill our responsibility to continue supplying customers with products essential for maintaining social infrastructure.

Risk management organization



Roadmap for realizing the long-term vision

Results in 2022	Plan for 2023	Vision for the future (2030)
Establishment of risk management system Development of risk management system ●Established risk management system/rules and expanded functions of secretariat ahead of launch of Resonac in January 2023 Risk assessment ●Conducted the 2022 risk assessment ●Added review process by CXOs BCM&BCP ●Selected products for which BCPs are to be established	**Expansion of risk management processes** Sophistication of risk management system ●Reinforcement of risk oversight through addition of control implementation and assessment processes BCM&BCP ●Formulation of BCM&BCP guidelines ●Based on the guidelines, revise BCPs for products for which BCPs have been established and establish an effective administrative structure Establishment of risk management systems outside Japan ●Establishment of structures for functional design and implementation at core subsidiaries outside Japan Provision of risk management education and training ●Production of educational content and development/implementation of education plans	●Achieve world-class management by establishing and improving risk management structure and system that support the three lines of defense ●Develop an effective administrative structure that also covers BCM&BCP formulation, and fulfill social responsibilities even in emergencies ●Instill risk management principles and approaches by propagating a risk-attentive culture among Group personnel and developing their risk awareness ●Begin establishing risk management systems outside Japan in 2025

Risk Management

Targets and results of KPIs on material issues

P58 / Material Issues and Non-financial KPIs

KPIs and 2025 targets	Results in 2022
Development and operation of comprehensive risk management system: ● Operate the new comprehensive risk management system covering external environment change risks, operational risks, and hazard risks	● Improved and codified comprehensive risk management system (including accountability structure for business execution departments and oversight departments and processes for reporting key risks to the Board of Directors and the Management Committee)
Reinforcement of functions of second line of defense: ● Expand the Group's internal control framework through data linkage with the second/third lines of defense ● Expand processes outside Japan and centralize risk data within the Group	● Produced FY2022 Risk Assessment Report based on comparisons with external disclosure information, and gave feedback on companywide risk inventory status ● Added "review process by CXO organizations for key risks" to risk assessments and further enhanced granularity of data

Initiatives in 2022

Sophistication of risk assessment

In 2022 we made improvements to risk assessment processes. Based on risk data registered by divisions taking risk inventories, oversight divisions (CXO organizations) reviewed current responses to risks under their purview and plans for addressing them, and added a process for promoting communication, including on the need for support.

Note that in 2022 the Risk Management Committee deliberated on 22 key risks, including those related to accidents/disasters, legal compliance, personnel/labor, information security, supply chains, and changes in market trends.

Risk map

Key risks (22 items)
Latest impact assessment: Very high
Latest frequency assessment: Very high

Latest frequency assessment \ Latest impact assessment	Low	Medium	High	Very high
Very high	87	68	43	22
High	134	108	49	34
Medium	339	279	122	93
Low	395	284	181	157

Serious risks identified through frequency and impact assessments of approx. 2,400 risks

Main risks and countermeasures

Personnel/labor	Information security (cybersecurity risk)	Supply chains
Intensification of recruitment or retention of top-flight talent with excellent management or technical capabilities Countermeasures ● Identified four material issues for human resource strategies P91, determined KGIs and KPIs to tackle them, and conducted periodic monitoring	**Adverse impact on production activities, information leakage, etc. resulting from cyberattacks targeting internal systems or manufacturing equipment** Countermeasures ● Deployed global-standard security solutions ● Established/improved methods of implementing Resonac's global information security standards	**Supply chain interruptions and logistical disruptions due to natural disasters, accidents, infectious diseases, etc. Illegal/antisocial conduct or lack of respect for human rights or protection of the environment by suppliers** Countermeasures ● Produced a manual for assessing damage to suppliers and impact on our own business activities, and provided BCP training based on the manual ● Formulated Sustainable Procurement Guidelines, demanded that suppliers abide by them, and periodically confirmed their adherence

BCM Promotion

1 Formulate BCM&BCP guidelines

Business divisions/sites used to formulate their own BCPs, but with the aim of achieving Groupwide standardization of BCPs and making them more sophisticated, we put together a set of BCM&BCP guidelines. Previously, BCPs were based on scenarios by specific disaster such as earthquakes. However, by producing BCPs that reflect outcomes, such as damage to corporate resources, we switched the methodology to setting targets for resuming operations based on stakeholders' business requirements.

We also reviewed the system for conducting BCP practice drills, which had been organized independently at each workplace, and will be developing guidelines and a system for assisting with practice drills by 2025.

We will be periodically reviewing our BIA (business impact analysis) and BCPs, while following a PDCA cycle by verifying effectiveness through BCP practice drills, as we endeavor to deepen employees' understanding of BCP to make them more effective and standardized.

2 Selection of products for which BCPs are to be established and BCP development planning

From all of our products and services, we selected ones that we would prioritize for the allocation of corporate resources should an event that would hinder business continuity occur. The selected products and services are primarily ones that are used in social infrastructure.

Based on the BCM&BCP guidelines, we are going to conduct a full review of the BCPs for these selected products, and plan to redesign them by 2024.

Development of comprehensive risk management system that encompasses external environment change risks

Nowadays, the global external environment is becoming increasingly complex and uncertain, with mounting geopolitical risks, changes in the economic security landscape, worldscale environmental issues such as climate change, and rapid advances in technological innovation. However, we recognize that conventional risk assessment methodologies are limited in their ability to extract risks that reflect such megatrends and discontinuous changes in the external environment.

Therefore, after identifying external environmental changes that we should watch closely from among the myriad of megatrends, we will explore potential risks and their impacts, and prepare plans for addressing them. By doing this, we will examine whether it would be possible to introduce mechanisms for responding swiftly and flexibly to future changes in the external environment (risk scenario formulation and impact assessment).

In addition, we will aim to put together a structure for making the risk events and countermeasures extracted using risk scenarios centrally identifiable and visible, establishing processes for periodically monitoring them, and managing them alongside risk information drawn from conventional risk assessments.

P29 / Letter from the CSO

Web Business Risks

Compliance Web

Mission of Creating Value

We view soft-law-based compliance, which goes beyond legal and regulatory compliance, as a key principle for business continuity. We will endeavor to become a company that contributes to a sustainable society by ensuring that each individual possesses high ethical senses and acts autonomously and independently based on the Group Code of Conduct.

Policies and Management

We are implementing systems and initiatives to entrench, throughout the organization, an ethical value based on honesty, impartiality, and integrity alongside our commitment to compliance with the laws, regulations, and social norms of every country and region that we serve. In January 2023 as Resonac, we began instilling awareness of corporate ethics and compliance among all Group employees, including those outside Japan. And since then, we have been installing and operating frameworks to appropriately monitor the state of compliance.

The Compliance Group in the Legal Department as a CRO organization takes the lead in spearheading compliance initiatives, and works with each chief officer organization and business division to advance them. In addition, a compliance officer is assigned to each business site, Group company, corporate division, etc. The structure is designed to ensure communication between the Compliance Group and the officers, and to allow measures to be taken to forestall legal violations, detect issues at an early stage, make improvements, and prevent recurrences.

Strategy for Realizing the Long-Term Vision

Roadmap for realizing the long-term vision

Results in 2022	Plan for 2023	Vision for the future (2030)
● As the new company, we established the Global Compliance Standards and a code of conduct, and harmonized policies for the whistleblower system. To roll out these rules globally, we had them translated into major languages and began preparations for introducing them	● Build a compliance network for connecting the holding company with operating companies' key departments and Group companies ● Take action to entrench the code of conduct. The Global Compliance Standards and subordinate rules are scheduled to be introduced throughout the Group before the end of the year	● Both individuals and organizations are autonomously and independently practicing soft-law-based compliance, which goes beyond legal and regulatory compliance, and we are getting closer to the realization of our purpose

Targets and results of KPIs on material issues

P58 / Material Issues and Non-financial KPIs

KPIs and 2025 targets	Results in 2022
Entrenchment of "Our Code of Conduct": ● Increase the degree of entrenchment (investigate through surveys)	● The new code of conduct was resolved by the Board of Directors and its English and Chinese translations were published. ● Rolled it out companywide via internal intranet
Penetration of Global Compliance Standards (GCS): ● Reduce the number of serious legal violations ● Increase the number of reports through the whistleblowing system by raising awareness of it	● GCS was resolved by the Board of Directors and its English and Chinese translations were published. ● The number of reports through the whistleblowing system reached 81 as a result of raising awareness of it

Group Code of Conduct

In January 2023, we formulated Our Code of Conduct as guidance to be followed by everyone working in the new Resonac Group (it was drafted by the management team and an internal working group and finalized following approval by the Board of Directors). It presents specifics on how Group officers and employees should conduct themselves on a day-to-day basis to realize our purpose, and during the preparation process we considered how it relates to our values and material issues for sustainability as well as the perspectives of stakeholders. We have produced versions in Japanese, English, and Chinese, and have been taking systematic steps to make everyone aware of it. For example, we have held briefings for personnel at Group sites both inside and outside Japan.

And to ensure that each and every employee acquires a deep-level understanding of the code and incorporates its principles into their day-to-day work and social lives, we are planning to produce the Code of Conduct Handbook and provide related education during 2023.

Web *Our Code of Conduct*

Steps to entrenchment of the Group Code of Conduct

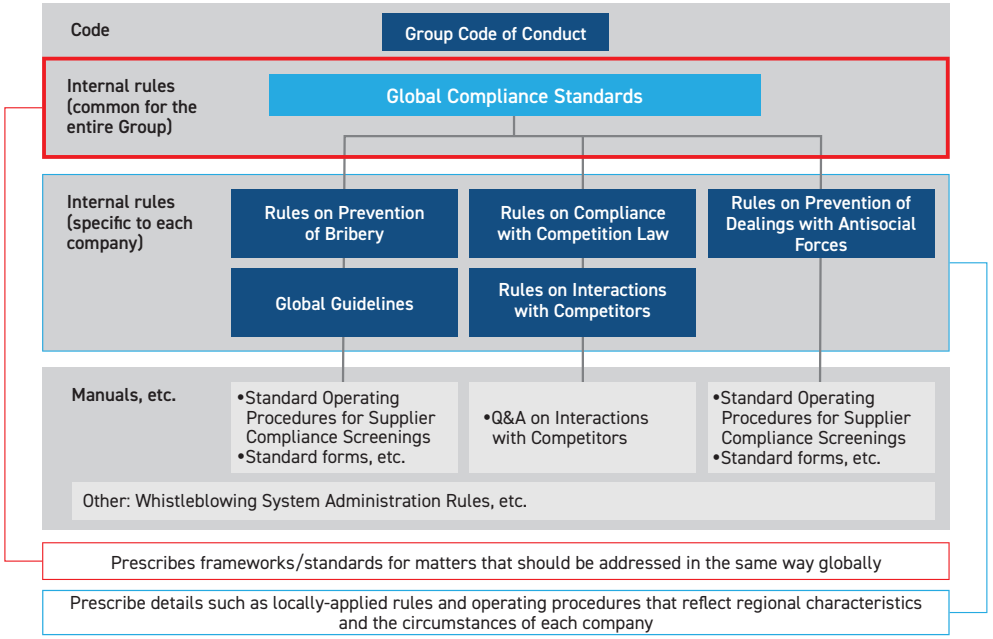
	Step 1: Recognition of its existence/ have a general understanding	Step 2: Gain a deep level of empathy and comprehension	Step 3: Foster an organizational culture
Attributes as an individual	● **Recognize** that the code of conduct **exists** ● **Have an interest in** the code of conduct ● Gain a general understanding of the code of conduct	● **Have a deep level of comprehension** of the code of conduct ● **Improvements** are seen in the individual's day-to-day **conduct**, and they accept the code as a **natural part** of their work	● An **organizational culture** is fostered as the code forms the **basis for judgements** by each individual and they all conduct themselves in accordance with it
Example approaches	● Organize briefings ● Distribute various materials to propagate awareness of the code ● Obtain written pledges to abide by the code	● Provide training, e-learning programs, etc. ● Offer support to employees on a day-to-day basis (e.g., being available to give advice when asked) ● Praise best practices ● Consider code adherence when evaluating performance	● Continue the measures taken at Step 2 ● Conduct employee awareness surveys ● Check understanding and conduct on an ongoing basis, and explore additional measures if personnel are still coming up short

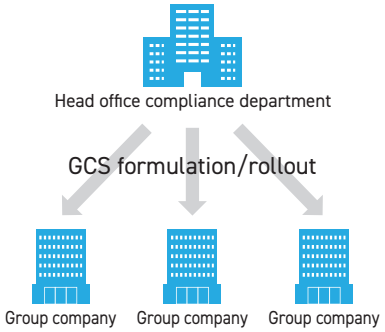
Compliance

Establishment of Global Compliance Standards

To ensure compliance across the entire Group, we have established the Global Compliance Standards (GCS). The GCS prescribe structures and frameworks that all Group companies must deploy to ensure not only legal and regulatory compliance, but also conformance with the standards of compliance demanded by the international community. We believe that the proper design and effective implementation of the GCS will allow misconduct to be prevented or spotted at an early stage, and also facilitate swift action in response should misconduct be uncovered. We plan to introduce the GCS and subordinate rules throughout the Group before the end of the year.

Positioning of the GCS





Based on the GCS, Group companies develop rules and manuals, put structures in place to prevent, monitor, and address legal and regulatory violations, and drive action

Oversight division (head office compliance department): Identifies changes in global regulations and the social environment, and formulates a policy to cope with each compliance risk phenomenon and event.

Group companies (business execution department): Implement rules based on the policy, autonomously and independently endeavor to design mechanisms for ensuring legal compliance.

"Resonac Group Hotline," consultation and whistleblowing system

In the Resonac Group, we have set up compliance hotlines that are available to all internal and external stakeholders who wish to seek consultation or report any issues regarding compliance. We make proper and prompt responses to such reports, with due consideration to confidentiality and the prevention of disadvantageous treatment of hotline users.

The whistleblowing system is one of important tools for early-stage detection of misconduct. To increase enterprise value and achieve sustainable development, we administer the whistleblowing system in an appropriate manner to enhance the ability of our organizations to self-cleanse. In this way, we strive to maintain the trust of our stakeholders and ensure legal and regulatory compliance.

In 2022, we received 81 reports through the whistleblowing system. Among the 81 reports, there were 10 cases of suspected legal or regulatory violations, but none of them were serious enough to be reported to the Management Committee. While aiming to reduce the number of serious legal and regulatory violations by 2025, we also want the whistleblowing system to become widely known internally as an organizational self-cleansing device, and for usage of it to increase.

Each quarter, the head office compliance department conveys details of reports received via the whistleblowing system to the Audit & Supervisory Board Members, who review the progress made with dealing with them and the corrective action taken.

Roundtable

Outside Director,
Representative Director and Chairman of the Board,
CRO, CHRO

Our transformation of the Board of Directors

Why does the Board of Directors need to be transformed? And why should it be happening now? Let us examine the role and function of Resonac's Board, and how it will look going forward, as we strive to further enhance our value as an enterprise.

As Resonac endeavors to expand globally, what should be the relationship between the Board of Directors and the execution side? And what should be the role of the outside directors?

Morikawa Since the transition into Resonac, the biggest change has been that the goal of expanding globally has really started to take shape. If the execution side is trying to get us up to a level where we can compete worldwide, the Board of Directors, which monitors that, must also meet world-class level standards. And that means the Board needs to completely reinvent itself. We're kind of in an emergency, so going global makes monitoring all the more important. At normal times, gaps between targets and performance don't occur all that often, but in the midst of an emergency, there's a danger of enormous gaps arising.

Tsuneishi Since taking on the role of an outside director at Resonac, what's struck me is that this is a company of the like that's rare in Japan, as it has boldly set sights on achieving large-scale growth, and is implementing a major transformation to accomplish that objective. Even though it's a company with over a century of history and tradition behind it, it is, in some way, like a start-up. And this transformation has only one aim: to increase corporate value. Strategy is consistent, and all the employees are working toward the same goal, which is exciting and appealing to me. Because it's the frontline personnel who are the ones that will actually reach the goal, it's vital to get every employee on board. The role of an outside director is to verify that the company's strategy is *viable* and that there are no risks lurking out of view. Outside directors don't know the ins and outs of the firm's industry or business, so in a sense they're novices. Yet I think that the fact that they aren't experts in the sector means that they can sometimes notice hidden risks. On the other hand, there are also outside directors who regard themselves as business administration professionals, and are

fully cognizant of the implications of the numerical targets, such as EBITDA of 20% and ROIC of 10%, announced by President Takahashi. I hope that we will be able to provide support and useful advice for hitting those numbers.

Morikawa I'd like you, Mr. Tsuneishi, to serve as Resonac's navigator as we seek to enhance our corporate value. Not only are you knowledgeable about the semiconductor field, but you've already played a central role on the board of a company that competes on the world stage, and produced fantastic results in increasing its corporate value. I want you to give us a dose of that experience. Monitoring a board of directors is like being an athletic coach in a car cheering a runner in an *ekiden* road race (long-distance running multi-stage relay race, mostly held on roads), with the runner representing the execution function. I hope that you can be our coach in a car.

Board transformation that began with free discussion
Invigorated debates and changed agendas

Kamiguchi When Japan's Corporate Governance Code took effect, the Board of Directors of Showa Denko discussed governance, and I also took part in these talks as the officer in charge. The evaluation of board effectiveness emerged as a key agenda, but we were unable to hammer out a concrete proposal. However, the recent integration provided an impetus for making changes to the authorities and responsibilities of the execution side, and at the same time moves to transform the Board of Directors re-emerged. As part of that process, Chairman Morikawa and the outside directors had open discussions last year, and we are able to settle on a general direction for reform.

Morikawa We decided to have free discussions because the atmosphere at Board meetings can get a bit stiff, and we wanted to avoid that.

Kamiguchi What we all came away with from the discussions was recognition that the Board always seems to get busy with examining individual projects or transactions, leaving no time left for deep-diving into major themes that will affect the company's value over the medium to long term. We also agreed on the need to initiate essential discussions for maximizing Resonac's corporate value.

Morikawa Board meeting agendas have undergone a clear-cut change, with topics like monitoring and medium-to-long range planning coming up.

Kamiguchi With the Board of Directors transformation, the plan was to start with changes that were easy to make, so last year we set about enriching pre-meeting explanations of agenda items. We made sure sufficient time was allocated to properly explain agenda, and had an appropriate person from the department submitting the proposal, rather than the Board secretariat, give the explanations. We also revised the criteria for referring matters to the Board. Matters to be resolved have to be more important and involve more money than before to require Board authorization. This has reduced the time the Board spends to deliberate on individual projects or transactions and allowed it to pivot its focus to medium- to long-term strategy.

Even though it's a company with more than a century of history, it is, in some way, like a start-up. It's intent on enhancing its value as an enterprise, and all the employees have their eyes fixed on the same goal, which is another exciting aspect. Fostering a great corporate culture and employee motivation will be critical for the success of this "second inauguration." (Tsuneishi)

Tsuneishi Getting prior explanations of the issues up for discussion has been helpful. And as a by-product of the COVID pandemic, meetings can now be held online, which makes it much easier to get all the outside directors and auditors together at the same time. Arranging face-to-face meetings to suit everyone's schedule would have been a real headache.

Kamiguchi During the effectiveness evaluation process, some voiced the view that the execution side and the outside directors ought to communicate with each other more. So, for example, we're thinking of having the outside directors visit our plants and offices and creating opportunities for them to communicate with executives and employees. In this context, I think that your visit to the Stage for Co-creation was a fantastic opportunity.

Imai There are lots of other things going on, too, so we'd love you to come and see some other sites.

Morikawa Mr. Tsuneishi, since you joined the Board, my impression is that discussions at Board meetings have got a lot livelier. Because in the past, there was a proposal that didn't generate much in the way of opinions.

Imai With that proposal, it was made clearer how it would serve to increase corporate value, and this facilitated discussion. And thanks to explanations being provided in advance, there was also a drop in the number of questions aimed at just getting familiarized with an agenda.

Morikawa Yes, because there used to be questions about little details such as figures. So, I feel that the discussions have moved up a level.

Kamiguchi When discussions are centered on individual projects or transactions, the person putting forward the proposal inevitably tries to defend it, so the directors tend to only ask detailed questions for them to get familiarized with the proposal. But if the theme is raising corporate value, the questions and discussions change. And I feel that this is when big ideas for transforming the company get generated.

Establishing a management structure and a governance approach that are best suited and most appropriate for corporate value maximization

Tsuneishi To increase corporate value in a sustainable way, it will be critical to get all the employees on the same page and moving in that direction, and to magnify that passion across the entire corporate group. And of course, unless employees are happy, the company will never be great.

Imai Corporate value is the product of three elements: strategy (including the business portfolio), the individual competencies of employees, and the company's culture, and among these elements, fostering a corporate culture that enables each employee to demonstrate their capabilities is crucial. The world has become so complex that it's difficult to predict what's going to happen next. So, what's required of companies is organizational agility, or the ability of employees to adapt. That adaptability defines the corporate culture. And only when it is embedded in the corporate culture can the company be trusted. I'm looking forward to discussing with Mr. Tsuneishi how to nurture such a corporate culture and maximize corporate value.

Tsuneishi Agreed. The objective of maximizing corporate value is shared by every company in the world.

Imai We've also made changes in areas such as compensation, but with non-financial indicators becoming increasingly important, more discussion will be needed. And the biggest issue to be tackled is CEO succession, which will be discussed by the Nomination Advisory Committee. We intend to allocate plenty of time to these discussions, considering the unique characteristics of Resonac.

Tsuneishi The main tasks of the Nomination Advisory Committee members are to propose the selection or dismissal of the CEO, prepare nomination proposals for the next Board members, and check the effectiveness of the succession plan. Above all, having the authority to propose the selection or dismissal of the CEO means possessing one of the largest and most important powers that a Board member can have. I therefore view discussion as to whom to entrust with that power as vital. Since nomination advisory committees have the power to propose the selection and dismissal of the CEO, it is the norm internationally for the CEO not to be a member of such committees. However, President and CEO Takahashi is currently a member of the Nominating Advisory Committee. Resonac has just undergone a major integration and a "second inauguration," and I therefore view the composition of the Nomination Advisory Committee, including the CEO succession plan, as appropriate for "now." Every company is different, and it's important for firms to choose the management structure and governance approach that are best suited and most appropriate for them. That being said, the best way to position for growth inevitably changes over time, so I believe that changes should be made as appropriate in response to the conditions at the time.

When discussions are centered on individual projects or transactions, the person putting forward the proposal inevitably tries to defend it, so the directors tend to only ask questions to get confirmation of the details. But if the theme is raising corporate value, the questions and discussions change. (Kamiguchi)

Organizational agility, or the ability of employees to adapt, is what defines corporate culture. And only when that adaptability is embedded in the corporate culture can the company be trusted. I'm therefore looking forward to discussing how to nurture such a corporate culture and maximize corporate value. (Imai)

Imai This year we've deployed SAP Success Factors to make our human resources visible. To start with, we're having potential successors identified for all manager positions in Japan. Business divisions will confirm their respective lists of candidates, and finally all the Management Committee members will review the succession plans for key positions. We're going to do the same for overseas personnel, and will be introducing global grading next year. We are looking to accelerate the establishment of systems and develop talent in an organized fashion to expedite the sustainable growth of our businesses. Regarding the CEO, it's as Mr. Tsuneishi said earlier. I'd like the Nomination Advisory Committee to scrutinize the succession planning process for the succession of officers other than the CEO.

Tsuneishi I doubt there's a perfect textbook on how governance structures and advisory committees for areas like nomination and compensation should be organized. Increasing corporate value as the cornerstone of growth requires thought to be given to the question of what the optimal approach to take now to deliver results over the short, medium, and long term would be. This applies to all companies, not just Resonac. This means it's also important to evaluate and reconsider, as appropriate, Resonac's current governance approach and advisory committee structure, as well as the style of having an outside director chair the Nomination Advisory Committee and the Remuneration Advisory Committee. Furthermore, it's crucial to always be conscious of what would be most appropriate in the context of the individual company's situation.

Morikawa It's the same for executives, the Board of Directors, and employees in that everyone's aiming for a goal and aiming to get to the top. We're all running together. I'd like people to look at Resonac from that perspective, but a variety of viewpoints are needed, so I think it's important to combine the views of people outside the company, which reflect their own experience up to now, with those of people inside the company.

What sort of relationships between the Board of Directors and the execution side, and with employees, will Resonac need going forward?

Morikawa Resonac was officially launched this year, 2023, though the effective integration took place last year. At the same time, we began discussions with the outside directors on transforming the Board of Directors. This led to the determination of a general direction for the role that the Board, centered on the outside directors, should play in increasing corporate value. To borrow a word Mr. Tsuneishi used, I feel that we developed a shared understanding that the role of the Board is to verify whether measures proposed by the execution side are *viable* in terms of raising corporate value. The key question here is how to develop capabilities for verifying viability. I think improving verification capabilities, including the ability to identify hidden risks, will prove to be a considerable challenge.

Tsuneishi Indeed. With every merger or acquisition plan, there's always a wonderful growth plan, but when you actually start taking action, things often don't go according to plan. When this happens, it's imperative to examine what went wrong and quickly and correctly adjust your course.

Morikawa Yes, you need to take a look at why the deviation from the plan occurred, and whether the verification carried out by the executive side was adequate.

Tsuneishi If further deviation occurs even after verification by the execution side, it would beg the question of whether there's something amiss on the execution side. The executives will find themselves under pressure, being asked what on earth their previous explanations and verifications were all about. The outside directors could have some harsh words for them.

Morikawa But by eliciting various opinions in this way, both the execution side and the Board of Directors will be raising the bar for one another.

I doubt there's a perfect textbook on how nomination advisory committees and governance structures should be organized. This means it's also important to evaluate and reconsider, as appropriate, Resonac's current governance approach and style. Furthermore, it's crucial to always be conscious of what would be most appropriate in the context of the individual company's situation. (Tsuneishi)

I feel that we developed a shared understanding that the role of the Board of Directors is to verify whether measures proposed by the execution side are *viable* in terms of raising corporate value. The key question here is how to develop capabilities for verifying viability. (Morikawa)

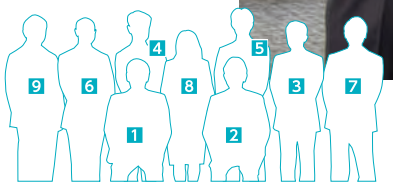
Kamiguchi Regarding issues that need to be addressed in the future, such as agenda reform and communication, the execution side will first consider them carefully, after which measures will probably be taken through a process of trial and error with input from Mr. Tsuneishi and the other outside directors. So, the first thing that needs to be done is determine an approach and structure for the execution side.

Imai As our operating environment and the management issues facing us change, what we need to constantly be thinking about is what is required of us as a management team not in the future, but right now. This means looking at things like who our directors and officers are, and asking ourselves whether the current line-up is suitable. I also want to make the Board a forum for testing out our reform processes in an agile manner through dialogue with our various stakeholders. We will continue striving to enhance our value as an enterprise through co-creation with an even broader range of stakeholders and fulfilment of our purpose of contributing to the protection of the earth's environment and to society. I therefore hope that Board meetings will see plenty of unreserved discussion.

Tsuneishi As for nurturing corporate culture, I think it will be good if we can take the best aspects of the cultures of pre-merger Showa Denko and Hitachi Chemical and combine them into one. Also, I often hear that the engagement levels of all employees are being monitored, and that they are being gauged in terms of numerical scores. However, while the numbers coming back from engagement surveys are important, I also think that ascertaining engagement by asking how enthusiastic employees are and what their level of commitment is will ultimately translate into better performance. Fostering a great corporate culture and employee motivation will be critical for the success of this "second inauguration." It will also be important to show all employees what happens when performance improves and what incentives are on offer, as this should substantially increase the likelihood of all employees moving in the same direction.

Morikawa The Board of Directors mustn't be allowed to backslide into ritual and ceremony, though conversely, it would be a problem if it became too powerful a presence. I'd like it to be a presence that runs together with the execution side, and I intend to carry on thinking hard about how to make this happen.

Directors (As of June 30, 2023)



1 Kohei Morikawa

Representative Director; Chairman of the Board

Attendance at BoD meetings in 2022: 14/14

April 1982	Joined Showa Denko K.K. (currently the Company)
January 2013	Corporate Officer; General Manager, Electronic Chemicals Division
January 2016	Managing Corporate Officer; Chief Technology Officer (CTO)
March 2016	Director; Managing Corporate Officer; Chief Technology Officer (CTO)
January 2017	Representative Director; President and Chief Executive Officer (CEO)
January 2022	Representative Director; Chairman of the Board (incumbent)
	(up to the present)

2 Hidehito Takahashi

Representative Director; President and Chief Executive Officer (CEO)

Attendance at BoD meetings in 2022: 14/14

April 1986	Joined The Mitsubishi Bank, Ltd. (currently MUFG Bank, Ltd.)
February 2002	Joined GE Japan Holding Corporation (currently GE Japan Inc.) as General Manager, Business Development Department
October 2004	Asia Pacific President, GE Sensing & Inspection Technologies, GE Japan Holding Corporation
October 2008	Joined Silicones Business, Momentive Performance Materials Japan Inc. as President & CEO
January 2013	Joined GKN Driveline Japan plc as President and CEO
October 2015	Joined Showa Denko K.K. (currently the Company), Senior Corporate Fellow
January 2016	Corporate Officer; General Manager, Corporate Strategy Department
January 2017	Managing Corporate Officer
March 2017	Director; Managing Corporate Officer
July 2017	Director; Managing Corporate Officer; General Manager, Carbon Division
January 2020	Director; Managing Corporate Officer; Director; Managing Corporate Officer; Chief Strategy Officer (CSO)
June 2020	Director, Showa Denko Materials Co., Ltd. (currently Resonac Corporation)
January 2022	Representative Director; President and Chief Executive Officer (CEO), Showa Denko K.K. (currently the Company) (incumbent) Director, President and Chief Executive Officer (CEO), Showa Denko Materials Co., Ltd. (currently Resonac Corporation)
January 2023	Representative Director, President and Chief Executive Officer (CEO), Resonac Corporation (incumbent)
	(up to the present)

Directors (As of June 30, 2023)

3 Keiichi Kamiguchi

Director

April	1983	Joined Showa Denko K.K. (currently the Company)
September	2008	General Manager, Corporate Strategy Office
January	2011	Corporate Officer; General Manager, Corporate Strategy Office
January	2013	Corporate Officer; General Manager, Corporate Strategy Department
January	2015	Corporate Officer
January	2017	Corporate Officer; Chief Risk Management Officer (CRO)
March	2017	Director; Corporate Officer; Chief Risk Management Officer (CRO)
March	2020	Corporate Officer; Chief Risk Management Officer (CRO)
January	2021	Managing Corporate Officer; Chief Risk Management Officer (CRO) (incumbent)
January	2022	Managing Corporate Officer; Chief Risk Management Officer (CRO), Showa Denko Materials Co., Ltd. (currently Resonac Corporation)
January	2023	Representative Director; Chief Risk Management Officer (CRO), Resonac Corporation (incumbent)
March	2023	Director; Managing Corporate Officer of the Company (incumbent)
		(up to the present)

4 Hideki Somemiya

Director

Attendance at BoD meetings in 2022: 11/11

April	1990	Joined Nomura Research Institute, Ltd., and was assigned to the Office for Research in Corporate Finance
June	1997	Joined Nomura Securities Co., Ltd., as Deputy Head Researcher, Institute for Financial Research
May	1999	Joined Merrill Lynch Japan Securities Co., Ltd. (currently BofA Securities Japan Co., Ltd.), and was assigned to the investment bank section
January	2007	General Manager, Telecommunication & Media Technology Group, Merrill Lynch Japan Securities Co., Ltd.
July	2009	Joined JPMorgan Securities Japan Co., Ltd., as Managing Director, Technology, Media & Telecommunication Group, Investment Banking Division
July	2015	Joined Sony Corporation (currently Sony Group Corporation), as Vice President Attached to CFO, Chief Financial Strategist
May	2016	Temporarily transferred to Sony Semiconductor Solutions Corporation
June	2016	General Manager, Corporate Strategy Headquarters, Sony Semiconductor Solutions Corporation
December	2016	General Manager, Planning & Administration Headquarters (CFO), Sony Semiconductor Solutions Corporation
June	2019	General Manager, System Solution Division, Sony Semiconductor Solutions Corporation
July	2020	Corporate Officer in charge of the solution business, Sony Semiconductor Solutions Corporation
March	2021	Officer Attached to CFO in charge of special assignments, Sony Corporation
October	2021	Joined Showa Denko K.K. (currently the Company) as General Manager, Preparation Office for Group CFO
January	2022	Managing Corporate Officer; Chief Financial Officer (CFO)
January	2022	Managing Corporate Officer; Chief Financial Officer (CFO), Showa Denko Materials Co., Ltd. (currently Resonac Corporation)
March	2022	Director; Managing Corporate Officer; Chief Financial Officer (CFO), Showa Denko K.K. (currently the Company) (incumbent)
January	2023	Director: Chief Financial Officer (CFO), Resonac Corporation (incumbent)
		(up to the present)

5 Tomomitsu Maoka

Director

Attendance at BoD meetings in 2022: 11/11

April	1999	Joined A.T. Kearney, Inc.
April	2005	Joined Infineon Technologies Japan K.K. as General Manager in charge of Strategy in Japan
May	2009	General Manager, Industrial & Chip Card Business Headquarters, Infineon Technologies Japan K.K.
October	2010	General Manager, Industrial & Multi Market Business Headquarters, Infineon Technologies Japan K.K.
December	2011	Joined Lenovo Japan Corporation as Lenovo/NEC Project Director
April	2012	Strategy Director, Lenovo Japan Corporation
April	2013	Commercial Operations Director, Lenovo Japan Corporation
December	2013	Joined Renesas Electronics Corporation as General Manager, Corporate Planning, Planning Headquarters
December	2015	Corporate Officer; General Manager, Corporate Planning, Renesas Electronics Corporation
February	2016	Corporate Officer; Deputy General Manager, Second Solution Business Headquarters, Renesas Electronics Corporation
March	2017	Corporate Officer; China Business Headquarters, Renesas Electronics Corporation
April	2019	Corporate Officer; Deputy General Manager, Production Headquarters, Renesas Electronics Corporation
August	2019	Corporate Officer; Deputy General Manager, Automotive Solution Business Headquarters, Renesas Electronics Corporation
October	2021	Joined Showa Denko K.K. (currently the Company) as General Manager, Preparation Office for Group CSO
January	2022	Managing Corporate Officer; Chief Strategy Officer (CSO)
January	2022	Managing Corporate Officer; Chief Strategy Officer (CSO), Showa Denko Materials Co., Ltd. (currently Resonac Corporation)
March	2022	Director; Managing Corporate Officer; Chief Strategy Officer (CSO), Showa Denko K.K. (currently the Company) (incumbent)
January	2023	Director; Chief Strategy Officer (CSO), Resonac Corporation (incumbent)
		(up to the present)

6 Kiyoshi Nishioka

Outside Director

Attendance at BoD meetings in 2022: 14/14

April	1977	Joined Nippon Steel Corporation
April	1997	Plant Manager, Thick Steel Plate Plant, Kimitsu Works, Nippon Steel Corporation (General Manager)
April	2001	General Manager, Thick Steel Plate Sales Department, Head Office, Nippon Steel Corporation
June	2005	Director; General Manager, Technology Development Planning Department, Technology Development Headquarters, Nippon Steel Corporation
June	2006	Corporate Officer; General Manager, Technology Development Planning Department, Technology Development Headquarters, Nippon Steel Corporation
June	2009	Counselor, Nippon Steel Corporation
November	2012	Special Professor, Research Center for Advanced Science and Technology, The University of Tokyo
April	2017	Adviser, Research Center for Advanced Science and Technology, The University of Tokyo (incumbent)
		Visiting Professor, Ehime University (incumbent)
March	2018	Outside Director, Showa Denko K.K. (currently the Company) (incumbent)
July	2019	Representative Director, VCRI Co., Ltd. (incumbent)
May	2022	Research Adviser, Institute of Industrial Science, The University of Tokyo (incumbent)
		(up to the present)

7 Kozo Isshiki

Outside Director

Attendance at BoD meetings in 2022: 14/14

July	1969	Joined Japan Development Bank (currently Development Bank of Japan Inc.)
April	1993	General Manager, General Affairs Department, Japan Development Bank
May	1994	Executive Secretary, Japan Development Bank
June	1996	General Manager, Industry & Technology Department, Japan Development Bank
May	1998	General Manager, Human Resources Department, Japan Development Bank
June	2001	Executive Director, Development Bank of Japan, Inc.
May	2005	Chairman of the Board, Technology Alliance Investment, Ltd.
July	2007	External Director, Fukoku Mutual Life Insurance Company
June	2009	Standing Corporate Auditor (External), Isuzu Motors Limited
June	2015	Director, Medical System Network Co., Ltd. (Outside Director) (incumbent)
January	2019	External Corporate Auditor, Hirosaki Lifescience Innovation, Inc.
March	2019	Outside Director, Showa Denko K.K. (currently the Company) (incumbent)
		(up to the present)

8 Noriko Morikawa

Outside Director

Attendance at BoD meetings in 2022: 14/14

April	1981	Joined CHORI CO., LTD.
August	1988	Joined Daiwa Securities America Inc.
September	1991	Joined Arthur Andersen
March	1995	Joined Motorola Inc.
March	2005	Director, in charge of accounting and finance; General Manager, Accounting and Finance Headquarters in Japan, Motorola Inc.
June	2009	Joined Bosch Corporation
August	2010	Director; Vice President, in charge of Administrative Headquarters, Bosch Corporation
June	2018	Outside Director, CHORI CO., LTD.
March	2020	Outside Director, Showa Denko K.K. (currently the Company) (incumbent)
June	2020	Outside Director, Mitsubishi Heavy Industries, Ltd.
October	2020	Advisory Board member, Dai-ichi Life Holdings, Inc. (incumbent)
June	2021	Outside Director and Audit Committee Member, Mitsubishi Heavy Industries, Ltd. (incumbent)
		(up to the present)

9 Tetsuo Tsuneishi

Outside Director (Newly appointed)

April	1976	Joined Tokyo Electron Laboratories, Inc. (currently Tokyo Electron Ltd.)
June	1987	General Manager, KLA Department, Tokyo Electron Ltd.
October	1990	General Manager, Semiconductor Production Equipment 3rd Division, Tokyo Electron Ltd.
April	1992	General Manager, Overseas Marketing Headquarters, Tokyo Electron Ltd.
June	1992	Corporate Director, Tokyo Electron Ltd.
June	1996	Executive Managing Director, Tokyo Electron Ltd.
June	1998	Representative Director; Executive Managing Director, Tokyo Electron Ltd.
June	2003	Corporate Director; Senior Executive Vice President, Tokyo Electron Ltd.
June	2013	Corporate Director, Tokyo Electron Device Ltd. (incumbent)
June	2015	Corporate Director, Chairman of the Board of Directors (part-time), Tokyo Electron Ltd.
June	2017	Representative Director; Chairman of the Board of Directors
June	2020	Corporate Director; Chairman of the Board of Directors
May	2022	Vice Chairman, The Japan Association of Corporate Directors (incumbent)
March	2023	Outside Director of the Company (incumbent)
		(up to the present)

Audit & Supervisory Board Members and Corporate Officers (As of June 30, 2023)

1 Toshiharu Kato

Audit & Supervisory Board Member
Attendance at BoD meetings in 2022: 14/14
Attendance at A&S Board meetings: 13/13

April 1981	Joined Showa Aluminum Corporation (currently the Company)
August 2014	General Manager, Finance & Accounting, Showa Denko K.K. (currently the Company)
January 2016	Corporate Officer; General Manager, Finance & Accounting Department
January 2017	Corporate Officer; Chief Financial Officer (CFO); General Manager, Finance & Accounting Department
March 2017	Director; Corporate Officer, Chief Financial Officer (CFO); General Manager, Finance & Accounting Department
January 2018	Director; Corporate Officer, Chief Financial Officer (CFO) in charge of Finance & Accounting and Information Systems departments
January 2019	Director, Attached to President
March 2019	Audit & Supervisory Board Member (incumbent)
January 2023	Audit & Supervisory Board Member, Resonac Corporation (incumbent)
	(up to the present)

2 Jun Tanaka

Audit & Supervisory Board Member
Attendance at BoD meetings in 2022: 14/14
Attendance at A&S Board meetings: 13/13

April 1982	Joined Showa Denko K.K. (currently the Company)
January 2007	General Manager, Development Department, Chemicals Division, Chemicals Sector
January 2011	Deputy General Manager, Advanced Battery Materials Department
January 2012	Corporate Fellow; Deputy General Manager, Advanced Battery Materials Department
January 2013	Corporate Officer; General Manager, Advanced Battery Materials Department
January 2017	Managing Corporate Officer; Chief Technology Officer (CTO)
March 2017	Director; Managing Corporate Officer; Chief Technology Officer (CTO)
January 2019	Director; Managing Corporate Officer; Chief Technology Officer (CTO) in charge of Advanced Battery Materials Division, Institute for Integrated Product Development, Advanced Technology Laboratory, Corporate R&D and Intellectual Property Departments
January 2020	Director, Attached to President
March 2019	Audit & Supervisory Board Member (incumbent)
January 2023	Audit & Supervisory Board Member, Resonac Corporation (incumbent)
	(up to the present)

Audit & Supervisory Board Members and Corporate Officers (As of June 30, 2023)

3 Kiyomi Saito

Outside Member

Attendance at BoD meetings in 2022: 14/14

Attendance at A&S Board meetings: 13/13

April	1973	Joined Nikkei Inc.
September	1975	Joined Sony Corporation (currently Sony Group Corporation)
August	1984	Joined Morgan Stanley Investment Bank
January	1990	Executive Director, Morgan Stanley Investment Bank
April	2000	Director; President, JBond Co., Ltd. (currently JBond Totan Securities Co., Ltd.)
June	2005	Outside Corporate Auditor, Tri-Wall Limited (currently Tri-Wall Japan Co., Ltd.)
June	2006	Outside Corporate Auditor, Astellas Pharma Inc.
March	2012	Audit & Supervisory Board Member, Showa Denko K.K. (currently the Company) (incumbent)
June	2012	Outside Director, Toshiba Corporation
June	2013	Outside Director, Japan Post Insurance Co., Ltd.
June	2015	Outside Director, Kajima Corporation (incumbent)
June	2021	Outside Director, Kadoya Sesame Mills Incorporated (incumbent)
October	2021	Representative Director, JBond Totan Securities Co., Ltd. (incumbent)
		(up to the present)

4 Masako Yajima

Outside Member

Attendance at BoD meetings in 2022: 14/14

Attendance at A&S Board meetings: 13/13

April	1994	Registered at Dai-Ichi Tokyo Bar Association
		Joined Nishimura Law Office (currently Nishimura & Asahi)
March	2001	Registered as a lawyer in the State of New York
April	2004	Assistant Professor, Law School, Keio University
January	2006	Partner, Nishimura & Tokiwa (currently Nishimura & Asahi) (incumbent)
April	2007	Professor, Law School, Keio University (incumbent)
March	2020	Audit & Supervisory Board Member, Showa Denko K.K. (currently the Company) (incumbent)
		(up to the present)

5 Yasuyuki Miyasaka

Outside Member

Attendance at BoD meetings in 2022: 14/14

Attendance at A&S Board meetings: 13/13

November	1975	Joined Tohmatsu & Aoki (currently Deloitte Touche Tohmatsu LLC)
March	1980	Registered as a certified public accountant (CPA)
June	1990	Partner, Deloitte Touche Tohmatsu (currently Deloitte Touche Tohmatsu LLC)
August	1993	Resident at the Singapore Office, Deloitte & Touche
October	2010	General Manager, Risk Management & Examination Office (International Financial Reporting Standards), Deloitte Touche Tohmatsu LLC
July	2017	Established Yasuyuki Miyasaka CPA Office, and became President of the CPA Office (incumbent)
June	2018	Outside Director, ITOCHUSHOKUHIN Co., Ltd. (incumbent)
		Outside Corporate Auditor, Board of Corporate Auditors, Santen Pharmaceutical Co., Ltd.
March	2022	Audit & Supervisory Board Member, Showa Denko K.K. (currently the Company) (incumbent)
		(up to the present)

President	Hidehito Takahashi	Chief Executive Officer (CEO)
Managing Corporate Officers	Keiichi Kamiguchi	Chief Risk Management Officer (CRO)
	Hiroyuki Yamashita	General Manager, Electronics Business Headquarters
	Hideki Somemiya	Chief Financial Officer (CFO)
	Tomomitsu Maoka	Chief Strategy Officer (CSO)
Corporate Officers	Mitsuo Katayose	General Manager, Advanced Functional Materials Business Headquarters
	Shigeru Fujita	Chief Marketing Officer (CMO)
	Yoshito Ishii	General Manager, Mobility Business Headquarters
	Nori Imai	Chief Human Resource Officer (CHRO)
	Masami Tobito	Chief Operations, Manufacturing and Engineering Officer (CMEO) Chief Quality Officer (CQO)
	Hideki Shibata	Chief Digital Officer (CDO)
	Masato Fukushima	Chief Technology Officer (CTO)
Executive Officers	Taichi Nagai	Oita Complex Representative, Olefins & Derivatives Business Unit
	Hirotsugu Fukuda	General Manager, Petrochemicals Division
	Hiroyuki Eda	General Manager, Aluminum Specialty Components Business Unit, Advanced Functional Materials Business Headquarters
	Makoto Takeda	General Manager, Graphite Business Unit
	Katsuyuki Tsuji	Deputy General Manager, Mobility Business Headquarters and General Manager, Advanced Battery Materials Business Unit
	Atsushi Doi	General Manager, Legal Department
	Takuya Hirano	Deputy General Manager, Mobility Business Headquarters

Skill Matrix

The Company has prepared a skill matrix detailing the expertise and experience of directors and Audit & Supervisory Board members. The skills required of directors and Audit & Supervisory Board members were identified based on the following three perspectives.

Three Perspectives for Skill Identification

Resonac's Corporate Philosophy

The Resonac Group has set its Purpose (the meaning of its existence) as "Change society through the power of chemistry," and has also set four Values which the Group's employees should consider important as "Passionate & Results-Driven," "Agile & Flexible," "Open Minds & Open Connections," and "Solid Vision & Solid Integrity." The Group has defined combination of these Purpose and Values as the Group's Corporate Philosophy. Under this Corporate Philosophy, the Group strives to solve social issues through its business activities.

Medium- to long-term strategy to realize Corporate Philosophy

The Resonac Group has set its management strategy as the Long-term Vision, periodically updates this Long-term Vision, and executes business portfolio reform. The Group has classified its businesses into five segments, namely, Semiconductor and Electronic Materials, Mobility, Chemicals, Innovation Enabling Materials, and Others. The Group expects that the markets for the Semiconductor and Electronic Materials segment and the Mobility segment will grow further, the Chemicals segment will make profit stably, and the Innovation Enabling Materials segment will support technical development in all businesses of the Group. We shall realize sustainable growth of the Group by making each of these business segments fill its role and achieve its target EBITDA.

Major Issues to be discussed at the Board of Directors' meetings

To enhance the effectiveness of the Group's Corporate Philosophy and medium- to long-term strategy based on the Corporate Philosophy, it will be necessary for the Board of Directors to have lively discussion and quick decision making about "the way to compete on the world stage," "contribution to SDGs," "well-disciplined business portfolio reform," "innovation including technical synergy," and "human-resource development."

	Name	Inside / Outside	Term of office (Years)	Global business	Innovation and fusion of technology	ESG and sustainability	Portfolio management	Finance / accounting	Personnel management / development	Legal / risk management
Directors	Kohei Morikawa		7	○	○	○	○			○
	Hidehito Takahashi		6	○		○	○	○	○	○
	Keiichi Kamiguchi		3	○			○		○	○
	Hideki Somemiya		1	○		○	○	○		
	Tomomitsu Maoka		1	○	○	○	○			
	Kiyoshi Nishioka	Outside	5	○	○	○	○			
	Kozo Isshiki	Outside	4		○		○	○	○	
	Noriko Morikawa	Outside	3	○		○		○	○	
	Tetsuo Tsuneishi	Outside	-	○			○	○	○	
	Total			8	4	6	8	5	5	3
Audit & Supervisory Board Members	Toshiharu Kato		4	○		○		○		
	Jun Tanaka		3		○	○	○		○	
	Kiyomi Saito	Outside	11	○	○		○	○		
	Masako Yajima	Outside	3	○						○
	Yasuyuki Miyasaka	Outside	1	○				○		○
	Total			4	2	2	2	3	1	2

Messages from Outside Directors and Outside Members of Audit & Supervisory Board

Kiyoshi Nishioka

Kozo Isshiki

Noriko Morikawa

Kiyomi Saito Masako Yajima

Yasuyuki Miyasaka

Messages from Outside Directors

For Mr. Tsuneishi's message, please see "Special Feature" on page 113.

Kiyoshi Nishioka Outside Director

I conduct research and development at a university on technologies related to, uses of, and practical applications of various base materials and composites. I am also endeavoring to **improve the production engineering capabilities of** Japanese **manufacturing companies through the use of IoT technology, as well as working on human resource development**, and I hope to leverage the insights and experience I have gained from these activities to contribute to the advancement of the new Resonac.

Kozo Isshiki Outside Director

In the world of finance, I have experience of long-term financing, and also of launching new technology companies through an investment fund. In the industrial field, I handle the **chemical industry and chemical companies**, which has deepened my knowledge of various areas. In this era of incredible transformation of the structure of industry across the globe, I will be doing whatever I can to support Resonac as it aims to become the top functional chemical manufacturer.

Noriko Morikawa Outside Director

I wish to deploy the knowledge I have gained from my experience of management and overseas assignments at Japanese and foreign global companies to help Resonac grow to become a company that can compete in a dynamically changing world. To that end, I intend to **help the company invest in diverse human resources and promote a sustainable portfolio strategy.**

Messages from Outside Members of Audit & Supervisory Board

Kiyomi Saito Outside Member of Audit & Supervisory Board

I founded an electronic trading company for Japanese government bonds and grew it into the dominant player in the repo market. In addition to performing my duties as an Audit & Supervisory Board member, I seek to **repurpose the skills I have honed running a start-up**, albeit one in a different industry, **to benefit the new Resonac as it moves forward from its so-called second inauguration.**

Masako Yajima Outside Member of Audit & Supervisory Board

As an attorney at a law firm that focuses on corporate law, I handle cases related to crisis management and disputes. At Resonac, **besides conducting legality audits**, I will strive to contribute proactively by **leveraging my knowledge and experience of preventative jurisprudence** to provide advice on **preventing issues from escalating into legal disputes**.

Yasuyuki Miyasaka Outside Member of Audit & Supervisory Board

In recent years, the company has been championing portfolio management and pursuing a select-and-focus approach to business. As such, assessing whether new business investments are appropriate is hugely important. **From my standpoint as a specialist, I hope to provide useful advice on how Resonac can earn sufficient returns that exceed its cost of capital.**

Corporate Governance Web

Basic Policies

The Company works to increase its corporate value and expand profit for both the company and its shareholders by collaborating appropriately with stakeholders, including shareholders in line with its Corporate Governance Basic Policies.

We are committed to promoting our corporate governance to ensure the soundness, effectiveness, and transparency of management and to continue enhancing our corporate value, thereby earning more trust and receiving a higher rating from society. We describe our efforts made to this end in our Corporate Governance Report, while fostering constructive dialogue with investors and shareholders.

Review of 2022

- We revised the remuneration system for directors and corporate officers. The revised system increases the degree to which remuneration is linked to the management indicators and initiatives defined in the Long-term Vision.

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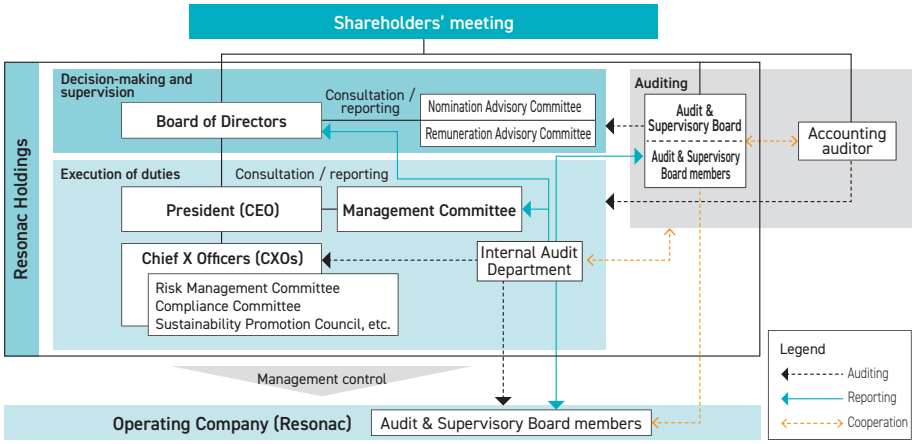
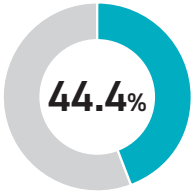
- We established a framework to audit and oversee the entire group through collaboration between the Audit & Supervisory Board members of both the holding and operating companies.
- The Board of Directors of the holding company has assumed the responsibility of overseeing the entire group by exercising its supervisory role over the Chief X Officers (CXOs) and the business unit (BU) heads.

Corporate governance structure (As of June 30, 2023)

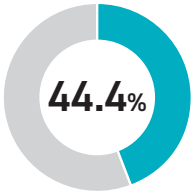


Ratio of Outside Directors

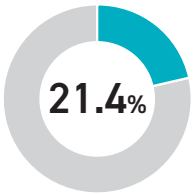


Ratio of Outside Officers
(Directors, Audit & Supervisory Board members)

Ratio of Directors Not in Charge of Business Execution



Ratio of Female Officers
(Directors, Audit & Supervisory Board members)



Board of Directors

Chairperson	Inside director responsible for business execution
Meeting frequency	Once or twice a month

Audit & Supervisory Board

Chairperson	Inside full-time Audit & Supervisory Board member
Meeting frequency	Once or twice a month

Nomination Advisory Committee

Priority discussion topics in fiscal 2022: Nomination of candidates for chief executive officer and other management positions

Chairperson	Outside director
Meeting frequency	3 or 4 times a year

Remuneration Advisory Committee

Chairperson	Outside director
Meeting frequency	Once or twice a year

Management Committee

President, CXOs, and division heads whose presence on the committee is deemed necessary by the president

Chairperson	President
Meeting frequency	Twice a month in principle

Corporate Governance

Evaluation of the Board of Directors' Effectiveness

Evaluation method

Regarding the effectiveness of the Board of Directors in 2022, we conducted a survey in December 2022 in which the directors and Audit & Supervisory Board members answered questions and made free comments. Then, in March 2023, the Board of Directors held a meeting for all directors and Audit & Supervisory Board members to discuss the collected self-evaluation results and the board reform deliberated upon during the opinion exchange meetings among directors and corporate officers held in June and September 2022, create a summary of the evaluation results for fiscal 2022, and formulate an action plan for fiscal 2023. To ensure the objectivity of the survey and further boost the effectiveness of the Board of Directors, the survey is conducted, and the results are tabulated by an external organization.

Evaluation process of the Board of Directors' effectiveness

1. Self-evaluation	Those subject to assessment	Directors, Audit & Supervisory Board members
	Method	An anonymous questionnaire survey conducted by an external organization
2. Board-level evaluation	Method	Discussions within the Board of Directors based on views shared during opinion exchange meetings and other interactions among directors and corporate officers
3. Disclosure of summarized evaluation results	Details	Evaluation methodologies, evaluation results, and overview of action plan
	Method	Corporate Governance Report

Evaluation results

The evaluation results have determined that, in Board of Directors' meetings, highly effective Board members with a broad perspective and values reflecting a variety of experiences and expertise are engaged in discussions that help to increase corporate value. Handouts and explanations about agendas are standardized and provided beforehand to encourage the members to take part in vigorous and constructive discussions and allow sufficient time for discussions. With regard to the action plan for 2022, which was made based on the results of evaluation of overall effectiveness of the Board of Directors for 2021, members of the Board of Directors and Audit & Supervisory Board have confirmed facts and issues as follows.

1. Concrete efforts were launched to increase efficiency of the Board of Directors by aiming to secure enough time and opportunities for discussion.
2. Discussions began concerning the ideal state of the Board of Directors, and a common understanding was reached as to necessary steps.

Our execution plan for fiscal 2023 will focus on the following:

1. Take specific measures to accelerate separation of execution and supervision
2. Set agenda for the Board of Directors in the future based on its objectives and roles
3. Secure additional communication opportunities and improve the current method
4. Make a new system for sharing information and improve the current method

Initiatives to harness the insights of outside officers

During the period, we held opinion exchange meetings for outside officers (remuneration for directors and corporate officers was discussed at the meeting in May 2022), distinct from the activities of the Remuneration Advisory Committee. We are dedicated to sharing and discussing the latest trends concerning other companies, which includes integrating recent executive remuneration regulations, compensation governance, and sustainability indicators into compensation considerations.

Nomination Process

Approach to nomination

The Company selects candidates for positions as director based on the criteria for knowledge, insight, fair judgment, ability to take actions, practical experience, and other requirements for directors. For the selection of management, individual performance as well as corporate performance are also taken into consideration. Candidate Audit & Supervisory Board members must possess sufficient knowledge, experience, and capabilities to fulfill their obligations, including an appropriate level of expertise in the areas of finance and accounting.

The Nomination Advisory Committee deliberates on the nomination of candidates for the aforementioned positions and submits recommendations to the Board of Directors. The committee is an advisory board to the Board of Directors, and more than half of its members are outside directors designated as independent directors.

- Dismissal of the chief executive officer and other members of management

In the event it is revealed that any of the directors, including the chief executive officer, has substantially damaged the corporate value of the Company or does not meet the selection criteria for directors, the Nomination Advisory Committee will discuss whether the person is still suitable for the position and report the results to the Board of Directors, which will make the final decision.

Implementing a succession plan

The Company is taking Groupwide and global steps to cultivate the future leaders who will be necessary to advancing its growth strategies.

Corporate officers are responsible for selecting potential successors, with due consideration paid to diversity, and for formulating development plans. These plans are discussed and confirmed by the Nomination Advisory Committee based on the Corporate Governance Basic Policies. The Board of Directors monitors all succession planning initiatives based on reports from the Nomination Advisory Committee.

Composition of the Nomination Advisory Committee

Chairman: Tetsuo Tsuneishi (Outside Director)
Members: Kiyoshi Nishioka, Kozo Isshiki and Noriko Morikawa (Outside Directors)
Kohei Morikawa and Hidehito Takahashi (Inside Directors)

Corporate Governance

Matters discussed, etc.

Time of meeting and matters discussed	Participants
September 2022 Discussed the Nomination Advisory Committee's structure and direction, and received an update on the implementation status on the company-wide talent review	All members
October 2022 Discussed the structure of corporate officers and the Board of Directors for fiscal 2023	All members
November 2022 Discussed the structure of Board of Directors for fiscal 2023	All members

With the exception of Mr. Tsuneishi, who assumed office in March 2023, all the aforementioned members, along with Mr. Oshima, a former outside director and Chairman of the Committee, were present at every meeting.

Remuneration

Basic policies on remuneration

The policy for determining the remuneration for respective directors of the Company is established by the Board of Directors after the Remuneration Advisory Committee, comprising a majority of outside and independent officers, deliberates on the appropriateness of the policy each fiscal year. While deliberating, the Remuneration Advisory Committee considers the evolving business environment, along with feedback from shareholders and investors. Additionally, it sources essential information for its discussions from third-party organizations with extensive global experience and knowledge.

[Directors (excluding Outside Directors)]

- Establish a remuneration scheme appropriate for recruiting and retaining talented human resources from inside and outside Japan suited to a global top-level functional chemical manufacturer.
- Incentivize them to achieve performance targets and increase medium- to long-term corporate value, thereby driving the sustainable growth of the Group
- Maintain a transparent, fair, and rational process for deciding remuneration from the viewpoint of accountability to shareholders and all other stakeholders

[Outside Directors]

- Establish a remuneration scheme appropriate for the role and responsibility of supervising management from an independent and objective standpoint

In determining the remuneration for respective directors for fiscal 2022, the Remuneration Advisory Committee, comprising a majority of outside and independent officers as outlined in the adjoining section, conducted a multifaceted assessment utilizing objective and specialized information necessary for deliberation, ensuring alignment with the Policy for Determining Remuneration for Directors and Corporate Officers. The Board of Directors generally acknowledges decisions made by the Committee and deems the content to be appropriate and in line with the aforementioned determination policy.

Composition of the Remuneration Advisory Committee

Chairman: Kiyoshi Nishioka (Outside Director)
Members: Kozo Isshiki, Noriko Morikawa and Tetsuo Tsuneishi (Outside Directors)
Hidehito Takahashi and Hideki Somemiya (Inside Directors)

Primary roles and authority of the Remuneration Advisory Committee

Matters to be resolved	Matters to be deliberated or confirmed
● Basic compensation for individual directors ● Targets and evaluation of performance indicators associated with short-term incentives (STIs) for directors, and amounts paid to individual directors ● Position-based standard points, TSR evaluation, and the number of earned points and shares to be delivered to individuals associated with long-term incentives (LTIs) for directors	● Policy for determining the remuneration for directors and corporate officers ● Details of remuneration for respective corporate officers (excluding those concurrently serving as directors), executive officers, and directors ● Formulation, amendment, or revocation of significant company rules and procedures related to remuneration for directors and corporate officers, along with descriptions presented in important public announcements and other relevant communications

In order to appropriately fulfill its roles and exercise authority in deliberating on matters entrusted or consulted by the Board of Directors, the Remuneration Advisory Committee carefully considers consistency with the Policy for Determining Remuneration for Directors and Corporate Officers, while also accounting for the evolving business environment and feedback from shareholders and investors. Furthermore, the Committee obtains information, advice, and other insights necessary for its deliberations from Willis Towers Watson (WTW), a third-party organization with a wealth of international experience and knowledge.

Compensation consultants from WTW were present at all meetings of the Remuneration Advisory Committee throughout the period. In addition, the Remuneration Advisory Committee reported the matters deliberated upon or resolved to the Board of Directors in a timely and appropriate manner during the period. Accordingly, the Board of Directors confirmed the reasonableness and appropriateness of the reported matters.

Matters discussed, etc.

Time of meeting and matters discussed	Participants
December 2022 ● Collected and analyzed up-to-date information on domestic and international executive compensation practices to identify prevailing trends ● Confirmed that the current remuneration aligns appropriately in level and composition with the Policy for Determining Remuneration for Directors and Corporate Officers after verifying the appropriateness of the composition and levels of remuneration for directors and corporate officers through a comparison with global chemical or other material companies of a similar scale (No revision would be made in fiscal 2023.)	All members (excluding a newly appointed director)
January and March 2023 ● Determined the individual standard compensation amounts and the number of LTI standard points to be granted to each director for fiscal 2023 ● Discussed the evaluation of performance indicators (consolidated financial results and personal performance) for the fiscal 2022 STI to determine the individual amounts to be paid to each director. The process of personal performance evaluations for each evaluated director (President and CEO, CTO, CFO, CSO) began with an initial assessment by the President and CEO (including a self-evaluation for the President and CEO). The final evaluations were then conducted through deliberation and confirmation of their appropriateness. ● Opted not to grant shares for the fiscal 2022 LTI to a director (who is not an outside director) who resigned in March 2023, based on the TSR evaluation through the end of the fiscal year immediately preceding his resignation ● Discussed the targets of performance indicators for the fiscal 2023 STI, deliberated and confirmed the appropriateness of personal performance targets after receiving explanations from each director and candidate for reappointment as a director (President and CEO, CRO, CFO, CSO) who were under evaluation ● Confirmed the details of remuneration for directors and corporate officers that were to be disclosed in the Business Report and Securities Report for fiscal 2022	All members (excluding a newly appointed director)

Corporate Governance

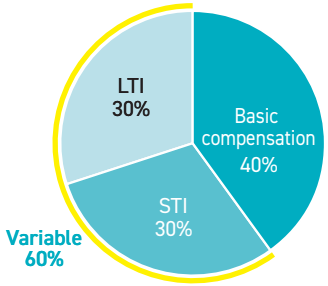
Composition and levels of remuneration

Directors (excluding Outside Directors)

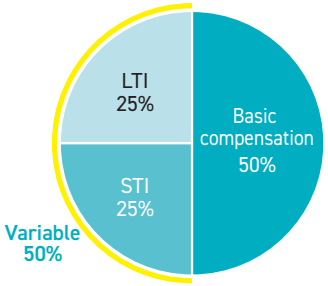
- The remuneration of directors (excluding outside directors) consists of basic compensation (fixed compensation) based on the position, a short-term incentive (STI) tied to annual performance, and a long-term incentive (LTI) contingent upon medium- to long-term performance and corporate value.
- The ratio of variable compensation (STI and LTI) to total compensation is set at 50% or higher, with the intention to reinforce management's commitment to improving business performance and other results, as well as corporate value. Given the substantial responsibility for business performance and stock price, the Chairman of the Board and the President receive a greater portion of variable compensation in comparison to other directors.
- The levels of remuneration are established at appropriate amounts, aligning with benchmarks from other companies (comparison with global chemical or other material companies of a similar scale to the Company) based on surveys conducted by external specialized organizations.

Composition of remuneration for directors (standard amount) for fiscal 2023

Chairman of the Board and President, CEO



Directors and CRO/CFO/CSO



Outside Directors

- Outside directors are paid basic compensation (fixed compensation) only.
- The members and chairman of the Remuneration Advisory Committee or the Nominating Advisory Committee receive additional allowances corresponding to their designated duties.
- The levels of remuneration are established at appropriate amounts, considering the time and efforts spent by each outside director to fulfill their expected roles and functions, as well as benchmarks from other companies (comparison with global companies of a similar scale to the Company) based on surveys conducted by external specialized organizations.

Composition of remuneration for directors (standard amount) for fiscal 2023

Types of remuneration			Recipients			
Fixed / variable	Monetary / non-monetary	Composition	Executive directors, corporate officers	Director and chairman of the Board (without right of representation)	Outside director	Audit & Supervisory Board members
Fixed	Monetary	Basic compensation	○	○	○	○
Variable	Monetary	Short-term incentive (bonuses)	○	—	—	—
Variable	Non-monetary	Long-term incentive (stock-based compensation)	○	○	—	—

Short-term Incentive (STI)

The amounts to be paid to individuals as STI are calculated by multiplying the position-based standard amount by two factors: (1) companywide performance evaluation coefficient (evaluation ratio of 70%); and (2) personal performance evaluation coefficient (evaluation ratio of 30%). This approach aims to enhance incentives for achieving companywide performance targets. The performance evaluation coefficient ranges from 0% to 200%, based on performance results and other factors.

Individual amount granted as STI = Position-based standard amount × ((1) Companywide performance evaluation coefficient + (2) Personal performance evaluation coefficient)

Key performance indicators (KPIs) used to calculate the companywide performance evaluation coefficient and the personal performance evaluation coefficient are selected from the financial and strategic indicators prioritized by the Company to achieve its Long-term Vision.

Key Performance Indicators (KPIs) for the fiscal 2023 STI

	KPIs	Evaluation weight	Reasons for selection
Company-wide performance evaluation	EBITDA	20%	**Driver for enhancing medium- to long-term profitability in the newly integrated company** Strive for growth and innovation with a focus on electronics and mobility businesses, while also implementing structural reforms and addressing the recovery from the impact of COVID-19, among other objectives.
	EBITDA margin (%)	30%	
	ROIC	20%	**Indicator of profit distribution to shareholders and investors** Strive to optimize the business portfolio and the net debt-to-equity ratio of the newly integrated company, aiming to enhance ROE over the medium to long term.
Personal performance evaluation	Endeavors aligned with the long-term vision, actions to resolve sustainability issues, and more.	30%	Strongly encourage management from a long-term perspective to attain sustainable growth of the Company

EBITDA = Consolidated operating income + Depreciation and amortization + Amortization of goodwill, etc.
EBITDA margin (%) = EBITDA ÷ Consolidated net sales
ROIC = (Operating income + Equity in earnings of unconsolidated subsidiaries and affiliates − Income taxes) ÷ (Interest-bearing debt + Total net assets)
Sustainability issues are discussed at the Sustainability Promotion Council

Corporate Governance

The performance evaluation coefficient is determined through an evaluation of financial indicators and measures. The primary financial indicators include consolidated net sales and consolidated EBITDA, which are management indicators the Company focuses on and suitable for objective and clear evaluation based on business results.

Regarding the consolidated operating results for fiscal 2021, net sales amounted to ¥1,419,635 million, exceeding the target of ¥1,280,000 million. EBITDA stood at ¥202,644 million, exceeding the target of ¥165,100 million. In light of the evaluation results and other factors, the STI payment to each director for fiscal 2022 was 160% of the standard amount.

Long-term incentive (LTI)

The LTI system is designed to deliver a certain number of shares calculated by multiplying the standard points based on the position-based standard amount by a coefficient corresponding to the Company's TSR (Total Shareholder Return) over a three-year period, with the aim of enhancing corporate value in the medium to long term. To further enhance value sharing with shareholders, the actual delivery of shares is deferred to the time of resignation of each director.

Number of shares delivered to individuals as LTI = Position-based standard points x TSR evaluation coefficient

The TSR evaluation coefficient is decided based on a rank order of three-year TSR evaluation by comparison with companies (in the chemical and material industries with similar business models and of the same size of larger). The target for TSR ranking is set at mid-range or higher to realize the long-term vision of "TSR: Aiming to be in the top 25% in the chemical industry in the medium to long term."

This system has been operational since 2022, and the first TSR evaluation period (linked with the fiscal 2022 LTI) spanned three years from 2022 to 2024. Subsequently, the TSR evaluation period rolls over every year to maintain a three-year evaluation period.

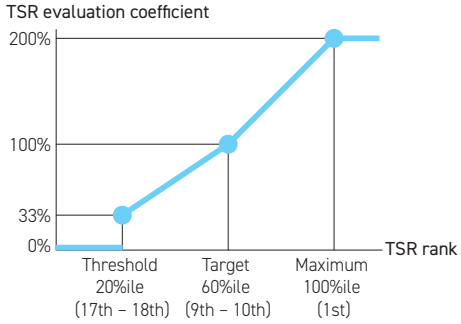
Once the number of shares (points) to be delivered is determined through the TSR evaluation, the equivalent amount of dividends during the interval until the shares are physically delivered (until the time of resignation) is deemed to be reinvested, thereby adding the count of shares (points) slated for delivery.

TSR evaluation period and timeline for determining the number of shares (points) to be delivered under the LTI plan per fiscal year

Plan	2022	2023	2024	2025	2026	• • •	Resignation
2022 LTI	←TSR evaluation period→			Fixing of points→ → →			Share issuance
2023 LTI		←TSR evaluation period→			Fixing of points→		Share issuance

As this system was implemented in fiscal 2022 and the first TSR evaluation spanned three years from 2022 to 2024, no LTIs were subject to final evaluation in fiscal 2022. Yet, for a director (who is not an outside director) who is slated to resign in March 2023, the shares of the Company' stock will be delivered as LTI based on the TSR evaluation performed up to the fiscal year immediately prior to his resignation. The Company will not grant its shares to resigning directors as the fiscal 2022 LTI due to the Company's TSR of 89.4% for the period from January to December 2022. The Company's ranking was at the 18.9%ile among the 22 entities in the chemical and textile industries, namely between the 18th and 19th spots out of the 22 companies.

Calculation method for the TSR evaluation coefficient for the fiscal 2023 LTI



Adjustment of compensation, request for return of compensation, etc.

In case of deterioration in the Company's business performance, or such problems that could damage its corporate or brand value as quality issues, serious accidents, or scandals, the Company reserves the right to temporarily decrease or withhold remuneration and other benefits for directors.

Regarding the short-term incentive (STI), if temporary special factors emerge, which was not anticipated when the targets were set at the beginning of the period, individual bonus amounts may be recalculated based on reassessed performance and other elements with the exclusion of the impact of such factors.

Regarding the short-term incentive (STI) and long-term incentive (LTI), if a director or corporate officer is involved in misconduct or if payment was made based on incorrect financial statements, the Company may nullify the right to receive associated benefits on account of such fact or demand return of compensation already paid to the individual concerned.

Corporate Governance

Remuneration of Directors and Audit & Supervisory Board members

Category	Total amount paid (Millions of yen)	Total amount paid by remuneration type (Millions of yen)			Number of recipients
		Basic compensation	Short-term incentive (STI)	Long-term incentive (LTI)	
Directors	557	340	106	109	12
Outside directors	65	65	—	—	4
Audit & Supervisory Board members	104	104	—	—	6
Outside Audit & Supervisory Board members	38	38	—	—	4

Notes:
1 The amounts of basic compensation and short-term incentive above are the total amount of compensation paid in fiscal 2022 (all monetary compensation).
2 The amount of STI above is the total amount of compensation paid in March 2022 (all monetary compensation), based on the performance and other results achieved during fiscal 2021. The amount of STI for fiscal 2021 for five directors excluding outside directors was resolved at the 113th Ordinary General Meeting of Shareholders held on March 30, 2022 to be no more than ¥119 million in total.
3 The amount of LTI above is the total amount expensed in fiscal 2022. The Company's LTI represents the number of shares of the Company's stock determined based on the results of the three-year TSR (Total Shareholder Return) evaluation, to be deferred and delivered upon resignation. For the LTI management, we utilize the Stock Benefit Trust of Mizuho Trust & Banking Co.
4 The amount of remuneration for directors from fiscal 2022 onward was resolved at the 113th Ordinary General Meeting of Shareholders held on March 30, 2022, and the details are as presented below. The STI and LTI amounts are paid to directors, excluding outside directors.

Category	Date of resolution of the General Meeting of Shareholders	Monetary remuneration (Basic Compensation + STI)	Stock-based compensation (LTI) (Amount of BBT contribution / Points granted)	Number of applicable persons
Directors	The 113th Ordinary General Meeting of Shareholders held on March 30, 2022	Up to ¥850 million per year (Of which, outside directors: ¥100 million)	Up to ¥1.35 billion for 3 fiscal years (Up to 410,000 points per fiscal year)	10 (Of which, 4 outside directors)

5 The amount of remuneration for Audit & Supervisory Board members was resolved at the 96th Ordinary General Meeting of Shareholders held on March 30, 2005 to be no more than ¥12 million per month. The number of Audit & Supervisory Board Members as of the close of the said General Meeting of Shareholders was four, including three outside Audit & Supervisory Board members.

Individual remuneration amounts (limited to the President and CEO or those with a total amount of remuneration paid by the Group of ¥100 million yen or more)

Principal position and name during fiscal 2022	Total amount paid (Millions of yen)	Total amount paid by remuneration type (Millions of yen)			Company category
		Basic compensation	Short-term incentive (STI)	Long-term incentive (LTI)	
Representative Director and Chairman of the Board Kohei Morikawa	135	66	46	22	Resonac Holdings
Representative Director, President and CEO Hidehito Takahashi	117	75	17	24	Resonac Holdings

Cross-Shareholdings

Policy on reduction of cross-shareholdings

In principle, the Company adheres to a policy of not engaging in cross-shareholdings, and steps are currently underway to reduce existing cross-shareholdings.

Review on the appropriateness of cross-shareholdings

The Board of Directors verifies each year whether the profitability and business feasibility of holdings are rational given the associated capital costs.

Voting right exercise standard

When the Company exercises its voting rights of cross-shareholdings, the company shall decide approval or disapproval of each item on the agenda by examining whether the item contributes to increasing corporate value and maintaining/increasing shareholders' returns or not.

Numbers of cross-shareholdings and amount on the balance sheet*

	Holdings	Amount on the balance sheet (Millions of yen)
Unlisted stocks	52	1,924
Other stocks	4	763

Holdings for which numbers of shares held increased in fiscal 2022*

	Holdings	Acquisition costs of additional shares (Millions of yen)	Reason for increase
Unlisted stocks	3	56	Due to investments in decarbonization-related businesses and organization restructuring
Other stocks	—	—	

Holdings for which numbers of shares held decreased in fiscal 2022*

	Holdings	Sales proceeds associated with reduction in the number of shares (Millions of yen)
Unlisted stocks	10	2,462
Other stocks	18	15,875

* Cross-shareholdings held by Resonac Corporation

Consolidated 11-Year Summary

Web

Resonac made former Hitachi Chemical a consolidated subsidiary, and started on July 1, 2020 to incorporate Hitachi Chemical's sales figures and income/losses into its consolidated financial statements.

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022 *5
Financial Highlights (Consolidated) Millions of yen											
For the year											
Net sales	¥739,675	¥847,803	¥ 872,785	¥ 775,732	¥ 671,159	¥ 780,387	¥ 992,136	¥ 906,454	¥ 973,700	¥1,419,635	¥1,392,621
Operating income (loss)	28,108	25,953	20,551	33,508	42,053	77,708	180,003	120,798	(19,449)	87,198	61,726
Ratio of operating income (loss) to sales (%)	3.8	3.1	2.4	4.3	6.3	10.0	18.1	13.3	(2.0)	6.1	4.4
Net income (loss) attributable to owners of the parent	9,368	9,065	2,929	921	12,305	37,404	111,503	73,088	(76,304)	(12,094)	32,422
Net cash provided by operating activities	53,310	63,565	66,996	61,170	68,949	67,235	149,785	78,554	109,286	115,283	99,813
Net cash provided by (used in) investing activities	(41,741)	(55,203)	(46,876)	(42,497)	(53,754)	(29,866)	(49,338)	(48,156)	(930,047)	28,606	(54,667)
Free cash flow	11,569	8,362	20,120	18,674	15,195	37,369	100,447	30,397	(820,761)	143,889	45,145
Net cash provided by (used in) financing activities	(20,150)	(6,805)	(24,856)	(21,336)	(13,220)	(18,370)	(61,061)	(18,546)	896,521	(121,741)	(103,267)
R&D expenditures	20,633	20,435	20,362	20,289	17,313	18,539	19,735	20,605	34,379	46,750	47,135
Capital expenditures	42,503	44,370	47,318	44,059	39,276	41,787	41,727	50,216	69,052	78,647	107,074
Depreciation and amortization	46,232	39,779	40,673	42,137	38,761	38,565	39,459	37,704	68,643	97,726	91,964
At year-end											
Total assets	933,162	985,771	1,009,843	940,494	932,698	1,026,999	1,074,983	1,076,381	2,203,606	2,142,390	2,093,744
Total net assets	314,966	345,811	319,087	308,142	311,231	368,994	465,340	519,433	718,080	818,452	574,718
Shareholders' equity ratio(%)	29.2	30.6	29.7	31.5	31.8	34.3	41.5	46.4	18.4	24.0	26.3
Return on equity (ROE)(%)	3.6	3.2	1.0	0.3	4.1	11.5	27.9	15.5	(16.9)	(2.6)	6.1
Interest-bearing debt*1	342,262	353,686	383,124	368,835	359,929	346,726	287,968	303,192	1,060,146	850,603	1,062,637
Debt/equity ratio (gross, times)*1	1.09	1.02	1.20	1.20	1.16	0.94	0.62	0.60	1.84	1.15	1.07
Per share*2 (yen)											
Net income (loss)—primary*3	6.26	6.06	1.99	6.45	86.27	262.44	758.15	501.03	(523.06)	(77.40)	179.02
Net assets	182.24	201.27	209.76	2,076.05	2,080.85	2,473.06	3,057.16	3,423.25	2,782.79	2,838.51	3,038.35
Cash dividends (applicable to the period)	3.00	3.00	3.00	3.00	—	80.00 *4	120.00	130.00	65.00	65.00	65.00

*1 From the third quarter of 2020, due to former Hitachi Chemical, becoming a consolidated subsidiary, the D/E ratio reflects the following situation: regarding preferred shares issued by HC Holdings K.K., a subsidiary, posted under non-controlling interests on the consolidated balance sheets, the value equivalent to 50% is added to each of interest-bearing debt, and shareholders' equity, in consideration of the characteristics of the capital structure. For interest-bearing debt, net value is indicated after excluding cash and deposits and adding debt on lease. For Determination of the 50/50 allocation for preferred shares in light of the characteristics of the capital structure is based on the rating of Japan Credit Rating Agency, dated April 21, 2020. This change in accounting standards for the D/E ratio from 2020 has been retroactively reflected in 2019 figures. Furthermore, in regard to the subordinated loans taken out in order to purchase preferred stock, 50% of this amount is deducted from interest-bearing debt and added to shareholders' equity. Determination of the 50/50 allocation for the subordinated loan in light of the characteristics of the capital structure is based on the rating of Japan Credit Rating Agency, dated October 4, 2022.
*2 Resonac consolidated every 10 shares of common stock into one share on July 1, 2016. "Per share" indicators for 2015 and 2016 (except for cash dividends) are calculated on the basis of the number of outstanding shares after this consolidation.
*3 Net income (loss) per share has been computed based on the average number of shares of common stock outstanding during the respective fiscal year.
*4 Resonac resolved payment of dividends of ¥30.00 per share based on the record date of May 11, 2017 at the extraordinary general meeting of shareholders held in June 2017. Cash dividends applicable to 2017 include this amount.
*5 Our subsidiary former Hitachi Chemical (current Resonac Corporation) and its Japanese subsidiaries previously adopted the International Financial Reporting Standards (IFRS), but switched to Japanese Generally Accepted Accounting Principles (JGAAP) from fiscal 2023. This change has been applied retroactively and the figures for fiscal 2022 have been retroactively adjusted. Some of these retroactively adjusted figures include those that have not yet been audited.

Consolidated 11-Year Summary Web

		2014	2015	2016	2017		2018	2019	2020	2021	2022
Nonfinancial data	Scope up to 2017					Scope in and after 2018					
Number of employees (persons)	2014-2017: Former Showa Denko (non-consolidated)	10,577	10,561	10,146	10,864	Consolidated	33,465	33,908	33,684	26,054	25,803
Ratio of employees working outside Japan (%)		43.9	44.4	40.1	44.0		54.2	54.5	54.6	51.2	50.8
Number of female managers (persons)	2014-2017: Former Showa Denko (consolidated)	18	23	26	28	2018-2021: Resonac (non-consolidated) + Subsidiaries of former Showa Denko in and outside Japan 2022: Consolidated	162	170	170	148	397
Ratio of female managers (%)		2.3	3.0	3.4	3.7		7.0	7.1	7.1	7.3	12.6
Greenhouse gas emissions (Scope 1 + Scope 2; kt-CO_2)	2014-2017: Former Showa Denko (consolidated in Japan)	3,650	3,683	3,714	3,654	Consolidated	4,708	4,562	4,213	4,422	4,284
Amount of Water used (excluding seawater; thousand m^3)		62,620	60,040	58,720	59,470	2018-2021: Resonac (non-consolidated) and former Showa Denko subsidiaries (in and outside Japan) 2022: Consolidated	67,306	68,060	67,522	64,261	68,292
Ratio of industrial waste sent to landfills (%)		1.08	0.95	0.32	0.38	Resonac (consolidated in Japan) and former Hitachi Chemical Subsidiaries (outside Japan)	1.8	1.8	1.0	1.4	2.5

Note:
For non-financial data, boundaries (scope of data) differ depending on the item and time period.
Upon the integration of the former Showa Denko and the former Hitachi Chemical, we have re-examined boundaries and figures for past fiscal years, making some adjustments in our disclosures.
Additionally, water intake data up until 2017 is expressed in units of 10,000 m^3.

For performance data on ESG (environment, society, governance) please refer to our website.

Consolidated Balance Sheets Web

Note: The U.S. dollar amounts appearing on the following pages represent the arithmetical results of translating yen into U.S. dollars at the rate of ¥132.70 to US$1.00, the approximate rate of exchange as at December 31, 2022.

	Millions of yen		Thousands of U.S. dollars
	2022	2021	2022
ASSETS			
Current assets			
Cash and deposits	¥ 187,126	¥ 236,237	$ 1,410,140
Notes and accounts receivable	297,681	319,546	2,243,262
Allowance for doubtful accounts	(1,254)	(1,426)	(9,449)
Inventories	250,574	203,879	1,888,273
Other current assets	54,057	40,295	407,363
Total current assets	788,183	798,531	5,939,588
Property, plant and equipment			
Land	234,425	242,556	1,766,577
Buildings and structures	361,289	343,574	2,722,599
Machinery, equipment and vehicles	1,039,169	955,138	7,830,963
Leased assets	28,740	30,429	216,580
Construction in progress	50,866	38,782	383,313
	1,714,488	1,610,479	12,920,032
Less : Accumulated depreciation	(1,032,570)	(950,958)	(7,781,238)
Net property, plant and equipment	681,918	659,521	5,138,794
Investments and other assets			
Goodwill	295,355	311,766	2,225,735
Customer related assets	133,639	141,141	1,007,079
Investment securities	84,041	103,798	633,318
Long-term loans	777	674	5,853
Net defined benefit asset	18,046	33,088	135,990
Deferred tax assets	17,169	15,207	129,379
Other	81,915	79,131	617,291
Allowance for doubtful accounts	(622)	(466)	(4,687)
Total investments and other assets	630,320	684,338	4,749,959
Total assets	¥ 2,100,421	¥ 2,142,390	$15,828,342

	Millions of yen		Thousands of U.S. dollars
	2022	2021	2022
LIABILITIES AND NET ASSETS			
Current liabilities			
Short-term debt	¥ 72,419	¥ 74,451	$ 545,734
Current portion of long-term debt	42,677	72,857	321,603
Notes and accounts payable	263,402	239,897	1,984,947
Income taxes payable	5,983	17,180	45,083
Provision for repairs	19	4,848	143
Provision for bonuses	9,489	8,815	71,505
Provision for bonuses for directors	47	71	356
Provision for stock payments	21	39	155
Other current liabilities	68,495	70,492	516,167
Total current liabilities	462,551	488,650	3,485,693
Noncurrent liabilities			
Long-term debt less current portion	932,400	683,448	7,026,372
Deferred tax liabilities	51,416	60,144	387,457
Provision for repairs	1,260	96	9,495
Provision for stock payments	302	196	2,272
Provision for business structure improvement	772	812	5,819
Net defined benefit liability	9,981	17,523	75,212
Deferred tax liabilities for land revaluation	29,525	30,128	222,497
Other noncurrent liabilities	37,538	42,941	282,877
Total noncurrent liabilities	1,063,192	835,287	8,011,999
Contingent liabilities			
Net assets			
Shareholders' equity			
Capital stock			
Authorized, 330,000,000 shares			
Issued (2022): 184,901,292 shares	182,146	—	1,372,616
Issued (2021): 184,901,292 shares	—	182,146	—
Capital surplus	108,140	119,772	814,922
Retained earnings	163,425	143,335	1,231,540
Less: Treasury stock at cost (2022): 3,784,720 shares	(11,612)	—	(87,505)
Less: Treasury stock at cost (2021): 3,824,243 shares	—	(11,655)	—
Total shareholders' equity	442,100	433,598	3,331,573
Accumulated other comprehensive income			
Valuation difference on available-for-sale securities	559	2,838	4,214
Deferred gains or losses on hedges	1,461	1,167	11,007
Revaluation reserve for land	27,915	28,928	210,362
Foreign currency translation adjustments	72,008	38,421	542,638
Remeasurements of defined benefit plans	6,211	9,036	46,804
Total accumulated other comprehensive income	108,154	80,391	815,026
Non-controlling interests	24,423	304,463	184,050
Total net assets	574,677	818,452	4,330,649
Total liabilities and net assets	¥ 2,100,421	¥ 2,142,390	$15,828,342

Consolidated Statements of Operations

Resonac Holdings Corporation and Consolidated Subsidiaries
For the years ended December 31, 2022 and 2021

	Millions of yen		Thousands of U.S. dollars
	2022	2021	2022
Net sales	¥ 1,392,621	¥ 1,419,635	$10,494,509
Cost of sales	1,089,639	1,081,642	8,211,295
Gross profit	302,983	337,994	2,283,214
Selling, general and administrative expenses	243,611	250,796	1,835,805
Operating income	59,371	87,198	447,410
Other income (expenses)			
Interest and dividends income	1,834	2,267	13,821
Equity in earnings of unconsolidated subsidiaries and affiliates	3,630	5,251	27,352
Gain on sales of investment securities, net	4,731	5,814	35,654
Foreign exchange gain	10,632	4,281	80,124
Gain on sales of noncurrent assets, net	13,470	1,104	101,505
Interest expenses	(15,744)	(10,006)	(118,642)
Loss on retirement of noncurrent assets	(6,045)	(4,838)	(45,555)
Impairment loss	(10,091)	(11,564)	(76,042)
Business structuring expenses	—	(32,767)	—
Loss on sale of businesses	(3,504)	(12,078)	(26,405)
Loss related to the Antimonopoly Act	(5,579)	—	(42,042)
Other, net	(4,123)	(11,737)	(31,068)
Total	(10,788)	(64,272)	(81,299)
Income before income taxes	48,583	22,926	366,111
Income taxes			
Current	18,617	26,957	140,291
Deferred	(8,092)	(6,688)	(60,976)
Net income	38,058	2,657	286,796
Net income attributable to non-controlling interests	7,265	14,751	54,746
Net income (loss) attributable to owners of the parent	¥ 30,793	¥ (12,094)	$ 232,051

	Yen		U.S. dollars
Per share amounts			
Net income (loss) attributable to owners of the parent: Basic	¥170.03	¥(77.40)	$1.28
Net income (loss) attributable to owners of the parent: Diluted	170.03	(77.40)	1.28
Cash dividends (applicable to the period)	65.00	65.00	0.49

Notes: Net income per share has been computed based on the average number of shares of common stock outstanding during the respective fiscal year.
See notes to financial statements.

Consolidated Statements of Comprehensive Income

Resonac Holdings Corporation and Consolidated Subsidiaries
For the years ended December 31, 2022 and 2021

	Millions of yen		Thousands of U.S. dollars
	2022	2021	2022
Net income	¥38,058	¥ 2,657	$286,796
Other comprehensive income:			
Valuation difference on available-for-sale securities, net of tax	(2,246)	(949)	(16,925)
Deferred gains or losses on hedges, net of tax	294	259	2,213
Foreign currency translation adjustments	32,932	39,074	248,170
Remeasurements of defined benefit plans, net of tax	(2,805)	8,927	(21,140)
Share of other comprehensive income of unconsolidated subsidiaries and affiliates accounted for using equity method	1,763	958	13,285
Total other comprehensive income	¥29,937	¥48,268	$225,602
Comprehensive income	¥67,995	¥50,925	$512,399
Comprehensive income attributable to:			
Owners of the parent	59,569	35,111	448,899
Non-controlling interests	8,426	15,814	63,499

See notes to financial statements.

Consolidated Statements of Changes in Net Assets

Resonac Holdings Corporation and Consolidated Subsidiaries
For the years ended December 31, 2022 and 2021

	Thousands	Millions of yen										
	Number of shares of capital stock	Capital stock	Capital surplus	Retained earnings	Treasury stock	Valuation difference on available-for-sale securities	Deferred gains or losses on hedges	Revaluation reserve for land	Foreign currency translation adjustments	Remeasurements of defined benefit plans	Non-controlling interests	Total net assets
Balance as at December 31, 2020	149,711	¥140,564	¥ 78,190	¥165,572	¥(11,657)	¥ 3,728	¥908	¥29,034	¥ (506)	¥ 128	¥ 312,119	¥ 718,080
Issuance of new shares	35,190	41,583	41,583	—	—	—	—	—	—	—	—	83,165
Dividends from surplus	—	—	—	(9,500)	—	—	—	—	—	—	—	(9,500)
Net loss attributable to owners of the parent	—	—	—	(12,094)	—	—	—	—	—	—	—	(12,094)
Purchase of treasury stock	—	—	—	—	(6)	—	—	—	—	—	—	(6)
Disposal of treasury stock	—	—	0	—	7	—	—	—	—	—	—	7
Increase by increase of consolidated subsidiaries	—	—	—	45	—	—	—	—	—	—	—	45
Increase by decrease of consolidated subsidiaries	—	—	—	—	—	—	—	—	—	—	—	—
Decrease by decrease of consolidated subsidiaries	—	—	—	(690)	—	—	—	—	—	—	—	(690)
Change in treasury shares of the parent arising from transactions with non-controlling shareholders	—	—	—	—	—	—	—	—	—	—	—	—
Changes in liabilities for written put options over non-controlling interests	—	—	—	—	—	—	—	—	—	—	—	—
Reversal of revaluation reserve for land	—	—	—	1	—	—	—	—	—	—	—	1
Net changes of items other than shareholders' equity	—	—	—	—	—	(890)	259	(106)	38,928	8,909	(7,656)	39,443
Balance as at December 31, 2021	184,901	¥182,146	¥119,772	¥143,335	¥(11,655)	¥2,838	¥1,167	¥28,928	¥38,421	¥9,036	¥ 304,463	¥ 818,452
Issuance of new shares	—	—	—	—	—	—	—	—	—	—	—	—
Dividends from surplus	—	—	—	(11,788)	—	—	—	—	—	—	—	(11,788)
Net income attributable to owners of the parent	—	—	—	30,793	—	—	—	—	—	—	—	30,793
Purchase of treasury stock	—	—	—	—	(3)	—	—	—	—	—	—	(3)
Disposal of treasury stock	—	—	(0)	—	46	—	—	—	—	—	—	46
Increase by increase of consolidated subsidiaries	—	—	—	—	—	—	—	—	—	—	—	—
Increase by decrease of consolidated subsidiaries	—	—	—	72	—	—	—	—	—	—	—	72
Decrease by decrease of consolidated subsidiaries	—	—	—	—	—	—	—	—	—	—	—	—
Change in treasury shares of the parent arising from transactions with non-controlling shareholders	—	—	(29)	—	—	—	—	—	—	—	—	(29)
Changes in liabilities for written put options over non-controlling interests	—	—	(11,603)	—	—	—	—	—	—	—	—	(11,603)
Reversal of revaluation reserve for land	—	—	—	1,013	—	—	—	—	—	—	—	1,013
Net changes of items other than shareholders' equity	—	—	—	—	—	(2,279)	294	(1,013)	33,587	(2,826)	(280,040)	(252,277)
Balance as at December 31, 2022	184,901	¥182,146	¥108,140	¥163,425	¥(11,612)	¥ 559	¥1,461	¥27,915	¥72,008	¥6,211	¥ 24,423	¥ 574,677

	Thousands	Thousands of U.S. dollars										
	Number of shares of capital stock	Capital stock	Capital surplus	Retained earnings	Treasury stock	Valuation difference on available-for-sale securities	Deferred gains or losses on hedges	Revaluation reserve for land	Foreign currency translation adjustments	Remeasurements of defined benefit plans	Non-controlling interests	Total net assets
Balance as at December 31, 2021	184,901	$1,372,616	$902,579	$1,080,141	$(87,830)	$ 21,390	$ 8,794	$217,996	$289,535	$ 68,097	$ 2,294,372	$ 6,167,688
Issuance of new shares	—	—	—	—	—	—	—	—	—	—	—	—
Dividends from surplus	—	—	—	(88,829)	—	—	—	—	—	—	—	(88,829)
Net loss attributable to owners of the parent	—	—	—	232,051	—	—	—	—	—	—	—	232,051
Purchase of treasury stock	—	—	—	—	(23)	—	—	—	—	—	—	(23)
Disposal of treasury stock	—	—	(1)	—	349	—	—	—	—	—	—	347
Increase by increase of consolidated subsidiaries	—	—	—	—	—	—	—	—	—	—	—	—
Increase by decrease of consolidated subsidiaries	—	—	—	544	—	—	—	—	—	—	—	544
Decrease by decrease of consolidated subsidiaries	—	—	—	—	—	—	—	—	—	—	—	—
Change in treasury shares of the parent arising from transactions with non-controlling shareholders	—	—	(218)	—	—	—	—	—	—	—	—	(218)
Changes in liabilities for written put options over non-controlling interests	—	—	(87,438)	—	—	—	—	—	—	—	—	(87,438)
Change due to merger	—	—	—	—	—	—	—	—	—	—	—	—
Reversal of revaluation reserve for land	—	—	—	7,634	—	—	—	—	—	—	—	7,634
Net changes of items other than shareholders' equity	—	—	—	—	—	(17,175)	2,213	(7,634)	253,103	(21,292)	(2,110,322)	(1,901,107)
Balance as at December 31, 2022	184,901	$1,372,616	$814,922	$1,231,540	$(87,505)	$ 4,214	$11,007	$210,362	$542,638	$ 46,804	$ 184,050	$ 4,330,649

Consolidated Statements of Cash Flows

Resonac Holdings Corporation and Consolidated Subsidiaries
For the years ended December 31, 2022 and 2021

	Millions of yen		Thousands of U.S. dollars
	2022	2021	2022
Cash flows from operating activities			
Income before income taxes	¥ 48,583	¥ 22,926	$ 366,111
Adjustments for:			
Depreciation and amortization	92,716	97,726	698,690
Impairment loss	10,091	11,564	76,042
Amortization of goodwill	16,843	17,720	126,923
Increase (decrease) in net defined benefit liability	(2,383)	4,038	(17,960)
Interest and dividends income	(1,834)	(2,267)	(13,821)
Interest expenses	15,744	10,006	118,642
Equity in (earnings) losses of unconsolidated subsidiaries and affiliates	(3,630)	(5,251)	(27,352)
Loss (gain) on sales and valuation of investment securities	(4,952)	(5,101)	(37,318)
Loss on retirement of noncurrent assets	6,045	4,838	45,555
Loss (gain) on sales of noncurrent assets	(13,470)	(1,104)	(101,505)
Loss (gain) on sales of businesses	3,504	(3,045)	26,405
Business structuring expenses	—	32,767	—
Loss related to the Antimonopoly Act	5,579	—	42,042
Decrease (increase) in notes and accounts receivable-trade	23,653	(51,628)	178,242
Decrease (increase) in inventories	(40,083)	(43,739)	(302,058)
Increase (decrease) in notes and accounts payable-trade	(18,592)	72,694	(140,106)
Other, net	1,157	(34,230)	8,721
Subtotal	138,971	127,914	1,047,260
Interest and dividends income received	8,686	7,266	65,454
Interest expenses paid	(15,641)	(9,999)	(117,865)
Income taxes (paid) refund	(31,667)	(9,898)	(238,635)
Net cash provided by (used in) operating activities	100,349	115,283	756,207
Cash flows from investing activities			
Payments into time deposits	(1,606)	(1,666)	(12,105)
Proceeds from withdrawal of time deposits	2,570	1,507	19,368
Purchase of property, plant and equipment	(87,857)	(67,741)	(662,069)
Proceeds from sales of property, plant and equipment	20,960	2,223	157,947
Purchase of investment securities	(1,667)	(3,270)	(12,561)
Proceeds from sales of investment securities	22,019	9,318	165,929
Proceeds from sales of investments in subsidiaries resulting in change in scope of consolidation	—	84,133	—
Net decrease (increase) in short-term loans receivable	774	(1,230)	5,830
Payments of long-term loans receivable	(410)	(246)	(3,088)
Collection of long-term loans receivable	251	14,271	1,893
Other, net	(9,701)	(8,693)	(73,106)
Net cash provided by (used in) investing activities	(54,667)	28,606	(411,962)

	Millions of yen		Thousands of U.S. dollars
	2022	2021	2022
Cash flows from financing activities			
Net increase (decrease) in short-term debt	(3,162)	11,352	(23,832)
Proceeds from long-term loans payable	409,600	24,300	3,086,662
Repayments of long-term loans payable	(285,642)	(307,247)	(2,152,536)
Proceeds from share issuance of bonds	112,536	99,539	848,045
Redemption of bonds	(20,000)	(25,000)	(150,716)
Proceeds from issuance of preferred stock	—	82,405	—
Purchase of treasury stock	(3)	(7)	(23)
Cash dividends paid	(11,758)	(9,479)	(88,609)
Proceeds from stock issuance to non-controlling shareholders	—	29,766	—
Cash dividends paid to non-controlling shareholders	(13,025)	(16,117)	(98,152)
Purchase of investments in subsidiaries without change in scope of consolidation	(287,635)	(5,293)	(2,167,558)
Other, net	(4,875)	(5,960)	(36,745)
Net cash provided by (used in) financing activities	(103,964)	(121,741)	(783,451)
Effect of exchange rate changes on cash and cash equivalents	10,027	14,634	75,565
Net increase (decrease) in cash and cash equivalents	(48,255)	36,782	(363,641)
Cash and cash equivalents at the beginning of the year	234,938	197,928	1,770,446
Increase in cash and cash equivalents resulting from newly consolidated subsidiaries	—	229	—
Cash and cash equivalents at the end of the year	¥ 186,683	¥ 234,938	$ 1,406,805

Corporate Data/Stock Information

Corporate Data

(As of June 30, 2023)

Company Name	Resonac Holdings Corporation
Head Office	Tokyo Shiodome Bldg., 1-9-1, Higashi-Shimbashi, Minato-ku, Tokyo 105-7325, Japan
Formed	June 1939
Capital (As of March 31, 2023)	¥182,146 million
Consolidated Number of Employees (As of December 31, 2022)	25,803
Affiliates (As of March 31, 2023)	Consolidated Subsidiaries: 104 Equity method applied: 12
Subsidiaries (Japan) Web	
Subsidiaries (Global) Web	

Stock Information

(As of December 31, 2022)

Authorized number of shares	330,000,000
Number of shares outstanding	184,901,292
Number of shareholders	90,689

Shareholders by Sector

- Foreign corporate entities, etc. ····· 61,317 thousand 33.16%
- Financial institutions ····· 58,550 thousand 31.67%
- Individuals ····· 41,998 thousand 22.71%
- Securities firms ····· 14,293 thousand 7.73%
- Japanese corporate entities ····· 5,188 thousand 2.81%
- Treasury shares ····· 3,554 thousand 1.92%

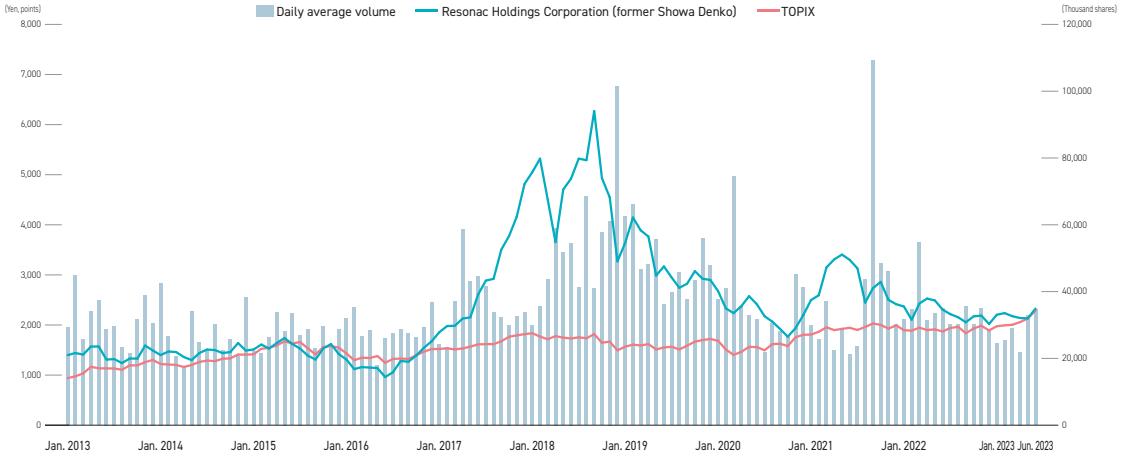
Shareholders (Top 10)

(As of December 31, 2022)

Name of shareholders	Stake in the Company: Number of shares held (in thousands)	Stake in the Company: Rate of shareholding (%)
The Master Trust Bank of Japan Ltd. (Trust Account)	28,130	15.51
KOREA SECURITIES DEPOSITORY – SAMSUNG	9,062	5.00
Custody Bank of Japan, Ltd. (Trust Account)	7,667	4.23
STATE STREET BANK AND TRUST COMPANY 510312	4,905	2.70
STATE STREET BANK AND TRUST COMPANY 505223	4,850	2.67
Fukoku Mutual Life Insurance Company	4,517	2.49
JPMorgan Securities Japan Co., Ltd.	4,474	2.47
STATE STREET BANK AND TRUST COMPANY 510311	4,135	2.28
SMBC Nikko Securities Inc.	3,051	1.68
HSBC BANK PLC A/C M AND G (ACS)	2,854	1.57

Note: Each rate of shareholding was calculated after deducting the number of treasury shares (3,554 thousand) from the number of shares outstanding.

Stock Price/Volume



Stock Information

	Fiscal 2018	Fiscal 2019	Fiscal 2020	Fiscal 2021	Fiscal 2022
Year-end stock price (yen)	3,270	2,899	2,197	2,415	2,020
Dividends per share (yen)	120	130	65	65	65
Payout ratio (%)	67.7	40.5	34.8	33.1	35.5

Total shareholder return (TSR)	Past year	Past 3 years	Past 5 years	Past 10 years
Resonac	86.3%	76.4%	51.2%	201.1%
TOPIX (including dividends)	97.5%	118.1%	117.2%	274.2%

* TSR: Total shareholder return. The total rate of return on investments, consisting of capital gains and dividend payouts.
* TSR for Resonac is calculated based on accumulated dividends and stock price fluctuations. TSR for TOPIX is calculated based on dividend included stock index (see Japan Exchange Group's monthly statistics report data).

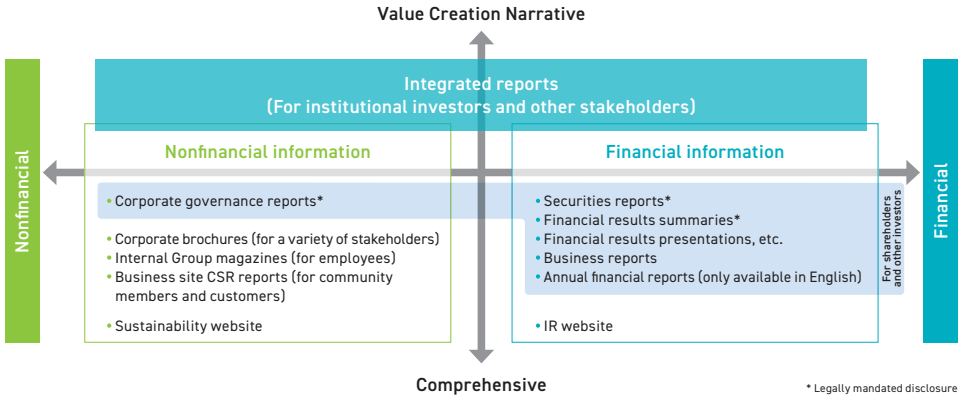
Editorial Policies

Editorial Policies

Publication Date	July 2023
Reporting Period	January 1, 2022 to December 31, 2022 Some information on disclosure items and business activities from after January 1, 2023, is also provided.
Scope	Resonac Holdings Corporation and its consolidated subsidiaries
Referenced Guidelines	This report was prepared while referencing the International Integrated Reporting Framework of the Value Reporting Foundation; the SASB Standards of the Sustainability Accounting Standards Board of the United States; the Guidance for Integrated Corporate Disclosure and Company-Investor Dialogue for Collaborative Value Creation: ESG Integration, Non-Financial Information Disclosure, and Intangible Assets into Investment of the Ministry of Economy, Trade and Industry; the Sustainability Reporting Standards of the Global Reporting Initiative; and the final report of the Task Force on Climate-related Financial Disclosures. 価値協創ガイダンス Guidance for Collaborative Value Creation
Display Methods in This Report	Figures and information in this report refer to the Resonac Group. Official names are used when referring to Resonac Holdings Corporation or Resonac Corporation as a non-consolidated entity. When figures or information for the former Showa Denko or the former Hitachi Chemical (Showa Denko Materials) before 2023 is provided, they are indicated as "former Showa Denko" or "former Hitachi Chemical."
Scope for Results Data	Financial: Resonac Holdings Corporation and its 121 consolidated subsidiaries and affiliates accounted for using equity method 122 companies in total Others: Resonac Holdings Corporation and its consolidated subsidiaries *However, please refer to the relevant website for details on the scope of environmental and safety data. Web
Third-Party Verification of Environmental and Safety Data	Data disclosed by the Company are submitted to third-party verification each year to ensure reliability. For details, please refer to the relevant website. Web
Caution Regarding Forward-Looking Statements	Performance forecasts and other forward-looking statements are based on information available as of the time of publication of this report and certain assumptions judged to be reasonable. Actual performance may vary materially due to risks, uncertainty, or other factors.

Disclosure Materials

Resonac discloses information through its integrated reports and a variety of other communication tools.



Process of Preparing Resonac Report 2023

1 Decision of direction and message during meetings of the Sustainability Promotion Council, attended by the CEO and all other chief officers

2 Planning and preparation of content by means of monthly planning meetings
Members: CFO Hideki Somemiya, CSO Tomomitsu Maoka, and staff from the Investor Relations Department, the Organization & Talent Development Department, the Culture Communication Department, the Corporate Planning Department, the Brand Communication Department, and the Sustainability Department

3 Collaboration with content and support members from relevant divisions and draft writing

4 Discussion and approval by the Management Committee and the Board of Directors

Kick-off of planning meeting

A video highlighting Resonac's corporate philosophy as a Co-creative Chemical Company is available on our YouTube channel.

Resonac Holdings Corporation

Resonac Corporation

Tokyo Shiodome Bldg., 1-9-1, Higashi-Shimbashi, Minato-ku, Tokyo 105-7325, Japan

Head Office of Resonac was relocated to Shiodome in June 2023.

https://www.resonac.com/

Video Interactive safety patrol in new office