

# MATERIALITY BOOK 2024

— Challenging social issues through business —



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# President's Message

## By knowing things correctly, we contribute to solving social issues and changing the world

As global climate change intensifies and geopolitical risks continue to make social conditions unstable, we are working to strengthen our management foundation and our ability to address social issues through our business so that we can respond flexibly to all kinds of changes. Even in a world of complex changes, our core technologies, our areas of strength in Observation, Measurement, and Analysis, are indispensable for knowing things correctly and have the potential to solve various social issues. We make the invisible visible. We make the unknowable comprehensible. Knowing the task correctly is the starting point for solving social issues. Based on the recognition that knowing correctly is the starting point for changing the world, we engage in responsible dialogue with our stakeholders. We also contribute to solving social issues and realizing a sustainable society through our business by leveraging our cutting-edge technological development capabilities, products that leverage our strengths in Observation, Measurement, and Analysis, and our global network cultivated through our trading company business.

Based on the SDGs, which are common rules for the international community and positioned as targets to be achieved, the Group has identified [five materialities](#) and clarified what social issues it should address and how it can contribute to society by utilizing its business characteristics and business model to meet society's demands.

In addition, our ["Sustainability 2030"](#) Declaration clearly states the Group's commitment to creating value from the perspective of social issues by backcasting from its Vision for 2030. We aim to achieve our Vision for 2030 and change the world by "knowing correctly" to provide solutions that focus on the real issues that need to be solved for society and our customers.

### Takashi Iizumi

Representative Director and President  
Hitachi High-Tech Corporation



# "Sustainability 2030" declaration and the Stated Aims in Each Business

Under the Sustainability 2030 Declaration, we will create value originating from social issues by backcasting from the Stated Aims, our vision for what we want the Group to be in 2030

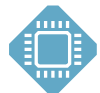


## Stated Aims for 2030 in Each Business Segment



### Healthcare Solutions

Amid demands to improve medical care quality and increase efficiency in line with the coming super-aged society, we are creating healthcare innovations that combine diagnoses, treatments, and digital technologies with the aim of creating a society where people do not fear cancer. We will collaborate with medical professionals to take on challenges aimed at resolving medical care issues through accurate diagnoses, minimally invasive treatments, and other initiatives, and contribute to improving people's quality of life (QoL) through healthcare optimized for each individual patient.



### Nano-Technology Solutions

There is demand for higher performance and lower power consumption of semiconductors as well as various environmental impact reductions, including reduced power consumption during manufacturing as digitalization progresses in all industries and the use of semiconductors continues to grow. As it moves toward 2030, Hitachi High-Tech will provide solutions for semiconductor manufacturing and reduce its environmental impact, thereby contributing to the advancement of the digital society and the realization of a decarbonized society.



### Value Chain Solutions

As we move toward 2030, there is a need to build a circular economy (circular value chain), and we will realize a recycling-oriented and decarbonized society through the creation of ecosystems providing pioneering, multifaceted, and optimal resolution proposals leveraging our front office capabilities and co-creation with customers to resolve issues faced by the engineering chain and the supply chain in various industrial fields that cannot be resolved by individual products alone.

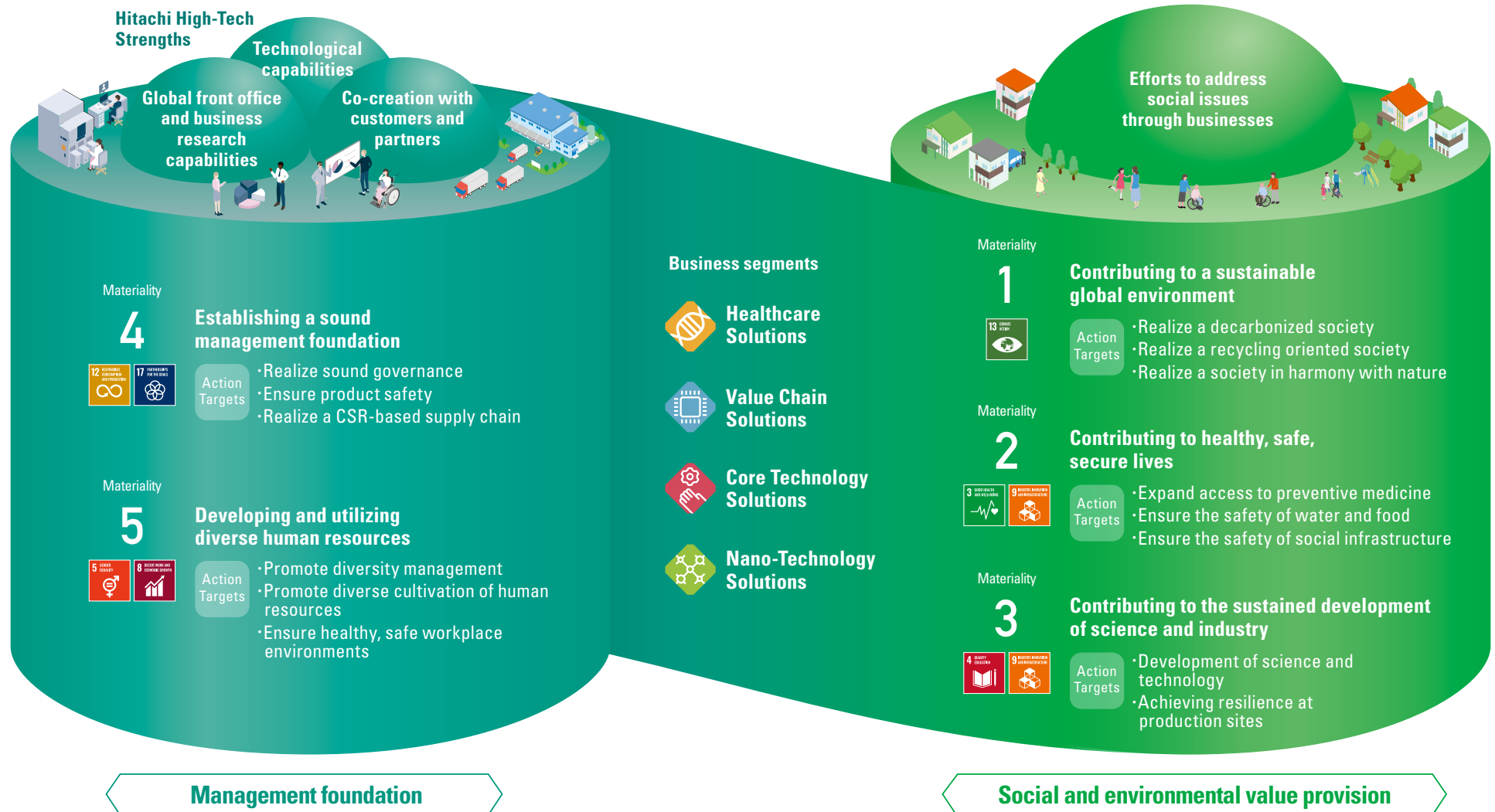


### Core Technology Solutions

Hitachi High-Tech will strengthen its fundamental and core technologies as molecule management becomes increasingly important in all industries. We will continue to create measurement and inspection solutions to solve customer issues, thereby contributing to the provision of social and environmental value.

# Materiality, Activity Goals and Related SDGs

From the perspective of societal demands and their importance to business, the Hitachi High-Tech Group has identified five themes as materiality to be addressed to solve social issues, based on the Sustainable Development Goals (SDGs), which are positioned as common rules and goals to be achieved by the international community.



Materiality



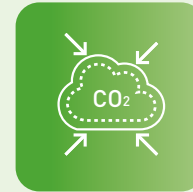
# Contributing to a sustainable global environment

## Basic Ideas and Visions

Corporate management in harmony with the global environment plays an important role in the sustainable development of society and companies. In addition to reducing resource and energy consumption as well as the environmental impact associated with business activities, the Hitachi High-Tech Group aims to achieve sustainable consumption and production through the provision of environmentally conscious products and services as well as initiatives throughout the value chain.

## [ Action Targets ]

### 1 Realize a decarbonized Society



To reduce CO<sub>2</sub> emissions from energy consumption associated with our business activities, we aim to achieve carbon neutrality at its sites by systematically investing in environmental equipment that has a meaningful impact on reducing CO<sub>2</sub> emissions and by actively promoting the use of renewable energy. We will also endeavor to reduce CO<sub>2</sub> throughout the value chain, including Scope 3 (CO<sub>2</sub> emissions from sites other than our own) emissions and our customers' contribution to CO<sub>2</sub> reduction.

### 2 Realize a recycling oriented society



Hitachi High-Tech strives to effectively use water, conserve resources, and reduce waste in its business activities. Specifically, we will reduce the amount of water used in factories and use fewer resources in the manufacture of products through the adoption of environmentally conscious design (eco-design) in products. In addition, with the aim of realizing a circular economy, we will work to develop and provide customers with solutions that contribute to resource recycling.

### 3 Realize a society in harmony with nature



In order to reduce the negative impact of business activities on natural capital, we will work to reduce the negative impact of chemical substance emissions, and aim to realize a rich future for both people and nature. We will work on biodiversity conservation activities such as forest conservation activities that will increase the positive impact.

## [ Action Plan ]



Realize a decarbonized society



Realize a recycling oriented society



Realize a society in harmony with nature



Healthcare Solutions



Nano-Technology Solutions



Value Chain Solutions



Core Technology Solutions



Common initiatives



Outside four business segments

	Content of Initiative	Social and Environmental Value	FY2022 Results	FY2023 Results	FY2024 Plan
1	<p>Provide high-performance, low-cost semiconductor manufacturing and testing solutions</p>	<ul style="list-style-type: none"> <li>Contribute to curbing CO<sub>2</sub> emissions increase due to the advance of digital society</li> <li>Contribute to curbing CO<sub>2</sub> emissions increase due to power consumption in the manufacture and use of semiconductors</li> </ul>	<ul style="list-style-type: none"> <li>Developed new equipment with improved power savings and processing capacity</li> <li>Launched sales of LS9600 new analysis equipment achieving high sensitivity and high processing capacity</li> <li>Contributed to higher efficiency in semiconductor material development by providing a combination of analysis and measurement equipment and AI-based MI solutions</li> </ul>	<ul style="list-style-type: none"> <li>Continued development of new equipment with improved power savings and processing capacity</li> <li>Launched sales of GT2000 and DI4600 measurement equipment realizing higher performance and faster processing with less energy consumption</li> <li>Continued to sell existing products and pursued further processing capacity enhancements using the continuous improvement process (CIP)</li> </ul>	<ul style="list-style-type: none"> <li>Initiatives toward the release of new equipment that saves power and improves processing capacity</li> <li>Reduce CO<sub>2</sub> emissions per wafer produced</li> <li>Reduce the amount of discarded parts by extending the service life of periodically replaced parts</li> </ul>
2	<p>Provide measurement and inspection solutions in the R&amp;D of materials to help achieving carbon neutrality</p>	<ul style="list-style-type: none"> <li>Contribute to the realization of a decarbonized society</li> </ul>	<ul style="list-style-type: none"> <li>Continued to provide measurement and inspection solutions</li> <li>Automated particle measurement and material analysis for batteries, catalysts, electronic materials, and contaminants</li> <li>Collaborated with companies, universities, and research institutes in various countries on R&amp;D of next-generation materials</li> </ul>	<ul style="list-style-type: none"> <li>Continued to provide measurement and inspection solutions for particle measurement and material analysis of batteries, catalysts, electronic materials, and contaminants</li> <li>Maintained efforts to provide solutions for companies, universities, and research institutes in various countries on R&amp;D of next-generation materials</li> </ul>	<ul style="list-style-type: none"> <li>Provide solutions for the development of fuel cells, solar cells, all solid state batteries, catalysts, and other energy-related materials</li> <li>Expand the regions in which we provide the abovementioned solutions</li> </ul>
3	<p>Provide solutions that contribute to manufacture of safe and inexpensive LiBs that drive electrification and development of next-generation LiBs</p>	<ul style="list-style-type: none"> <li>Contribute to the spread of decarbonized mobility</li> </ul>	<ul style="list-style-type: none"> <li>Developed LiB manufacturing facilities with high mass production performance</li> <li>Reduced the defect rate, power consumption, and waste materials by detecting contaminants with high accuracy in the LiB raw material intake and manufacturing processes</li> <li>Dispatched engineers to battery manufacturers aiming to develop next-generation LiBs to provide technical support</li> </ul>	<ul style="list-style-type: none"> <li>Continued to develop LiB manufacturing facilities with high mass production performance: High-speed, high-precision technology verification and development</li> <li>Expanded the range of LiB manufacturing equipment users</li> <li>Introduced inline contaminant inspection system to eliminate defects in the LiB manufacturing process and accelerate the reduction of defect rates, power consumption, and waste materials</li> <li>Increased number of engineers dispatched to customers aiming to develop next-generation batteries, and provided next-generation battery manufacturing equipment to enable customers to conduct prototyping and pilot production</li> </ul>	<ul style="list-style-type: none"> <li>Continued to expand the range of LiB manufacturing equipment users</li> <li>Continued to develop LiB production facilities with high mass production performance</li> <li>Significantly reduced defect rates by implementing comprehensive DX-based inspections throughout the entire manufacturing process, including upstream</li> <li>Expanded next-generation battery manufacturing facility users</li> </ul>
4	<p>Create energy, introduce renewable energy, and conserve energy with the aim of achieving carbon neutrality in the Group's global factories and offices</p>	<ul style="list-style-type: none"> <li>Eliminate CO<sub>2</sub> emissions (Scope 1, 2)*<sup>1</sup></li> </ul>	<ul style="list-style-type: none"> <li>Converted to renewable energy</li> <li>CO<sub>2</sub> reductions: 27,400 t-CO<sub>2</sub></li> <li>Domestic sites achieving carbon neutrality in FY2022: 0 (cumulative total: 7)</li> <li>Acquired CDP "A" rating</li> </ul>	<ul style="list-style-type: none"> <li>Converted to renewable energy</li> <li>CO<sub>2</sub> reductions: 19,600 t-CO<sub>2</sub></li> <li>Acquired CDP "A" rating</li> </ul>	<ul style="list-style-type: none"> <li>Convert to renewable energy</li> <li>CO<sub>2</sub> reductions: 18,600 t-CO<sub>2</sub></li> <li>Domestic sites achieving carbon neutrality in FY2024: 1 (cumulative total: 8)</li> <li>Regularly invest in environmental equipment</li> </ul>
5	<p>Support procurement partners in visualizing and reducing CO<sub>2</sub> emissions from products and commercialization aimed at provision to customers</p>	<ul style="list-style-type: none"> <li>Contribute to the elimination of CO<sub>2</sub> emissions (Scope3)*<sup>2</sup></li> </ul>	<ul style="list-style-type: none"> <li>Began monitoring procurement partner CO<sub>2</sub> emissions: Actual: 558 companies /Number of companies to be monitored: 1,590 (Company requests in FY2022: Approximately 800) Monitoring rate: 35.1%</li> <li>Launched support for environmentally advanced partner company*<sup>3</sup> CO<sub>2</sub> reduction efforts</li> </ul>	<ul style="list-style-type: none"> <li>Continue monitoring procurement partner CO<sub>2</sub> emissions: Results: 633 companies (accumulated) /Number of companies to be monitored: 1,189 (Company requests in FY2024: 801) Monitoring rate: 53.3%</li> <li>Conducted analysis of environmentally advanced partner companies to reduce CO<sub>2</sub> emissions</li> <li>Commenced operation of a greenhouse gas (GHG) calculation tool (online system) facilitating the collection and aggregation of CO<sub>2</sub> emission data from individual domestic supplier companies</li> </ul>	<ul style="list-style-type: none"> <li>Continue monitoring procurement partner CO<sub>2</sub> emissions: Target: 820 companies (cumulative total) (Company requests in FY2024: 1,172) Monitoring rate: 70.0%</li> <li>Ascertain the CO<sub>2</sub> emissions of each overseas Group base procurement partner</li> <li>Expand number of environmentally advanced partner companies</li> <li>Aim to develop and commercialize a GHG calculation tool (web system) for each part that collects and aggregates supplier CO<sub>2</sub> emissions</li> </ul>

\*1 Scope 1 refers to Hitachi High-Tech emissions; Scope 2 refers to indirect emissions from electricity, heat, steam, and other energy sources purchased and used by the Company

\*2 Scope 3 refers to indirect emissions other than those in Scope 2 (emissions from other companies involved in Hitachi High-Tech business activities)

\*3 Partner companies engaged in advanced environmental activities through environmental management systems, etc.

## [ Action Plan ]



	Content of Initiative	Social and Environmental Value	FY2022 Results	FY2023 Results	FY2024 Plan
<b>6</b>	<p>Develop and provide solutions to increase corporate value for customers in the value chain, including lithium-ion battery reuse/recycling and manufacturing for commercial EV fleet management operators and similar companies*1</p>	<ul style="list-style-type: none"> <li>Promote the transition to EVs</li> <li>Extend the life of lithium-ion battery resources</li> <li>Make effective use of valuable metals</li> <li>Reduce the environmental impact of production and recycling processes</li> </ul>	<ul style="list-style-type: none"> <li>Developed remote degradation diagnostic services for on-board automotive lithium-ion batteries, incorporated customer PoC and PoV</li> <li>Continued to develop EV transition simulation app facilitating the quantification of CO<sub>2</sub> emission reductions and other effects associated with the transition to EVs</li> </ul>	<ul style="list-style-type: none"> <li>Incorporated customer PoC and PoV into remote degradation diagnostic services for on-board automotive lithium-ion batteries in preparation for commercialization</li> <li>Used the app simulating the transition to EVs, incorporate PoV into the creation of proposals for the new introduction of EVs and switched from internal combustion engine vehicles (gasoline and diesel-powered vehicles, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>Together with partners on a global basis, provide these solutions to the value chain of EVs and lithium-ion batteries, including recycling and energy storage companies as well as car leasing companies and other fleet operators</li> </ul>
<b>7</b>	<p>Develop and provide new manufacturing methods that enable the production of aluminum products using recycled materials</p>	<ul style="list-style-type: none"> <li>Contribute to the realization of aluminum recycling in manufacturing</li> </ul>	<ul style="list-style-type: none"> <li>Commercialized aluminum sheet process method (aluminum hot stamping) using 100% recycled materials, commenced collaborations with partners toward mass production</li> <li>In addition to applying 100% recycled aluminum sheets to chairs and snow shovels, we developed bicycle frames in cooperation with a domestic bicycle manufacturer that were exhibited at festivals</li> <li>Participated in the research and development of an industrial robot prototype</li> </ul>	<ul style="list-style-type: none"> <li>Committed to mass production and sales of bicycles using frames made from 100% recycled aluminum</li> <li>Conducted consider on application of industrial robots with companies</li> </ul>	<ul style="list-style-type: none"> <li>Mass production and sale of bicycles with frames made from 100% recycled aluminum</li> <li>Continue considering proposals with companies for industrial robots</li> </ul>
<b>8</b>	<p>Initiatives to improve resource and water use efficiency at domestic Group companies</p>	<ul style="list-style-type: none"> <li>Resource conservation, waste reduction, and effective use of water resources</li> </ul>	<ul style="list-style-type: none"> <li>Waste generation: Improved 38.1% per unit*2</li> <li>Water usage: Improved 49.5% per unit*2</li> </ul>	<ul style="list-style-type: none"> <li>Waste generation: Improved by 38.0% per unit*2</li> <li>Water usage: Improved by 67.9% per unit*2</li> </ul>	<ul style="list-style-type: none"> <li>Waste generation: Improve by 38.1% or higher per unit*2</li> <li>Water usage: Improve by 49.5% or higher per unit*2</li> </ul>
<b>9</b>	<p>Biodiversity Conservation Initiatives</p>	<ul style="list-style-type: none"> <li>Contribute to realizing a society in harmony with nature</li> <li>Raise employee awareness and implement activities to revise operations and business from the perspective of global environmental conservation</li> </ul>	<p>Conducted biodiversity conservation activities, and provided employees with opportunities to participate</p> <ul style="list-style-type: none"> <li>Began involvement with Takao Forest Nature School activities</li> <li>Expanded and maintained insect hotels at the Hitachi High-Tech Science Forest</li> <li>Planted and monitored local native species at the Hitachi High-Tech Yasato Forest</li> <li>Conducted hybrid biodiversity conservation activities that can be done at home</li> </ul>	<p>Continued conducting biodiversity conservation activities, and providing employees with opportunities to participate</p> <ul style="list-style-type: none"> <li>Expanded Takao Forest Nature School activity content and participants</li> <li>Pruned branches, and maintain and monitor birdhouses at the Hitachi High-Tech Yasato Forest</li> <li>Conducted biodiversity conservation activities that can be done at home</li> <li>Ministry of the Environment certification of our biodiversity website</li> </ul>	<p>Promote activities aimed at expanding areas and species for inclusion in biodiversity conservation</p> <ul style="list-style-type: none"> <li>Register OECM*3 certification for the Hitachi High-Tech Science Forest</li> <li>Expand the area of mixed needle and broadleaf forest in the Hitachi High-Tech Yasato Forest</li> </ul>

\*1 Transportation, bus, taxi, rental car, and leasing companies as well as and other businesses that operate a large number of vehicles for the purpose of moving people and goods.

\*2 Base year: FY2010

\*3 Natural environment conservation in cooperation with the private sector in areas other than national parks or other protected areas where biodiversity can be conserved.



# Contributing to the resolution of lithium-ion battery (LiB) issues, from initial development to final reuse

## Materiality1 Action Target1 Action Target2

- Action Plan 3** Provide solutions that contribute to manufacture of safe and inexpensive LiBs that drive electrification and development of next-generation LiBs
- Action Plan 6** Developing and providing solutions to increase corporate value for customers in the value chain, including lithium-ion battery reuse, recycling, and manufacturing, starting with commercial EV fleet management companies

Keywords

Pre-engineering

Contaminant inspection

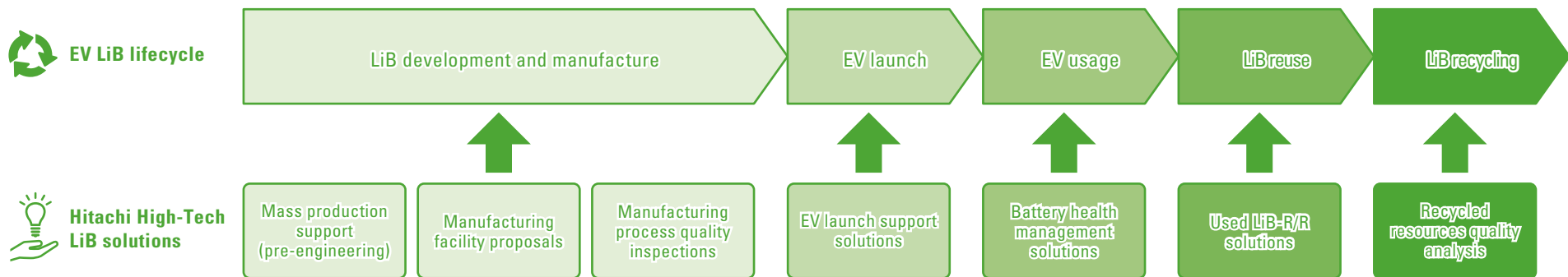
LiB lifecycle management solutions

### Developing solution supporting the accelerating shift to EVs

To counter global warming, the automobile industry is accelerating the shift from gasoline and diesel to electric vehicles (EV). We propose LiB\*1 manufacturing facilities essential for EVs, and provide development and production support to manufacturers of next-generation batteries (advanced LiB\*2, all-solid-state batteries\*3, etc.). We also provide inspection solutions to ensure battery manufacturers produce safe LiBs. Furthermore, we aim to develop solutions that cover the entire LiB lifecycle, from decisions regarding EV launches, optimal EV operation and maintenance, and extending LiB lifespans, to their reuse and recycling.

### Pre-engineering activities supporting the development and manufacture of next-generation batteries

LiBs used in EVs at present are expected to account for more than 60% of the mobility battery market by 2030. At the same time, the development of next-generation batteries with reduced environmental impact and higher performance is also accelerating, and research and development is progressing around the world aimed at practical application and mass production. Hitachi High-Tech dispatches engineers to manufacturers that have recently entered the next-generation battery manufacturing industry, and our expanded manufacturer support, from the development of prototype lines to the development of equipment for mass production, facilitates the realization of prototype and pilot production. We will continue to support advanced battery development and accelerate efforts to quickly realize a decarbonized society.



\*1 Lithium-ion batteries (LiB): Considered to be relatively environmentally friendly, as they do not use lead, cadmium, or other harmful substances. Recycling technologies are also advancing, making it possible to extract resources from used batteries.

\*2 Advanced LiB: Next-generation secondary batteries based on existing LiBs that offer improved performance.

\*3 All-solid-state batteries (all-solid-state lithium-ion secondary batteries): Batteries with solid rather than liquid electrolytes, which improves safety and reduces the risk of fire. As they are also capable of rapid charging, they are expected to be used in electric and other vehicles.

## Protecting the quality and safety of LiBs with inspection solutions that instantly detect contaminants

LiB safety and quality requirements are becoming increasingly stringent. If metal fragments or other contaminants are allowed into the LiB manufacturing process, even if they are microscopic, they can affect quality, including reducing battery life. Furthermore, LiBs that include contaminants may overheat or even ignite, which could lead to vehicle fire or cause personal injury. Hitachi High-Tech provides inspection solutions that detect contaminants at LiB manufacturing sites. In FY2023, we introduced and began verification of X-ray Particle Contaminant Analyzer EA8000A used for sampling inspections, as well as the X-ray inline metal particle contaminant inspection system, a new contaminant inspection solution for 100% inspections.

Introducing particle contaminant inspection systems on production lines (in-line) facilitates the visualization of the extent to which contaminants are generated in the manufacturing process, which is useful for reducing defect rates. Additionally, contaminants can be removed from the manufacturing process at an early stage, contributing to lower material costs. In FY2024, we will repeatedly engage in discussions with customers and promote efforts aimed at reducing contaminated product disposal costs, and begin considering inspection solutions for next-generation batteries.

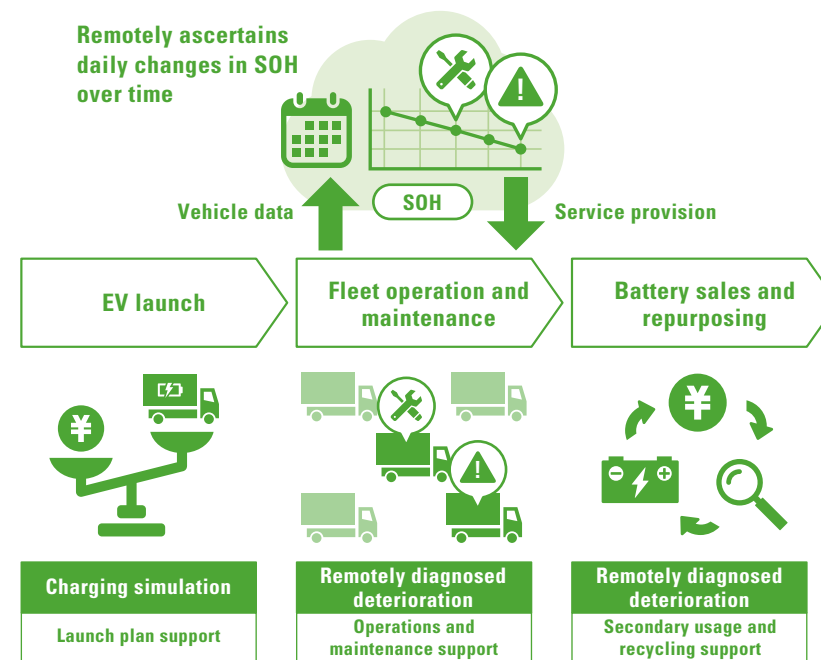
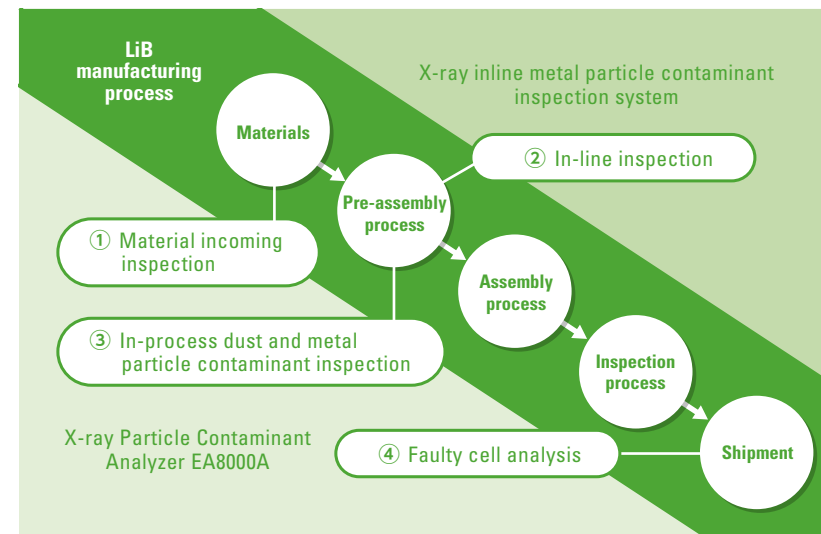
Going forward, we aim to develop services utilizing artificial intelligence (AI) to further improve manufacturing efficiency and reduce material waste, as well as to predict and prevent particle contamination before it occurs. We will continue to contribute to the global environment and the development of science and industry through innovations that support LiB production lines.

## Total resolution of LiB lifecycle issues

Across a wide range of industries, there are high expectations for the expansion of electrification in commercial EVs, buses, construction machinery, agricultural machinery, ships, and railways. At the same time, the introduction of EVs requires considerations and operations that differ from those related to internal combustion engine vehicles in terms of cost, operational efficiencies, and regulatory compliance. Accordingly, we developed technologies to remotely diagnose LiB deterioration based on issues faced by fleet operators<sup>\*4</sup>. By continuously estimating battery state of health (SOH) and optimally timing operation and maintenance accordingly, we are able to streamline operation and maintenance, while also minimizing LiB deterioration and achieving longer lifespans. In addition, after the end of their useful life in EVs, automotive LiBs are expected to be used for other purposes. Managing and visualizing changes in SOH over time along with operational history data starting from when the LiB was installed in the vehicle facilitates the appropriate use of LiBs for secondary applications and recycling. In FY2023, we collaborated with a major commercial EV rental company and confirmed the feasibility of estimating LiB degradation remotely with a high degree of precision, as well as the potential for providing value such as extending battery life through remote SOH diagnoses.

Reducing CO<sub>2</sub> emissions through electrification also leads to the quantification and distribution of environmental values, such as the certification and trading of emission rights and carbon credits. Additionally, EVs have their own unique issues, such as insurance premiums, financing, and resale value, and the utilization of vehicle and battery operation data will help resolve these issues as well. Going forward, we will collaborate with a variety of companies to create LiB lifecycle management solutions that resolve battery lifecycle issues, such as promoting secondary applications for used LiBs and maximizing their lifetime value, with the aim of further expanding economic and environmental value.

<sup>\*4</sup> Transportation, bus, taxi, rental car, and leasing companies as well as other businesses that operate a large number of vehicles for the purpose of moving people and goods.



## Looking to our future: All sites will be carbon neutral by 2027

### One of the first in the Hitachi Group to start converting to renewable energy

To prevent the spread of global warming, Hitachi High-Tech is investing in a variety of energy-saving measures to reduce CO<sub>2</sub> emissions, including the replacement of air conditioning with high-efficiency equipment and LED lighting, and the introduction of solar power generation. The Paris Agreement of 2015, which sets targets to limit the increase in global average temperatures, was the impetus for these initiatives. In response to the adoption of this Paris Agreement, we began to constrict total CO<sub>2</sub> emissions from FY2019. We were one of the first companies in the Hitachi Group to launch initiatives to achieve carbon neutrality. Currently, we are steadily switching the electricity used at our domestic manufacturing sites from sources such as fossil fuels like petroleum to renewable energy sources that do not emit CO<sub>2</sub>, including hydroelectric and solar power.

### Aiming to achieve carbon neutrality at all sites, both domestic and overseas, by FY2027

By FY2023, Hitachi High-Tech had eight domestic sites that had achieved carbon neutrality. The total amount of CO<sub>2</sub> emissions has been reduced by approximately 31% compared to FY2018, the year before these initiatives began. Overseas, Hitachi High-Tech America, Inc. started CO<sub>2</sub> emission reduction initiatives in FY2024. We aim to reduce CO<sub>2</sub> emissions from electricity and fuel consumption to zero by FY2027. The Hitachi High-Tech Group will continue to strive to achieve its targets, including maximizing the use of renewable energy at all 144 locations (as of the end of FY2023), regardless of the size or geography or whether it is a manufacturing or sales site.

### Establishing a promotion plan tailored to the situation at each site and implementing initiatives in steps

In promoting carbon neutrality, we conduct preliminary studies in each country and region on policies and the supply-demand situation for renewable energy and then formulate promotion plans for each local subsidiary. Based on these promotion plans and with the aim of realizing a decarbonized society, we will also introduce various environmental measures, such as investments in energy conservation and the use of renewable energy, at our new semiconductor manufacturing facility and new site for molecular diagnostic-related equipment.

## Materiality1 Action Target1

Action Plan 4 Initiatives for energy creation, introduction of renewable energy, and energy conservation aimed at carbon neutrality at our group's global factories and offices

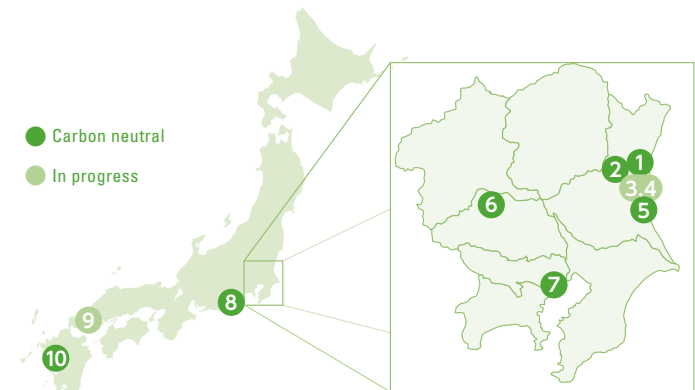
Key words

Global warming

CO<sub>2</sub> emissions reduction

Renewable energy

### Achievement of carbon neutrality at major sites in Japan



- 1 Hitachi High-Tech Manufacturing & Service Corporation 6th Branch Office
- 2 Hitachi High-Tech Solutions Corporation Mito Division
- 3 Hitachi High-Tech, Naka Area
- 4 Head Office, Hitachi High-Tech Manufacturing & Service Corp.
- 5 Hitachi High-Tech, Naka Area
- 6 Hitachi High-Tech, Saitama Site
- 7 Head Office Building
- 8 Hitachi High-Tech Science Corporation Fuji Oyama Works
- 9 Hitachi High-Tech, Kasado Area
- 10 Hitachi High-Tech Kyushu



New manufacturing building at Hitachi High-Tech's Kasado Area (image of completion)

## Promoting biodiversity activities in our surroundings and leaving a better natural environment for the future

### Conservation of the natural environment is an important factor in corporate activities

There is a growing sense of urgency worldwide regarding the loss and degradation of natural capital, including biodiversity. The business activities of the Hitachi High-Tech Group benefit from natural capital (ecosystem services) while exerting some impact on the environment. As the deterioration of natural capital becomes more serious, the potential for increased risk in the Hitachi High-Tech Group's value chain increases. As such the Group is strengthening its natural capital initiatives.

With "Contributing to a sustainable global environment" identified as a materiality, the Hitachi High-Tech Group is promoting biodiversity conservation initiatives with the aim of creating a future in which people and nature can prosper together. We have been conducting forest conservation activities at the Hitachi High-Tech Yasato Forest, a national forest that we have leased since 2005, with an eye toward the next 60 years. Also, in 2015, we established the Woodlands of Hitachi High-Tech Science on the premises of the Hitachi High-Tech Science Fuji Oyama Works, where we are engaged in various activities to restore the ecosystem and conserve biodiversity by introducing plant species native to the area.

### Deepening the understanding of more people is a key element of biodiversity conservation activities

It takes a long time to restore native ecosystems. For this reason, Hitachi High-Tech's biodiversity conservation activities invite employees of various generations and their families to participate, while nurturing the next generation of interested individuals. In FY2023, employees and their families worked together in the forest maintenance area of the Takao Forest Nature School managed by the Seven-Eleven Foundation to conduct forest maintenance, observe the insect hotel, and create craft work using bamboo and other materials collected from the area. Expanding the on-site activities using tree branches and other materials collected at the Takao Forest Nature School, we are introducing initiatives that allow people in areas distant from the forest to participate in biodiversity conservation activities online. As one facet of this, in FY2023 employee volunteers from Hitachi High-Tech Group companies in Japan made lampshades.

### To pass down a better natural environment to the next generation

In 2024, the Woodlands of Hitachi High-Tech Science was certified by the Ministry of the Environment as a Natural Symbiosis Site—an area where "biodiversity is protected through private initiatives"—and will also be registered in an international database as OECM (Other Effective Area-based Conservation Measures). This was in recognition of our ongoing initiatives with our employees.

Furthermore, the Woodlands of Hitachi High-Tech Science is focused on establishing insect hotels (places for insects to nest in winter). Members of a nature observation group comprising of employee volunteers observed the insect hotels and were able to confirm evidence of insects. Hitachi High-Tech Group will continue to accelerate its initiatives to achieve a future in which people and nature can prosper together.

## Materiality1 Action Target3

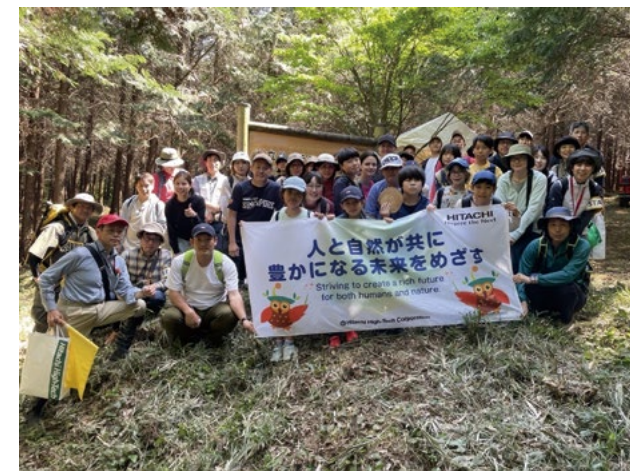
### Action Plan 9 Initiatives for biodiversity conservation

Key words

Biodiversity

Fostering the next generation

Certified nature co-existence site



Hitachi High-Tech Yasato Forest



Inside an insect hotel

Insect hotel

# The challenge of going plastic-free: Changing transport packaging materials

## Materiality1 Action Target2

### Key words

Becoming plastic free

Responsibility to produce

Responsibility to use

## The transition to plastic free

Plastics emit large amounts of CO<sub>2</sub> during their manufacturing process and incineration. And left disposed in nature, they can cause soil and marine pollution. The movement toward plastic-free is currently accelerating worldwide. The EU adopted the Single-Use Plastics Directive in 2019, which regulates plastic tableware, straws, and containers. In addition, policy to tax non-recyclable plastics was set in 2021, and many member countries are moving in the direction of taxation. In response to this trend, the plastic cushioning material that has been used for many years for shipping spare parts for biochemical and immunoanalyzers to our partners has been replaced with recyclable recycled paper cushioning material.

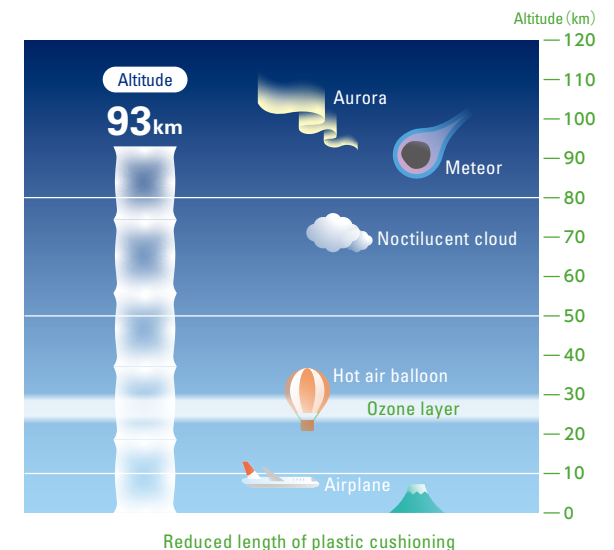
## Changing to environmentally conscious cushioning material while maintaining shipping quality

When shipping spare parts to our partners, we formerly used multiple layers of plastic cushioning material to protect the products from external shocks during transportation and maintain the quality of shipping. Meanwhile, using plastic cushioning materials in large quantities as the accelerating trend toward phasing out plastics made plastic waste an issue for partner companies and motivated us to reconsider the cushioning materials we use.

During this review, we set policies to reduce the volume of materials used, change to environmentally friendly cushioning materials, and review packaging methods. Specifically, Hitachi High-Tech has adopted the principle of collective packaging, in which multiple types of spare parts are packed together. When extra space is available in the outer box, the amount of cushioning material required has been greatly reduced by trimming the outer box down to match the item to be delivered. Even though the cost of recycled paper cushioning material itself is more expensive than plastic cushioning material, we were able to change to recycled paper cushioning material at no additional cost. We have also conducted impact tests and tested actual transportation routes with the cooperation of our partners to ensure that there are no issues with shipping quality.

## Reduction impact by changing cushioning material

As a result of reviewing packing methods and switching to recycled paper cushioning materials, in FY2023 we reduced the length of plastic cushioning materials by approximately 93 km, equivalent to 271 tons of CO<sub>2</sub> emissions during air shipping. In addition, shipping costs were reduced by the equivalent of approximately ¥25 million. Moreover, our partners are reusing the recycled paper cushioning materials sent from us as new packaging, leading to further reductions in packaging materials. We will continue to actively engage in methods that are unbound by conventional methods to lessen our environmental impact.



Air flights (Haneda⇄Frankfurt economy)	Equivalent to about 212 round-trips
Annual CO <sub>2</sub> absorption by cedar trees	Equivalent to about 30,795 trees
Shipping cost	Approx. ¥25 million

Effect of reducing CO<sub>2</sub> (271t)

## Eco-design initiatives for a sustainable society

### Materiality1 [Action Target1](#) [Action Target2](#) [Action Target3](#)

#### Key words

Eco design

Environmentally conscious design

LCA (life cycle assessment)

### Contribute to solving environmental issues by developing and promoting products and services with high environmental value

To help achieve a sustainable society, Hitachi High-Tech has been conducting eco-design evaluations for all newly developed products since FY2016. From the product development to each stage of the product life cycle, we have identified 30 environmental impact items that affect climate change, resource depletion, and ecosystem degradation. We are working to make improvements by evaluating environmental impact reduction from multiple fronts. Hitachi High-Tech also incorporates design and development processes that comply with the international standard IEC 62430\*1. In particular, the reduction of CO<sub>2</sub> emissions during use of sold products (Scope 3 Category 11) leads to the reduction of CO<sub>2</sub> emissions by our customers. Hitachi High-Tech is committed to providing environmental value as an added value to its products.

### Examples of eco-design achievements in FY2023

#### ●Dark Field Wafer Defect Inspection System DI4600

A dark field wafer defect inspection system detects contaminants and defects in each semiconductor device manufacturing process and reports the number of defects and their detected positions. This device has improved throughput by about 30% and reduced CO<sub>2</sub> emissions by about 35%\*2 on the same platform and with the same power consumption as the previous model. Also, motor control has been switched to a communication specification using LAN cables, which reduces the number of boards and wiring, while LEDs have replaced consumable halogen lamps to extend service life and contribute to resource conservation.

#### ●High-Precision Electron Beam Metrology System GT2000

A high-precision electron beam metrology system (critical dimension-scanning electron microscope (CD-SEM)) measures the finish of semiconductor devices at the nanometer level in each semiconductor manufacturing process. By feeding back measurement results to semiconductor manufacturing equipment, these systems contribute to yield improvement and new product development in semiconductor device manufacturing by our customers. The GT2000 improves throughput by 25% and reduces CO<sub>2</sub> emissions by approximately 50%\*2 compared to the previous model. Power consumption efficiency has been improved by 10% through the use of a switching power supply with established low-noise technology. Other measures such as the use of non-CFC cooling units also contribute to the reduction of environmental impact.

#### ●cobas c 703 analytical units

Automated biochemical analyzers are devices that analyze bodily fluids such as blood and urine to help diagnose and treat diseases. This equipment reduces CO<sub>2</sub> emissions by approximately 42%\*2, power consumption per unit analysis performance by approximately 38%, and water consumption by approximately 28% compared to the previous model.

Additionally, by reducing the amount of unusable liquid left in detergent bottles by up to 71%, we are reducing the amount of detergent that is wasted.

Furthermore, by using LEDs instead of consumable halogen lamps, the frequency of replacement has been reduced. In addition, for some maintenance items that are difficult for users to handle themselves, the device can self-diagnose and automatically adjust, allowing users to carry out the maintenance themselves, reducing the frequency of service visits and the CO<sub>2</sub> emissions that would otherwise be associated with vehicle visits.

### Toward further reduction of environmental impact

Various laws and regulations related to climate change, the circular economy, and biodiversity are being enforced and strengthened across the globe. Customers also have high environmental goals to achieve a sustainable society.

To address environmental regulations and customer demand, Hitachi High-Tech will further reduce CO<sub>2</sub> emissions during product use, increase the use of environmentally friendly materials in its products, and promote the reuse of parts. Additionally, to minimize negative impacts on natural capital, we will continue to engage in various activities to reduce environmental impact, including improving the energy efficiency of our products and services and appropriately managing chemical substances.

\*1 An International Electrotechnical Commission standard that defines environmentally conscious design for electrical and electronic products.

\*2 CO<sub>2</sub> emission reduction rate considering the amount of functions (compared to 2010 standard products)



Dark Field Wafer Defect Inspection System DI4600



High-Precision Electron Beam Metrology System GT2000



cobas c 703 analytical units

Materiality

2



# Contributing to healthy, safe, secure lives

## Basic Ideas and Visions

"Healthy, safe and secure lives" is a common desire for all people. By further mastering the "Observation, Measurement, and Analysis" (measurement and analysis technology) that we have cultivated up until now, the Hitachi High-Tech Group will contribute to a future where people can continue to live healthy and fulfilling lives, centered on three fields of medicine, water/food, and social infrastructure.

## [ Action Targets ]



### 1 Expand access to preventive medicine

We develop and provide in-vitro diagnostic equipment facilitating highly accurate and efficient diagnoses, as well as minimally invasive treatment equipment that enabling patients to balance cancer treatment with work. By digitally connecting these devices and supporting the selection of the optimal treatment for each patient, we will contribute to improving people's QoL and realizing a sustainable social system.



### 2 Ensure the safety of water and food

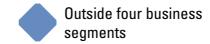
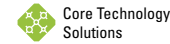
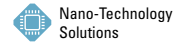
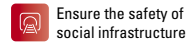
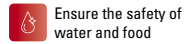
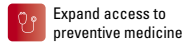
We will help prevent the accumulation of hazardous substances in water, food, the human body, and elsewhere by developing and providing testing systems specialized for specific markets. In addition, we will supply safe water and support people's safe lives by providing measurement systems for filtered water and drainage in water and sewage systems.



### 3 Ensure the safety of social infrastructure

By realizing non-destructive rapid diagnosis and predictive diagnosis for structures such as roadways, tunnels, railways, and airports, we will contribute to ensuring the safety of social infrastructure and support the safe lives of people.

[ Action Plan ]



	Content of Initiative	Social and Environmental Value	FY2022 Results	FY2023 Results	FY2024 Plan
1	<p>Provide molecular diagnostic testing services and equipment that contribute to the diagnosis and treatment of intractable diseases (e.g., cancer)</p>	<ul style="list-style-type: none"> <li>Contribute to the realization of both improvement of the quality of medical care and reduction of medical costs</li> </ul>	<ul style="list-style-type: none"> <li>Established the Healthcare Innovation Center Tokyo integrated laboratory to engage in collaborative creation with customers and business partners.</li> <li>Strengthened partnership with Invivoscribe to provide solutions to medical institutions and pharmaceutical companies.</li> </ul>	<ul style="list-style-type: none"> <li>Concluded agreement with Sysmex Corporation to collaborate on development of new genetic testing systems to promote genomic medicine</li> </ul>	<ul style="list-style-type: none"> <li>Launch a new inspection system and expand new inspection items with the system.</li> </ul>
2	<p>Provide radiation therapy that contributes to the treatment of cancer, etc.</p>	<ul style="list-style-type: none"> <li>Improving the quality of medical care and reducing medical costs by realizing value-based healthcare</li> </ul>	<ul style="list-style-type: none"> <li>Development of X-ray therapy equipment</li> <li>Development of new accelerators</li> </ul>	<ul style="list-style-type: none"> <li>Launched OXRAY X-ray therapy system</li> <li>Continued development of new linear accelerators</li> </ul>	<ul style="list-style-type: none"> <li>Expand provision of X-ray therapy device OXRAY</li> <li>Continued development of new accelerators</li> </ul>
3	<p>Provide equipment and services to detect hazardous substances in products and materials</p>	<ul style="list-style-type: none"> <li>Contribute to the prevention of the spread of substances that pose health hazards</li> </ul>	<ul style="list-style-type: none"> <li>Continued to provide equipment and services for screening and testing for substances restricted under the RoHS Directive</li> </ul>	<ul style="list-style-type: none"> <li>Continued to develop and provide equipment and services to enable screening tests for substances restricted under the RoHS Directive</li> </ul>	<ul style="list-style-type: none"> <li>Develop and provide equipment and services to enable screening tests for additional (prospective) substances restricted under the RoHS Directive</li> </ul>
4	<p>Provide engineering services for photonic integrated circuits (PICs) used in large-scale data centers and core communication networks</p>	<ul style="list-style-type: none"> <li>Contribute to the development and heightened stability of telecommunications infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>Provided global photonic integrated circuit (PIC) designs and experiences for 400 gigabytes and next-generation 800 gigabytes optical communications.</li> </ul>	<ul style="list-style-type: none"> <li>Designed and developed PICs for next-generation, high-speed, long-distance transmissions</li> <li>Strengthened systems and services through the introduction of additional optical wafer testing equipment</li> </ul>	<ul style="list-style-type: none"> <li>Design, develop and provide PICs used in various fields by utilizing new design technology</li> </ul>



# Development and provision of next-generation radiation therapy equipment that helps cancer patients balance treatment and work

## Materiality2 Action Target 1

Action Plan 2 Provide radiation therapy that contributes to the treatment of cancer, etc.

Key words

Treatment and daily life

Cancer treatment with minimal physical burdens

## Next-generation radiotherapy equipment that minimizes patient burdens targeted by Hitachi High-Tech

With the aging of Japan's population, the number of cancer patients is increasing, and there is a growing need for radiotherapy that places less of a burden on the body. Hitachi High-Tech aims to provide treatment solutions that further reduce physical burdens during treatment through low-exposure, minimally invasive radiotherapy, requiring fewer hospital visits.

The three main types of cancer treatment are surgery, chemotherapy, and radiotherapy. Radiotherapy is a treatment in which radiation is applied to cancer lesions. When cancer cells are exposed to radiation, their genes are damaged, preventing them from multiplying and causing them to die. We will improve radiotherapy precision by developing equipment and technologies that can deliver focused radiation to cancer.



OXRAY linear accelerator system

## Developing equipment that contributes to improving patient quality of life and is easy for medical professionals to operate

We launched sales of X-ray therapy equipment OXRAY in 2024, which are provided to hospitals. There are three main types of radiation used in radiotherapy: X-rays, proton beams, and heavy ion beams. With the launch of OXRAY, Hitachi High-Tech has become the only Company in the world to offer all three main types of radiotherapy equipment. OXRAY can deliver therapeutic X-rays with pinpoint accuracy to cancer cells. This enables treatment with fewer side effects and minimal impact on normal tissues.

Advances in radiotherapy systems will reduce physical burdens caused by surgery, making it possible to receive treatment on an outpatient basis, thereby reducing the impact on people's lives and work.

The compact design of the OXRAY enables it to be installed at medical institutions specializing in radiotherapy and cancer centers, as well as at core hospitals that serve as regional medical centers. The software for the main unit control panel also features a user interface that can be operated intuitively by medical professionals. In addition, remote maintenance is conducted to detect equipment malfunctions in real time. We provide maintenance support in an effort to minimize equipment downtime and lost treatment opportunities for patients.



Image of radiation exposure

## Toward the establishment of safer, less burdensome treatment methods

At present, we are developing next-generation particle beam systems leveraging technologies cultivated in our radiotherapy systems. The characteristics of the particle beam and the control functions of the equipment enable the delivery of particle beams adapted to the location and size of tumors inside the body.

As a result, the effect on normal tissues and vital organs near the tumor is minimized. We are also developing a new type of accelerator capable of delivering high-precision, high-dose-rate irradiation, that is compact and low-cost enough to be easily installed in hospitals. Furthermore, we have established the world's first highly efficient, high-quality production technology for actinium-225, a material required for targeted alpha particle therapy\*, a form of cancer radiotherapy administered from outside as well as inside the body. We are currently investigating the practical application of this technology for medical purposes.

Going forward, Hitachi High-Tech will continue utilizing proprietary mechanisms and treatment methods to provide opportunities for patient-friendly, high-precision treatments, thereby contributing to healthy, safe, and secure lifestyles.

\* A treatment that attacks cancer cells from within the body by administering to the patient a therapeutic agent that combines Actinium-225, which emits alpha rays that destroy cancer cells, and a drug that selectively accumulates in cancer cells.

# Contributing to the creation of next-generation digital infrastructure through engineering services for photonic integrated circuits

## Materiality2 Action Target3

**Action Plan 3** Provide engineering services for photonic integrated circuits (PICs) used in large-scale data centers and core communication networks

Key words

Increased telecommunications traffic and higher speeds

Reduced power consumption

Next-generation green data centers

Photoelectric convergence

Photonic integrated circuits

## Promoting the greening of data centers that consume vast amounts of energy

Data traffic is increasing rapidly in line with the expanding consumption of entertainment content such as videos and games, the spread of remote work, and the expansion of services that utilize generative AI and automated automobile driving systems. Large-scale data centers that support these data communications operate thousands of servers and network devices, consuming vast amounts of electricity, and there is a growing demand both in Japan and overseas for environmental measures aimed at carbon neutrality.

To this end, photonic integrated circuits (PICs) made with photoelectric convergence technologies are attracting attention. Photoelectric convergence technologies merge circuits that handle electrical signals with circuits that handle optical signals, enabling higher speed communications and lower power consumption than conventional electronic circuits. Data centers can be operated using less power, which contributes to the reduction of CO<sub>2</sub> emissions and is expected to be utilized in green data centers.

## Accelerating development speed and increasing yields in the development of next-generation PICs

Group company VLC Photonics provides PIC design services that contribute to high-speed, high-capacity transmissions. As practical applications for PICs advances rapidly, we have established a system that can consistently undertake engineering services for the development of PICs, from trial development to initial mass production. In FY2023, we introduced an optical wafer testing equipment capable of evaluating the optical and electrical characteristics of wafers, which helps optical module development companies accelerate development and increase yields. We are also developing next-generation PICs for high-speed, long-distance transmission, and will contribute to the construction of next-generation digital infrastructure.

## Toward the realization of network and information processing infrastructure with even higher capacity, lower latency, and lower power consumption

With the spread of photoelectric convergence technologies, high-performance data centers that consume approximately 40% less energy compared to conventional data centers are expected to be realized by 2030.

VLC Photonics is developing high-speed modulation PIC technologies for next-generation high-speed data centers.

We also contribute to the promotion of the All-Photonics Network (APN), one of the pillars for realizing a new era of networks and information processing. APN introduces optical technologies everywhere, from networks to terminals, facilitating high-speed information transmission with low power consumption and an information processing infrastructure. We provide PIC engineering services and optical components for the development of IOWN\* APNs. Going forward, we will continue to promote the expansion of photoelectric convergence applications and technological developments with the aim of accelerating the creation of new innovations.

\* IOWN (Innovative Optical and Wireless Network): A novel network concept announced by NTT in 2019. It consists of an All-Photonics Network that uses photonics (light)-based technology throughout, Digital Twin Computing that enables future predictions by combining the real and digital worlds, and Cognitive Foundation that connects all aspects and enables their control.



Actual Photonic Integrated Circuit (PIC)



Optical wafer performance test

## Using temperature-sensing QR code labels to build a cold chain for amberjack exports

### Materiality2 Action Target2

Key words

Regional development

Regional branding support

Cold chain

CO<sub>2</sub> reduction

Food loss

### Aiming to establish a cold chain under optimal conditions for the transportation of amberjacks

In Japan, primary industries are declining due to the aging of the population and lack of successors, and consumption is also declining due to a shrinking population. Meanwhile, exports of agricultural, forestry, and marine products and foodstuffs to overseas markets are on the rise, partly due to the recent explosion in the popularity of Japanese food. To deliver delicious Japanese products, it is essential to have a well-developed cold chain that can guarantee safety and quality. The food distribution supply chain must also address issues such as the disposal of plastics and reduction of CO<sub>2</sub> emissions in consideration of environmental impacts. In collaboration with the Tarumizu City Fishermen's Cooperative (Kagoshima Prefecture) and Kizasu Co., Ltd., we conducted a demonstration test to expand exports of amberjacks produced in Kagoshima Prefecture, improve added value, and maintain freshness.

### Maintaining quality during transportation and optimizing excessive use of ice packs

Hitachi High-Tech participated in a demonstration test aimed at maintaining freshness to increase the added value of amberjacks using the MiWAKERU<sup>®</sup> temperature control service, which incorporates the use of temperature-sensing QR code labels developed by Hitachi, Ltd., and Hitachi Solutions, Ltd. Normally, the spatial temperature inside containers and product cases is monitored during transportation, but in this demonstration, temperature-sensing QR code labels with ink that changes color when the temperature changes were attached directly to products (amberjacks) to detect temperature. This resulted in realizing comprehensive temperature monitoring, both of individual items and entire cases of products. By visualizing product quality based on temperature changes during the transportation of amberjacks farmed in Japan and shipped to overseas restaurants, we verified the potential for reducing transportation costs, waste, and CO<sub>2</sub> emissions. In conducting this demonstration, we were also able to reduce the amount of ice packs used in product cases. By optimizing the amount of ice packs used, we were able to reduce shipping weight and costs, as well as contribute to the reduction of CO<sub>2</sub> emissions during transportation.

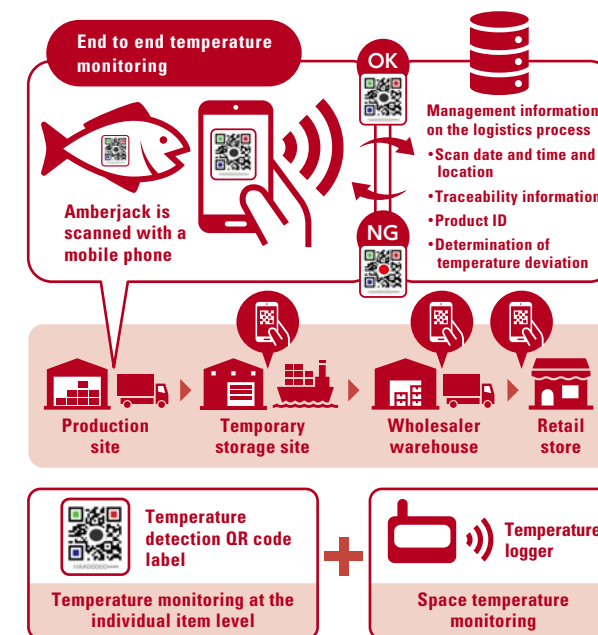
### Aiming to support temperature control in a wide range of fields, including agriculture, forestry, fisheries, and pharmaceuticals

For producers, serving amberjacks of inferior quality due to poor temperature control results in a loss of trust from local restaurants and other customers.

With MiWAKERU<sup>®</sup>, temperature control information is automatically recorded by reading temperature-sensing QR code labels attached to individual products using a dedicated smartphone app. Temperature control information compiled on a server can be confirmed at various touch points during transportation. Going forward, we will contribute to protecting the value of domestically produced products and improve their brand power through support for the creation of optimized cold chains for amberjacks, as well as other agricultural, forestry, and fishery products.

In addition to agricultural, forestry, and fishery products, we will also consider the utilization of temperature controls on an individual product basis for pharmaceuticals, chemicals, processed foods, and other products requiring temperature control. In this way, we will continue to contribute healthy, safe, and secure lives.

\* QR Code is a registered trademark of DENSO WAVE INCORPORATED.



MiWAKERU<sup>®</sup> temperature control service



QR code labels on an amberjack

## Participation in a smart mobile store demonstration test at the Expo 2025 Osaka, Kansai, Japan construction site

### Materiality2 Action Target2

#### Key words

Independent power supply system

Sustainable energy

Mobile store

Work environment improvements

### Improving work environments at construction sites lacking infrastructure facilities

Large construction sites often lack supply infrastructure such as electricity and water, and typically there are no stores. As a result, construction site workers must leave the site to buy the supplies and food they need. In some locations, stores are far away, and reducing travel time has been a long-standing challenge. Hitachi High-Tech, in collaboration with Takenaka Corporation, CROCO ART FACTORY, and FamilyMart Co., Ltd., opened an automated smart mobile store equipped with our stand-alone power supply system at the Expo 2025 Osaka, Kansai, Japan construction site for demonstration purposes. This facilitates the provision of products and services to those working on construction sites, leading to improved working conditions.



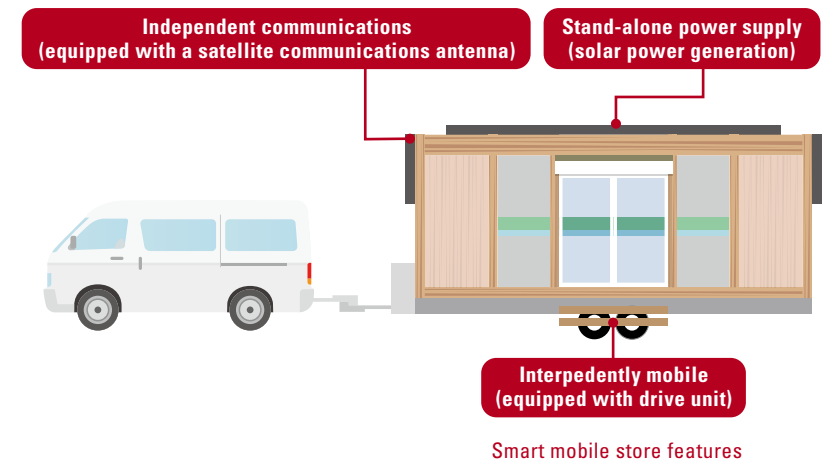
Smart mobile store

### Responding to emergencies through the continuous remote monitoring of power supply conditions

The automated smart mobile store was developed from Takenaka Corporation's towable off-grid mobile home, which is used as a mobile construction office. Hitachi High-Tech provides a stand-alone power supply system comprising solar panels, storage batteries, and control equipment. This equipment facilitates a stable supply of power for a certain period of time, even in areas without existing power sources or generators. Electricity generated by the solar panels is used to charge storage batteries and power air conditioning and other equipment in the mobile store. The mobile store is also equipped with satellite internet, facilitating independent communications. Store power supply conditions are remotely monitored and controlled via the cloud, enabling rapid responses in the event of an emergency.

### Expanding applications and contributing to a recycling-oriented society

By modifying the interior specifications of the smart mobile store developed for this demonstration test, it can be used at construction sites, as well as stores, rest areas, and toilets in areas where ensuring power is difficult when a power outage or disaster occurs. In the future, we also expect these facilities will also be used as medical facilities in times of disaster, or as branch offices of government agencies in depopulated areas. Going forward, we will expand the use of knowledge gained through this demonstration test both in daily life and in times of emergency, and contribute to the realization of a society in which everyone can live in peace, regardless of location, even in the unlikely event of an emergency. We also aim to contribute to the creation of a recycling-oriented society through our business, for example, by reusing EV batteries as storage batteries.





# Contributing to the sustained development of science and industry

## Basic Ideas and Visions

To develop science and industry, advanced technology that supports them is essential. The Hitachi High-Tech Group supports the improvement of R&D and production sites productivity, as well as higher product quality by fully utilizing and advancing our “measurement and analysis technology”, “automation and control technology”, “manufacturing capabilities”, thereby contributing to the sustainable development of science and industry. In addition, we help develop the next generation by carrying out social contribution activities utilizing our products.

## [ Action Targets ]

### 1 Development of science and technology



By developing and providing electron microscopes that enable high-precision observation and analysis, we will contribute to materials and device engineering and the advancement of testing and research of scientific theory. In addition, through science education support activities using tabletop electron microscopes, we will stimulate children's interest in science and technology through the activity and will contribute to resolution of social issues such as the loss of interest in science and the advancement of science and technology.

### 2 Achieving resilience at production sites



Through core technologies related to observation, measurement, and analysis; digital technologies such as AI and IoT; and the analysis and utilization of data collected from each process, we will improve the efficiency of production sites and build a flexible and robust production system. We thus aim to contribute to the improvement of productivity and product quality of manufacturing companies.

[ Action Plan ]



Development of science and technology



Achieving resilience at production sites



Healthcare Solutions



Nano-Technology Solutions



Value Chain Solutions







Core Technology Solutions



Common initiatives



Outside four business segments

	Content of Initiative	Social and Environmental Value	FY2022 Results	FY2023 Results	FY2024 Plan
1	<p>Provide material development solutions that accelerate development speed and contribute to the development and provision of new materials</p> 	<ul style="list-style-type: none"> <li>● Contribute to the verification of new knowledge and experiments to create new materials</li> <li>● Realization of a smart society on a global scale through the utilization of new materials</li> <li>● Raising the technical and production capabilities of small and medium-sized manufacturing companies</li> </ul>	<ul style="list-style-type: none"> <li>● Commenced provision of material development solutions to companies facing material development issues</li> </ul>	<ul style="list-style-type: none"> <li>● Provided material development solutions to companies engaged in material development in Japan and overseas</li> <li>● Commenced co-creation with the Industrial Technology Research Institute in Taiwan</li> </ul>	<ul style="list-style-type: none"> <li>● Expand and provide solutions resolving a wider range of customer issues by increasing use of analyzers and other equipment to automate customer experimental data analysis</li> </ul>
2	<p>Activities to support science education using tabletop microscopes</p> 	<ul style="list-style-type: none"> <li>● Contribution to the development of next-generation researchers that will lead to the development of science, medical technology, etc.</li> </ul>	<ul style="list-style-type: none"> <li>● Promoted online classes to areas and children in Japan that have been difficult to reach up to now</li> <li>● Posted YouTube videos featuring a collaboration between Group products and science artist Ichioka Genki, and held online experimental events</li> <li>● Supported the revitalization of local science education in cooperation with disaster prevention centers and high schools in various regions</li> <li>● Conducted activities in Singapore, Malaysia, and Indonesia. Expanded Group global collaborative activities</li> <li>● Conducted remote science classes as part of the Japan-Azerbaijan Friendship Year exchange program</li> </ul>	<ul style="list-style-type: none"> <li>● Provided learning opportunities globally through online classes reaching a wider range of students, and held first-ever on-site lecture at a local school in Malaysia</li> <li>● Produced over 100 YouTube videos in collaboration with Ichioka Genki, and held an event featuring medical equipment</li> <li>● The results of research conducted using electron microscopes loaned to high schools related to fuel cells and microplastics was published on our website</li> <li>● In collaboration with the Nagoya Port Disaster Prevention Center, we held the first science outreach classes on disaster prevention</li> </ul>	<ul style="list-style-type: none"> <li>● Provide opportunities and maintain efforts supporting students, student research, and the presentation of results and papers</li> </ul>
3	<p>Provide manufacturing and inspection solutions that enable highly efficient semiconductor production</p> 	<ul style="list-style-type: none"> <li>● Contribute to the advancement of the digital society by improving and stabilizing industry productivity</li> </ul>	<ul style="list-style-type: none"> <li>● Began developing digital service solutions for customer device development and greater efficiency at the US Co-Creation Center</li> </ul>	<ul style="list-style-type: none"> <li>● Developed "digital service solutions" to resolve customer issues that integrate and link customer data collected at each stage of the semiconductor manufacturing process</li> <li>● Construction of digital service infrastructure at Co-Creation Centers in Taiwan and South Korea has been completed and operations have commenced</li> </ul>	<ul style="list-style-type: none"> <li>● Increase the sophistication of productivity improvement solutions, expanded the range of connected devices, and expanded the range of users</li> <li>● Leverage data platform to enhance development efficiency</li> <li>● Strengthen alliance with Global Logic</li> </ul>
4	<p>Provide screening and inspection agency services contributing to operational efficiency and quality improvement through visualization of the entire supply chain</p> 	<ul style="list-style-type: none"> <li>● Contribute to improvement of production site efficiency and product quality</li> <li>● Contribute to building a flexible and robust production system</li> </ul>	<ul style="list-style-type: none"> <li>● Contributed to the prevention of defective products and redelivery loss in transactions with provision of high-quality screening and inspection agency services within the Hitachi Group</li> </ul>	<ul style="list-style-type: none"> <li>● Expanded services to include new supplier quality control audits, chemical substance management audits, regular quality control audits for existing trading companies, and supplier quality improvement support.</li> <li>● Verified the effectiveness of screening and inspection agency work within the Hitachi Group to provide services that meet needs</li> </ul>	<ul style="list-style-type: none"> <li>● Expand service provision within the Hitachi Group, and begin providing services to companies outside the Hitachi Group</li> <li>● Begin considering the use of a quality data visualization tool to reduce management workload and quickly implement quality improvement measures</li> </ul>

## Utilizing materials informatics to reduce development processes by 80%

### Materiality3 Action Target1

**Action Plan 1** Provide material development solutions that accelerate development speed and contribute to the development and provision of new materials

Key words

Materials informatics

AI

Drug discovery

### Proposal to shorten materials development time globally through the use of materials informatics and our strengths

The manufacturing industry in particular has been using MI (materials informatics) to improve the efficiency of materials development. MI makes it possible to obtain optimal solutions in minimal time by having AI (artificial intelligence) learn the necessary information from vast amounts of experimental and materials data.

MI can thus significantly shorten the time required to search for material formulation ratios and manufacturing conditions, which was previously conducted based on intuition and experience. Furthermore, reducing the experiment performed contributes to the lowering the environmental impact such as CO<sub>2</sub> emissions. Hitachi High-Tech's strength lies not only in its ability to propose MI solutions, but also to link numerical and image data with analytical and measuring instruments. The Company is also adept at making global proposals that leverage the knowledge it has cultivated as a trading company of advanced materials as well as its extensive customer base.

### Contributing to the early commercialization of new drugs in addition to promoting DX in global materials development

#### ● Contributing to the improvement of Taiwan's industrial technology standards

In FY2023, Hitachi High-Tech began collaborative creation on the MACSiMUM, an AI and machine learning platform operated by Industrial Technology Research Institute (ITRI), the largest industrial technology research and development organization in Taiwan. Hitachi High-Tech will support the acceleration of DX in materials development for manufacturing companies in Taiwan, as well as the development of new technologies and the promotion of innovation, while contributing to the improvement of industrial technology standards in the country.

#### ● CI (Chemicals Informatics)\* and MI, which greatly reduce the processes required for materials development

Hitachi High-Tech conducted verification experiments in the development of metal thin film materials used in electronic devices. Hitachi High-Tech was able to demonstrate that it is possible to conduct efficient R&D work by reducing the number of development processes by more than 80% compared to conventional methods through the selection of optimal compounds using CI and search for the optimal ratio of metal elements and optimal conditions for the manufacturing process using MI.

#### ● Accelerating drug discovery R&D and contributing to swift practical application

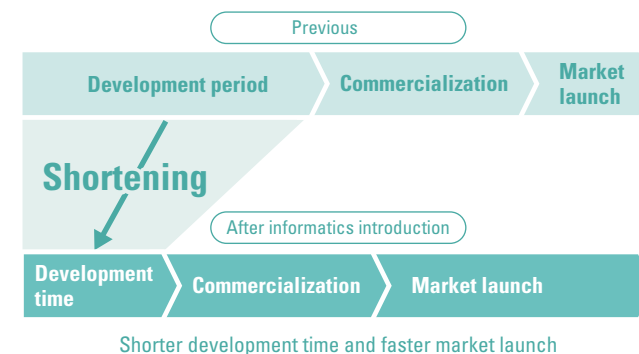
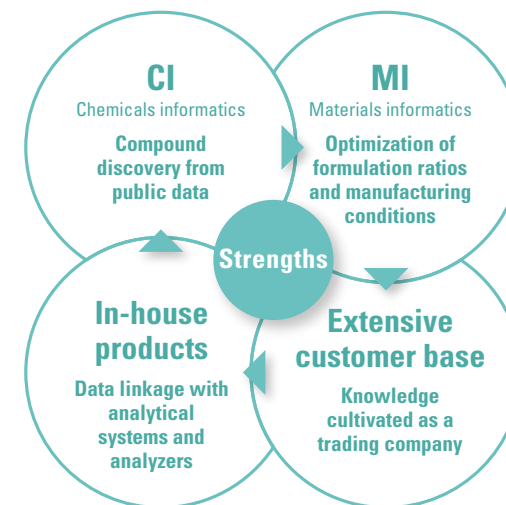
Since 2023, Hitachi High-Tech has been conducting joint research aimed at improving the efficiency of the development of small molecule drugs that inhibit the action of proteins that cause cancer. The Company aims to improve the development of small molecule drugs in terms of a more efficient process, faster time scales and higher success rates, which will contribute to the development and early commercialization of new drugs.

### Contributing to a circular economy

As a new initiative, Hitachi High-Tech is collaborating with Hitachi, Ltd. and Sekisui Chemical Co., Ltd. to commercialize a recycled materials marketplace that will promote the use of recycled plastics and other materials derived from waste materials. The initiative is scheduled to include a matching support function that leverages MI technology. Demonstration tests have already been completed, and the partners will work to develop a system to support the promotion of the use of recycled materials toward the realization of a circular economy and a sustainable society.

\*Hitachi High-Tech's original service that supports the selection of optimal compounds for development by using AI technology with public data such as patents and its proprietary database.

\* Hitachi High-Tech's proprietary service that leverages AI technology to support the selection of the optimal compounds for development by utilizing public data such as patents and an original database.



# Science education support activities to plant seeds of curiosity for the future of science

## Materiality3 Action Target1

### Action Plan 2 Activities to support science education using tabletop microscopes

#### Key words

Contributing to the development of next-generation personnel

STEAM education

Providing equal educational opportunities

## Contributing to the development of the next generation of science-based personnel by providing opportunities for everyone to experience science

In recent years, the number of students pursuing the sciences has been declining, and the development of next-generation personnel who will be responsible for future manufacturing and R&D is a pressing social issue for companies.

As an element of its social contribution activities, Hitachi High-Tech has been involved since 2005 in activities with the aim of contributing to the development of science-based personnel. This includes support science education for children and students by using its own products, such as loaning its tabletop electron microscopes.

From FY2022, we have also begun promoting [science education support activities](#) to new audiences, such as [children living on small islands in Japan](#) and students attending [adaptive guidance classes](#). By combining online and offline activities, our sphere of support is expanding to areas and children who have been difficult to reach in the past.

## Science education support activities for growing global needs

Since 2008 in Japan, we have lent our tabletop electron microscopes to schools designated as Super Science High Schools (SSHs), where students can receive advanced science education. Among these schools, in FY2023 [Otsuma Ranzan Senior High School's](#) research on the development of fuel cells with low environmental impact and [Ehime University Senior High School's](#) research on marine microplastic waste both won high acclaim in the field of environmental themes, including awards at academic conferences in Japan and abroad and publication in academic journals. Many of the high school students involved are now pursuing science and engineering majors at universities to continue their research, and their future achievements are highly anticipated.

As a new activity, Hitachi High-Tech collaborated with the Nagoya Municipal Minato Disaster Prevention Center to develop a science experience class on the theme of disaster prevention, which has been in considerable focus in the wake of climate change. After learning about soil features revealed by electron microscopy and their relationship with landslides, students were provided with opportunities to operate the equipment. Participants commented that the class was a memorable experience that helped them understand the relationship between science and themes close to their daily lives. As Hitachi High-Tech's [first science event utilizing healthcare products](#), the Healthcare Innovation Center Tokyo hosted a lab tour and an experimental workshop by science artist Genki Ichioka. Participants learned about the principles and heightened their interest in and awareness regarding health by experiencing the operation of a Hitachi High-Tech biochemical analyzer, which is used in hospitals and other medical institutions.

Hitachi High-Tech is also promoting global science education support activities through its overseas subsidiaries. The Dallas, Texas office of Hitachi High-Tech America, for example, has begun operating a new virtual science education center. Utilizing the remote functions of electron microscopes, the company is undertaking new activities together with educational institutions, research institutions, and museums in each community. To cite another initiative, our electron microscope is being lent to Brentwood High School in Brentwood, New York, where students are researching the impact on water quality and ecosystems on Long Island, New York, for studies into biodegradation of garbage (paper/plastic) using fungi and the healthy environment for fostering algae growth. In FY2023, we also began lending equipment to a museum in Singapore. Going forward, we plan to use the museum as a base to develop science education support activities not only in Singapore, but also in neighboring countries and regions.

## Aiming for science education support activities linking social issues and science

Hitachi High-Tech's science education support activities that are rooted in local communities have expanded in variation, while at the same time broaden in scope of its globally. We will continue to contribute to "inclusive and equitable quality education and promote lifelong learning opportunities for all" set forth in Goal 4 of the SDGs. And by linking our business activities (products, technologies, and solutions) to various social issues, we will undertake original science education support activities with a strong message for children and society.



Students from Brentwood High School in New York



Science event utilizing healthcare products



# Data integration platform for highly efficient semiconductor production

## Materiality3 Action Target2

**Action Plan 3** Provide manufacturing and inspection solutions that enable highly efficient semiconductor production

Key words

Improvement and stabilization of industrial productivity

Advancement of digital society

Integration of customer data

SX/DX/GX

## Seamlessly addressing semiconductor manufacturing challenges

Semiconductors are indispensable in our daily lives, as they are critical components in smartphones, PCs, home appliances, and automobiles as well as social infrastructure such as transportation and communications. To achieve a sustainable future, semiconductors are indispensable to support the digitalization of society, such as DX (digital transformation) to transform business by utilizing digital technology, and in GX (green transformation) to stem global climate change. As such, semiconductors are positioned as a key national strategy in many countries and regions, including Japan. In recent years, amid intensifying labor shortages in the manufacturing field, there is a growing demand for semiconductors that can process larger volumes of data at higher speeds, accelerate development, and reduce costs. This in turn has increased demand for their ability to address to various issues faced by manufacturing sites.

Hitachi High-Tech develops and provides digital solutions to improve its customers' productivity by using Observation, Measurement, and Analysis data obtained through such products as CD-SEMs using electron beam technology and wafer inspection systems using optical technology. We help our customers resolve issues in their semiconductor manufacturing processes and create new value.

## Becoming a partner working closely with customers to improve productivity

Following the United States in 2023, Hitachi High-Tech established and started operation of new centers for co-creation with customers in Taiwan and South Korea. The establishment of these centers in the vicinity of customers not only enables quick issue resolution and value provision, but also reduces energy consumption and CO<sub>2</sub> emissions by reducing transportation and travel for development and evaluation.

The need for our Observation, Measurement, and Analysis technologies and knowledge is expanding in response to the increasing complexity of semiconductor manufacturing processes and the need to reduce greenhouse gas emissions and conserve resources. To address this need, in 2023 we began operating a digital platform called the Data Integration Platform, which seamlessly integrates and links data from Hitachi High-Tech's product groups, namely etching systems, CD-SEM\*, optical inspection systems, and analysis to enable centralized management and utilization on a data integration platform.

The Data Integration Platform is currently in operation in the United States, Taiwan, and South Korea. We are striving to create and develop productivity improvement solutions seamlessly from development to mass production by integrating, linking, and visualizing various equipment data to the Data Integration Platform and implement and utilize analytical solutions.

## Aiming to reduce development time by 50% and prototyping and mass production time by 80%

By utilizing the Data Integration Platform, we aim to reduce development time by 50% and prototyping and mass production time by 80% in FY2024, compared to the previous years. We are also developing solutions to optimize the platform structure and automate workflows to cope with the increasing volume of data. We will continue to promote the results of verification and improvement at our co-creation centers, and promote the introduction of the system in our customers' development and mass production lines.

In the future, we will also collaborate with our customers' various manufacturing, measurement, and inspection equipment, aiming to build a digital service ecosystem for the entire semiconductor manufacturing workflow, including processing, inspection, measurement, and analysis. Through such initiatives, Hitachi High-Tech will identify its customers' potential issues and promote sustainable semiconductor production, reduce environmental impact, and build secure networks.

\* CD-SEM (Critical dimension-scanning electron microscope) is a type of scanning electron microscope (SEM). This equipment is especially specialized for dimensional measurement of fine patterns formed on wafers of semiconductors and the like and is mainly deployed in production lines for semiconductors and other electronic devices.

## Providing seamless productivity improvement solutions from development to mass production

**Development phase**  
Shorten development time for new products and processes

**Tactical phase**  
Yield improvement of new products / processes

**Mass production phase**  
Improve productivity of mass production line

Data analysis Data analytics

Data Integration Platform

Data collection

Equipment data

Measurement data

Inspection data

Analytics data

Etching equipment

CD-SEM

Optical inspection equipment

Analytical equipment

Conceptual diagram of data integration platform



Nanotechnology Innovation Center (Co-Creation Site)

# Initiatives for SX in supply chain management

**Materiality3** Action Target2

**Action Plan 4** Provide screening and inspection agency services contributing to operational efficiency and quality improvement through visualization of the entire supply chain

**Materiality1** Action Target1

**Action Plan 5** Support procurement partners in visualizing CO2 emissions and reducing from products and commercialization aimed at provision to customers

Key words

SX (sustainability transformation)

Supply chain resilience

## SX initiatives through building a common digital infrastructure with procurement partners

Companies are required to strengthen their supply chain resilience and sustainable management to flexibly respond to supply chain disruption risks caused by pandemics and geopolitical factors and to social issues such as human rights and the environment. For its part, Hitachi High-Tech is building a common digital infrastructure with its procurement partners.

By visualizing various data and sharing information in a timely manner, it is possible to identify problematic areas, make advance forecasts, and understand CO2 emission volumes. Specifically, procurement partners can equalize workloads and accurately plan production by visualizing the scheduled delivery dates of a wide variety of parts. We also conduct quality and acceptance audits for procurement partners with the aim of visualizing quality data. Furthermore, by acquiring the CO2 emission volumes of procurement partners, it is possible to understand the CO2 emissions in our own value chain and provide more accurate CO2 emissions data to customers in response to social demands.

## To improve the quality control and reduce CO2 emissions of procurement partners

By collaborating with TRIGO, one of the world's leading providers of advanced quality services, Hitachi High-Tech is progressively improving the efficiency of its procurement partners' site inspections, quality reviews, and acceptance inspections. In FY2023, we deepened our collaboration and conducted not only conventional quality control audits but also chemical substance control audits at some of our procurement partners. Furthermore, by supporting improvements through checking work procedures and manufacturing processes, we helped our procurement partners improve their manufacturing process yields.

The Hitachi High-Tech Group's goal is to achieve carbon neutrality throughout its value chain by FY2050 and to reduce carbon emissions by 50% by FY2030. To achieve our goals, we need to cooperate with our procurement partners to reduce CO2 emissions. In FY2023, we began operating a GHG calculation tool that enables the collection and aggregation of corporate per-unit CO2 emissions for our product procurement partners. By streamlining the collection of CO2 emissions, we reduce the burden on our procurement partners and the Company in terms of aggregating CO2 emissions.

Furthermore, we conducted an analysis of the CO2 emission reduction plans and measures of the environmentally advanced partners selected from among our procurement partners. Based on the results of the analysis, we will work together to further reduce CO2 emissions.

## Aiming to build a sustainable supply chain

Aiming to provide proxy audit and inspection services its customers, Hitachi High-Tech is first advancing the use of quality data within its supply chain to improve the quality of its procured goods and enhance the audit and inspection processes of its procurement partners. The Company visualizes defect reports from procurement partners, accumulated data of internally received and in-process defects, results of TRIGO screenings, and consultation and inspection data. We aim to develop tools for on-time visualization and analysis to quickly resolve issues and reduce administrative processes.

In Europe, the need for onsite ESG assessments conducted at suppliers' sites as an element of risk management is also expanding, especially among automakers. Hitachi High-Tech is also looking into conducting ESG assessments in conjunction with quality audits. Conducting these simultaneously with quality audits will also help reduce the burden on procurement partners.

Regarding the emission volumes of procurement partners, we will further apply GHG calculation tools that collect and aggregate emissions and aim to commercialize them and provide them to customers. In FY2023, we had developed tools for each company, and in FY2024, we aim to complete the development of a GHG calculation tool for each component. We will continue our efforts to achieve carbon neutrality throughout our value chain, including Category 1 of Scope 3.

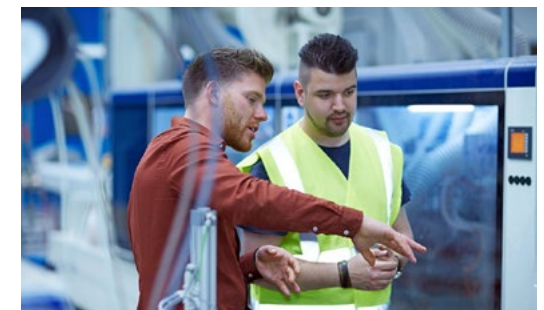
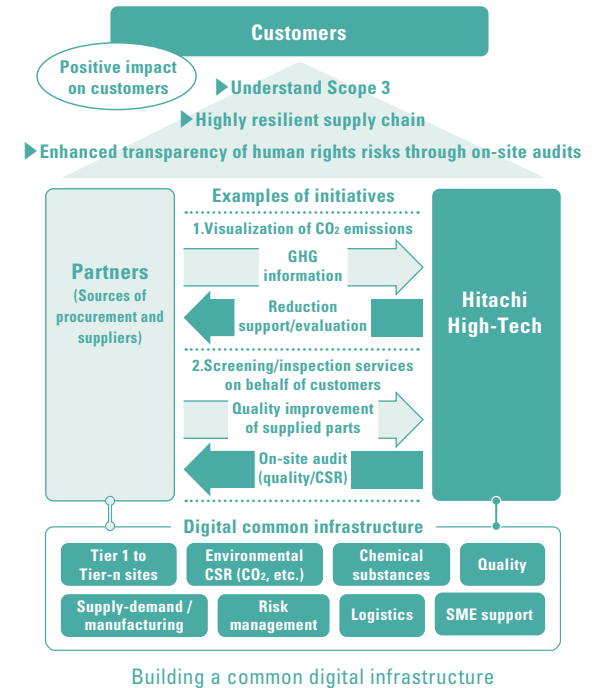


Image of front-line confirmation by a procurement partner

Materiality

4



# Establishing a sound management foundation

## Basic Ideas and Visions

Establishing a sound management foundation is essential for the sustainable growth of a company. In order to increase corporate value over the long-term, Hitachi High-Tech Group will strive to improve the effectiveness of corporate governance and aim to be a company that is trusted and needed by society.

## [ Action Targets ]

### 1 Realize sound governance



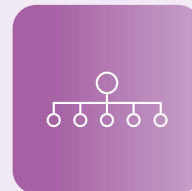
We will strive to improve the effectiveness of corporate governance by bolstering the effectiveness of the Board of Directors and strengthening and enhancing internal controls. In addition, we will endeavor to achieve sustainable growth and increase society's trust in us by implementing initiatives such as compliance risk prevention measures and conducting education, and fostering a corporate culture that is open and compliant with laws.

### 2 Ensure product safety



Providing customers with safety and peace of mind is a corporate social responsibility. By providing products that comply with laws and regulations and by working to eliminate product accidents, the Group aims to provide highly-safe products and thereby enhance competitiveness and increase the level of trust from society.

### 3 Realize a CSR-based supply chain



By encouraging business operations with a strong awareness of corporate social responsibility, not only for the Group, but also for our partners and the entire supply chain, we aim to reduce environmental and human rights risks in the supply chain.

[ Action Plan ]



Realize sound governance



Ensure product safety



Realize a CSR-based supply chain



Healthcare Solutions



Nano-Technology Solutions



Value Chain Solutions






Core Technology Solutions



Common initiatives



Outside four business segments

	Content of Initiative	Social and Environmental Value	FY2022 Results	FY2023 Results	FY2024 Plan
1	<p>Initiatives to improve corporate governance, which is the foundation of the Hitachi High-Tech Group's fair business activities</p> 	<ul style="list-style-type: none"> <li>Contribute to the maintenance of a healthy and orderly society as a member of society</li> </ul>	<ul style="list-style-type: none"> <li>As a member of the Hitachi Group, we revised decision-making standards and rules, and updated the Hitachi Group Code of Ethics and Business Conduct</li> <li>Revised systems and measures in response to global compliance risks, improved system reliability</li> </ul>	<ul style="list-style-type: none"> <li>Implemented timely updates and revisions to decision-making standards and rules in light of Hitachi Group governance and Board of Directors resolutions on the internal controls system</li> <li>Further enhanced global compliance risk measures and systems, revised the system for clarifying information to be collected when an incident occurs, identifying the cause, and streamlining recurrence prevention, to strengthen our global compliance risk response structure.</li> </ul>	<ul style="list-style-type: none"> <li>Continue and consider deepening the initiatives listed on the left</li> </ul>
2	<p>Initiatives to ensure product safety</p> 	<ul style="list-style-type: none"> <li>Provide safe and secure products and services</li> </ul>	<ul style="list-style-type: none"> <li>Implemented product safety audits: Identified issues and provided guidance for improvement at design and manufacturing sites and 12 Hitachi High-Tech Group sites</li> <li>Maintained efforts to draw attention to the prevention of accidents related to long-term use products at customer sites</li> <li>Identified trends in revisions and issuance of related laws and regulations and shared them with relevant internal departments to accelerate compliance with laws and regulations</li> <li>Serious product safety accidents: 0</li> </ul>	<ul style="list-style-type: none"> <li>Implemented product safety audits: Identification of issues with 12 products and implementation of improvement guidance at our design and manufacturing sites and 7 sites of group companies</li> <li>Maintained efforts to draw attention to the prevention of accidents related to long-term use products at customer sites</li> <li>Identified trends in revisions and issuance of related laws and regulations and continue sharing them with relevant internal departments to accelerate compliance with laws and regulations</li> <li>Serious product safety accidents: 0</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of product safety audits: 13 products from our design and manufacturing bases and 8 Group company bases</li> <li>Through committee activities (4 times/year), information on activities and product safety accidents at each site and the Hitachi Group is disseminated horizontally.</li> <li>Timely revision of checklists and guidelines based on company regulations to eliminate the potential for product safety accidents</li> </ul>
3	<p>Promote business operations throughout the Hitachi High-Tech Group supply chain with a strong awareness of CSR</p> 	<ul style="list-style-type: none"> <li>Contribute to the realization of CSR in the Hitachi High-Tech Group's supply chain</li> <li>Continue business through stable shipments of our products</li> </ul>	<ul style="list-style-type: none"> <li>CSR procurement briefings for ongoing suppliers: Held twice</li> <li>Selected advanced environmental partner company, began providing support for CO<sub>2</sub> reduction</li> <li>Conducted new supplier self-audits using the Procurement CSR Check Sheet</li> <li>CSR-related accidents: 0</li> </ul>	<ul style="list-style-type: none"> <li>Dialogue with ongoing business partners Holding a procurement CSR briefing session: 1 time Provision of latest information on chemical substances contained: 2 times</li> <li>Analysis conducted to reduce the CO<sub>2</sub> emissions of environmentally advanced partner companies</li> <li>Conducted new supplier self-audits using the Procurement CSR Check Sheet</li> <li>CSR-related accidents: 0 incidents</li> </ul>	<ul style="list-style-type: none"> <li>Expand the number of advanced environmental partner companies (accumulated 30 companies)</li> <li>Execute procurement partner selection based on CO<sub>2</sub> reduction results</li> <li>Conduct a survey of suppliers regarding migrant and forced labor</li> <li>Continue promotion of the initiative listed on the left</li> </ul>

## Achieving a sustainable supply chain together with procurement partners

**Materiality4** Action Target3

Action Plan 3 Promote business operations throughout the Hitachi High-Tech Group's supply chain with a strong awareness of CSR

**Materiality1** Action Target1

Action Plan 5 Support procurement partners in visualizing CO<sub>2</sub> emissions and reducing from products and commercialization aimed at provision to customers

Key words

HRDD

Mitigation of environmental and human rights risks

Scope 3

### Environmental and human rights issues in the supply chain that cannot be solved by one company alone

The products we purchase as consumers are manufactured by combining various raw materials and parts. The flow from material procurement and manufacturing to sales and delivery to the consumer is called the supply chain, and Hitachi High-Tech also manufactures products with the cooperation of many procurement partners. The Hitachi High-Tech Group conducts procurement activities as far in advance as feasible to identify and mitigate procurement risks in the supply chain, such as greenhouse gas emissions and human rights violations.

Among specific measures, we cooperate with our procurement partners to reduce CO<sub>2</sub> emissions upstream in the supply chain by understanding their CO<sub>2</sub> emissions. We also conduct human rights due diligence\*<sup>1</sup> (HRDD) to identify risks of child labor and forced labor in our supply chain and confirmed that there were no such issues in FY2023. Furthermore, we aim to build a sustainable supply chain by adhering to the Hitachi Group Sustainable Procurement Guidelines and by requesting suppliers to join EcoVadis\*<sup>2</sup>, a sustainability assessment platform.

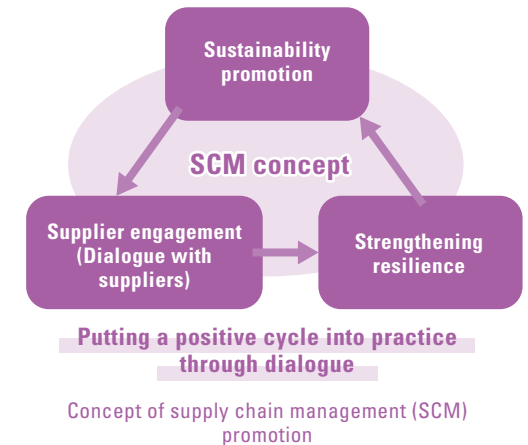
### Building a sustainable supply chain through dialogue with procurement partners

The Hitachi High-Tech Group has set a goal to achieve carbon neutrality throughout its value chain by 2050. Currently, approximately 60% of CO<sub>2</sub> emissions in our supply chain are accounted for by upstream Scope 3, which is related to the procurement of raw materials and parts. Therefore, the cooperation of our procurement partners is vital to achieving our goals. We also believe that human rights risks can be mitigated not only by assessing our procurement partners, but also by sharing common values.

Toward this end, we emphasize dialogue with our procurement partners and hold a CSR procurement briefing every year. At these briefings, we strive to deepen our partnerships through two-way communication on issues such as CO<sub>2</sub> reduction, human rights, and labor practices.

### Tackling social issues with procurement partners

To address climate change, in FY2023 we analyzed the CO<sub>2</sub> reduction plans and measures of selected advanced environmental partner companies from among our procurement partners. In the future, we will collaborate on further CO<sub>2</sub> reduction initiatives based on the analysis results. In addition, we aim to develop and provide a tool that enables more accurate calculation of CO<sub>2</sub> emissions, which will be the current per-unit-based CO<sub>2</sub> calculations. We will also continue to assess human rights risks and encourage procurement partners identified as high risk to make improvements.



Business partner briefing (Naka Area)

\*<sup>1</sup> Human rights due diligence: Involves identifying, assessing, and responding to business-related human rights impacts, taking measures to prevent, mitigate, and remedy negative impacts, then continuously verifying and disclosing the effectiveness of these measures.

\*<sup>2</sup> EcoVadis: Sustainability assessment service platform facilitating comprehensive evaluations in four areas: Environment, labor and human rights, ethics, and sustainable materials procurement.

Materiality



# Developing and utilizing diverse human resources

## Basic Ideas and Visions

It will be crucial to continuously provide creative and innovative values to customers and society in order to succeed against competitions in the global market while realizing sustainable growth. Hitachi High-Tech Group recognizes human resources responsible for providing value as one of the most invaluable management resources, and aims to foster reform-minded human resources who are able to create continuous innovation.

## [ Action Targets ]

### 1 Promote diversity management



We enhance productivity and organizational strength by promoting reforms in working styles and increasing operational efficiency. In addition, by promoting female workplace participation and development and utilization of diverse human resources, we will secure and train talented human resources who have flexible ideas and advanced technical abilities and skills.

### 2 Promote diverse cultivation of human resources



We will aim to train human resources to compete in the global market by expanding diverse education and training systems and continuing to carry out education and training.

### 3 Ensure healthy, safe workplace environments



We strive to ensure a healthy, safe and comfortable working environment by working on occupational safety and health with the highest priority on workplace safety and maintaining and promoting the health of each employee.

[ Action Plan ]



Promote diversity management



Promote diverse cultivation of human resources



Ensure healthy, safe workplace environments



Healthcare Solutions



Nano-Technology Solutions



Value Chain Solutions






Core Technology Solutions



Common initiatives



Outside four business segments

	Content of Initiative	Social and Environmental Value	FY2022 Results	FY2023 Results	FY2024 Plan
1	<p>Creating an organization in which diverse human resources can play an active role that leads to innovation</p> 	<ul style="list-style-type: none"> <li>Human resources with various attributes (gender, nationality, background, etc.), skills, and knowledge play active roles</li> </ul>	<ul style="list-style-type: none"> <li>Created innovation through diverse human resources                             <ul style="list-style-type: none"> <li>Average of 26.7 hours of overtime per person per month</li> <li>Took paid leave 18.3 days per person per year</li> <li>Women in managerial positions 5.2%</li> <li>New graduate recruitment 27.3% female, 14.5% foreign nationals</li> <li>Diversity in decision-making layer: seven diverse board directors, executive officers and managing officers (including four women)</li> <li>Male employees utilizing childcare leave: 75.2%</li> <li>Wage difference between men and women: 71.4% (all employees)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Created innovation through diverse human resources                             <ul style="list-style-type: none"> <li>Average of 26.6 hours of overtime per person per month</li> <li>Took paid leave 18.9 days per person per year</li> <li>Women in managerial positions: 5.2%</li> <li>New graduate recruitment 23.3% female, 11.9% foreign nationals</li> <li>Diversity in decision-making layer: Five diverse board directors, executive officers and managing officers (including 3 women)</li> <li>Male employees taking childcare leave 80.7%</li> <li>Wage difference between men and women: 69.9% (all employees)</li> <li>Employment rate of the physically challenged: 2.92%</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Creation of innovation through diverse human resources                             <ul style="list-style-type: none"> <li>Average of 20 hours of overtime per person per month or less</li> <li>Take paid leave 20 days per person per year or more</li> <li>Women in managerial positions: 6.6%</li> <li>New graduate recruitment 30% female, 5% foreign nationals</li> <li>Diversity in decision-making layer: Five diverse board directors, executive officers and managing officers (including two women)</li> <li>Male employees taking childcare leave: 100%</li> <li>Employment rate of the physically challenged: 3%</li> </ul> </li> </ul>
2	<p>Ongoing implementation of diverse education and training programs to develop human resources</p> 	<ul style="list-style-type: none"> <li>Positive impact on society of employees trained to play active roles in various regions</li> </ul>	<ul style="list-style-type: none"> <li>Early development of global human resources                             <ul style="list-style-type: none"> <li>Ratio of employees with overseas experience within seven years of employment: 39%</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Early development of global human resources                             <ul style="list-style-type: none"> <li>Ratio of employees with overseas experience within seven years of employment 40%</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Early development of global human resources                             <ul style="list-style-type: none"> <li>Ratio of employees with overseas experience within seven years of employment 50% or more</li> </ul> </li> </ul>
3	<p>Establish a workplace with zero accidents by raising awareness of health and safety</p> 	<ul style="list-style-type: none"> <li>Physical and mental health facilitates active participation in various fields of society</li> </ul>	<ul style="list-style-type: none"> <li>Initiatives for workplace safety and employee health maintenance                             <ul style="list-style-type: none"> <li>Lost-workday accidents: 0</li> <li>Utilized specialists to implement measures aimed at addressing issues in light of workplace stress check analyses and conduct efforts to reduce the number of high-stress employees</li> <li>Maintained certification as Health &amp; Productivity Management Outstanding Organization</li> <li>Implemented measures tailored to business sites and workplaces</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Initiatives for workplace safety and employee health maintenance                             <ul style="list-style-type: none"> <li>Lost-workday accidents: 1</li> <li>Ratio of high-stress employees in stress checks: 12.5%</li> <li>Certified as Health &amp; Productivity Management Outstanding Organization</li> <li>Steadily implemented measures tailored to business sites and workplaces</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Initiatives for workplace safety and employee health maintenance                             <ul style="list-style-type: none"> <li>Lost-workday accidents 0</li> <li>Ratio of high-stress employees in stress checks 10% or less</li> <li>Maintain certification as Health &amp; Productivity Management Outstanding Organization</li> <li>Implement measures tailored to business sites and workplaces</li> </ul> </li> </ul>

## DEI initiatives toward becoming a company where everyone can work and shine as their authentic selves

### Materiality5 Action Target1

**Action Plan 1** Creating an organization in which diverse human resources can play an active role that leads to innovation

Key words

DEI

Development of female leaders

Male employee childcare leave

### DEI is a source of innovation and growth

Hitachi High-Tech has positioned and is promoting DEI\*1 as a source of innovation and growth. Amid unpredictable times, the issues facing our customers and society are becoming increasingly diverse and complex. In order to respond to diverse markets and customer feedback, it is essential for employees with different perspectives and unique personalities to openly discuss and bring together their ideas. In December 2023, Hitachi High-Tech announced the Hitachi High-Tech DEI Declaration as an over-riding message, committing to becoming an organization that can flexibly respond to societal changes, continuously provide value to society and customers through innovation, and achieve sustainable growth. By placing DEI (diversity, equity & inclusion) at the core of its management, the Company declared its intention to related initiatives throughout the Group globally.

### Initiatives to develop female leaders and encourage male employees to take childcare leave

In FY2023, we held approximately 20 discussions with overseas Group companies on DEI themes such as women's participation, and we are expanding activities as a unified global Group. We also actively dispatch female employees to external training programs (such as NPO J-Win) to foster the next generation of female leaders, help them acquire leadership and management skills, and interact with female employees who are active in other companies.

In the same vein, to eliminate gender-based role stereotypes and to enable employees to work happily in long careers even as their life stages change, we have been aiming for 100% utilization rate for male employees taking childcare leave since FY2020. In FY2023, the utilization rate improved to 80.7%. We are implementing measures to create an environment in which male employees can be comfortable taking childcare leave and to change mindsets, such as a childcare support website, interviews with fathers about their experiences, and providing online cooking classes targeting fathers.

### To create a company where everyone can work with satisfaction and enthusiasm

We are also working to create an environment in which all employees can be self-directed in choosing the time and location of their work as their life stages change, by reducing long working hours, working remotely from home or using satellite offices, and adopting a flextime system. We are also working to foster an inclusive corporate culture and create a company that maximizes the diversity of its human capital. Initiatives in this regard include opportunities for dialogue on the elements of diversity such as gender race, nationality, ethnicity, cultural diversity and generational diversity; seminars on psychological safety; and grass roots activities by the Employee Resource Group (ERG). With DEI at the core of our management, we will continue to view physical and internal differences as identities of an individual and actively work to create a culture and enhance systems that allow all employees to fully demonstrate their unique abilities.

\*1 DEI is an abbreviation of Diversity, Equity, and Inclusion.



Concept of diversity



Childcare support site: Hitachi High-Tech Corporation ([hitachi-hightech.com](http://hitachi-hightech.com))



Online dialogue event on DEI



## Promotion of neurodiversity

### Materiality5 Action Target 1

**Action Plan 1** Creating an organization in which diverse human resources can play an active role that leads to innovation

Key words

Neurodiversity

Employment of people with disabilities

Achievement of harmonious society

### Neurodiversity and Hitachi High-Tech's values

Neurodiversity, a term combining neuro (brain, nerves) and diversity, refers to the idea of viewing the differences in individual traits that stem from the brain and nervous system as diversity to be mutually respected and utilized within society. This concept applies particularly to phenomena associated with developmental disorders such as autism spectrum disorder, attention deficit hyperactivity disorder (ADHD), and learning disabilities. The concept is to frame such phenomena not as a lack of or differences in ability, but as natural and normal variations in the human genome.\*1

As part of Hitachi High-Tech's diversity management, we have focused on the value created by people with disabilities and have been advancing the Neurodiversity Promotion Project since FY2023.



Image of neurodiversity

### Staffing and support system that takes advantage of individual attributes

To further expand the areas of participation for people with disabilities, we have partnered with Kaizen Co., Ltd., which provides employment support for people with developmental disabilities, and have begun recruiting activities focusing on neurodiversity from the Naka area in Ibaraki Prefecture in FY2023. Hitachi High-Tech welcomes job applications from a wide range of people who are interested in working in its technical roles, regardless of whether or not they have a disability certificate or have been diagnosed with a developmental disability. In particular, we practice flexible management methods and work assignments that match the diversity of each individual, focusing on advanced technology development, such as software development and circuit design. Moreover, Hitachi High-Tech Support Corporation, a special subsidiary of the Hitachi High-Tech Group, has psychological health and welfare counselors and job coaches (workplace accommodation facilitators) on staff to provide detailed support, who provide periodic interviews and other specialized support in the workplace. In these ways, we seek to expand the scope of participation available to neuro-diverse employees.



Person with a disability in a rural area working fully remote.

### Toward a society where everyone can lead a vibrant life

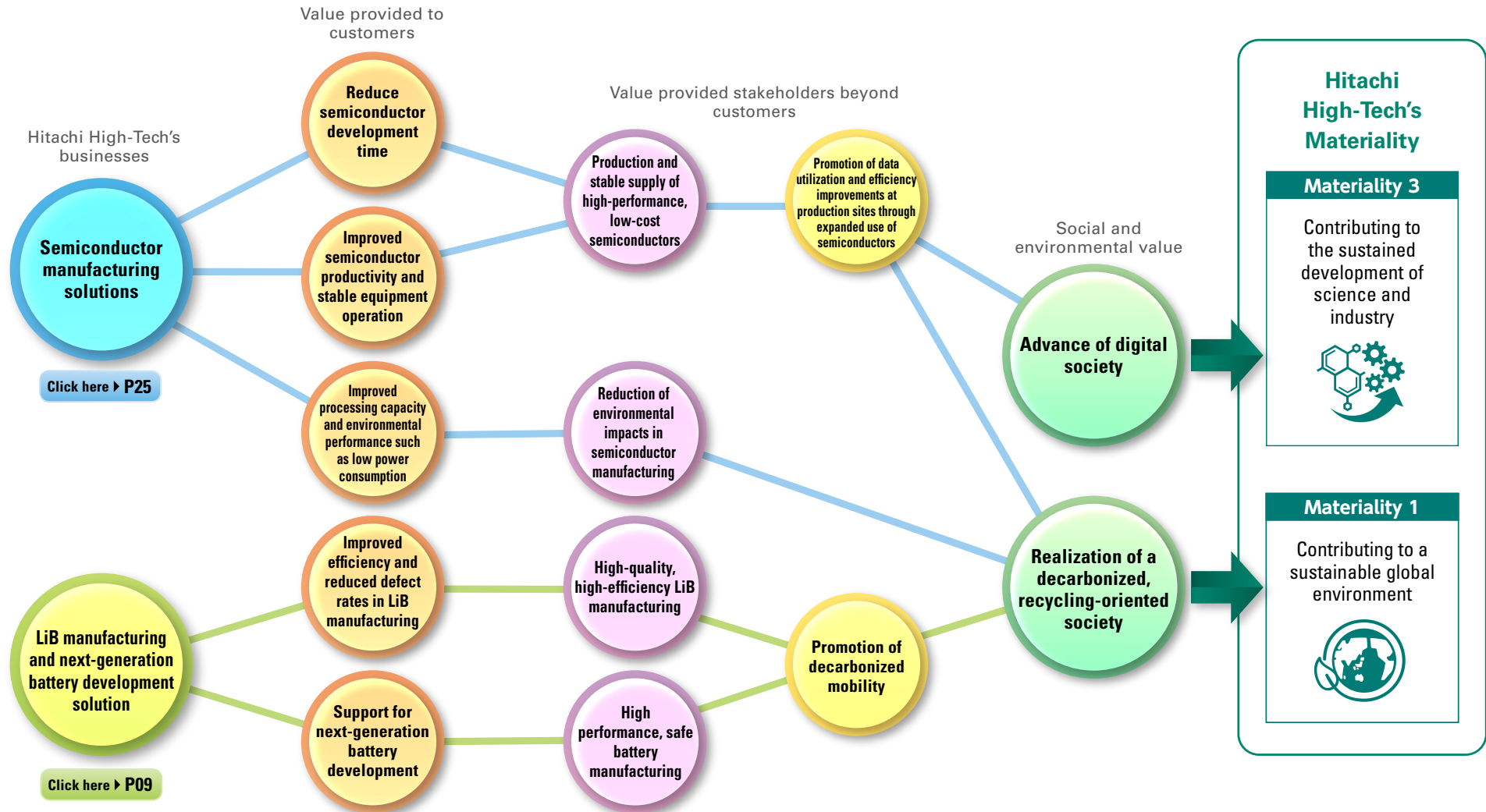
Hitachi High-Tech aims to realize a harmonious society in which people who have not had the opportunity fully participate in society thus far can actively participate and contribute to society, differences in gender, age, disabilities and so forth are accepted as a matter of course, and diverse lifestyles are mutually recognized.

Moving forward, in addition to promoting neurodiversity, Hitachi High-Tech will also work on various initiatives in disability employment, such as hiring individuals with disabilities from rural areas—who are highly likely to have limited work opportunities—through full remote work. The Company will also consider further diversification of work styles to enable stable employment while managing health conditions and symptoms.

\*1 Quoted from "Promotion of Neurodiversity (Ministry of Economy, Trade and Industry (METI))"

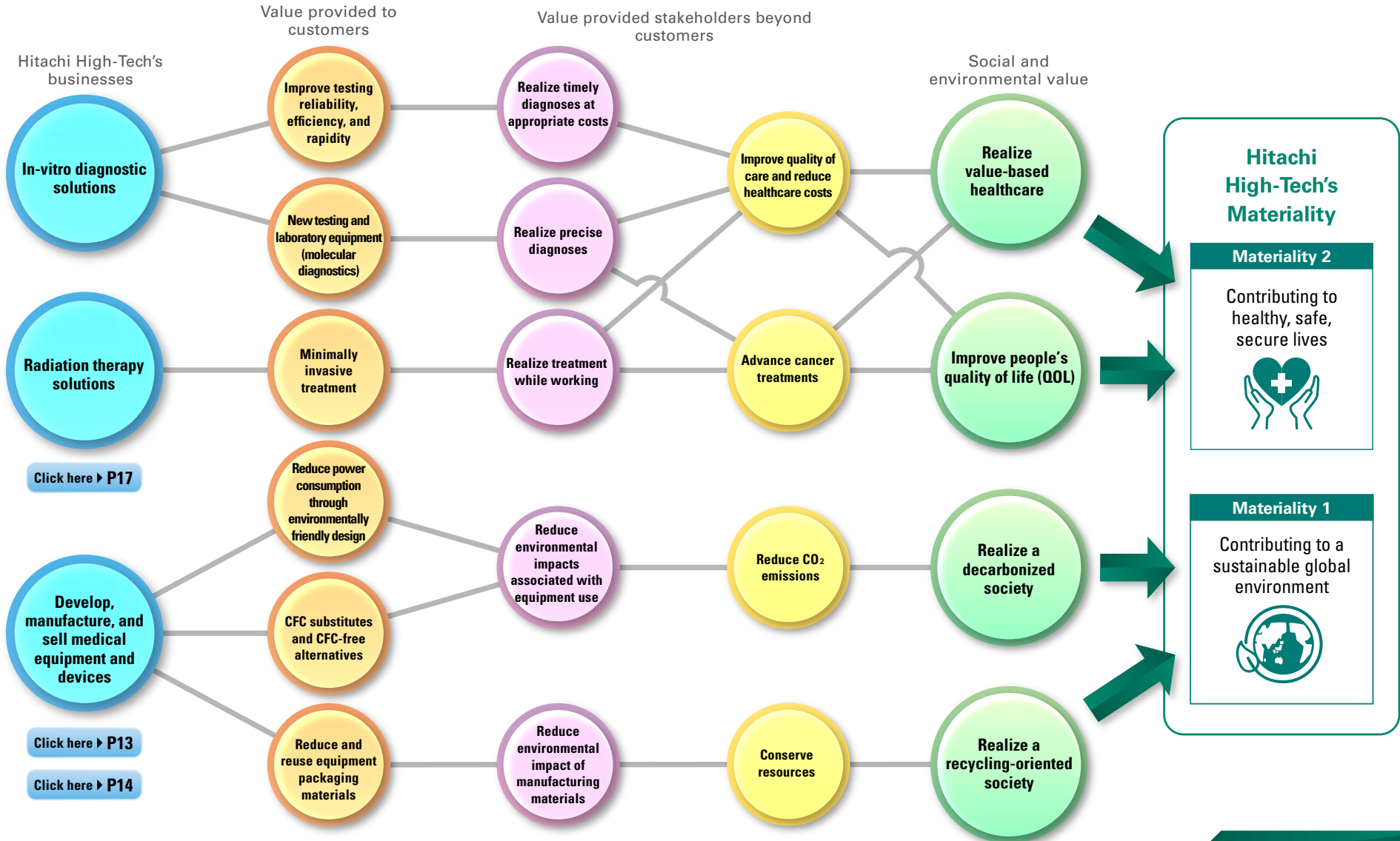
# Nano-technology Solutions Chain of Indicators

This chart shows the chain of indicators for each business and operation and how they create value, contribute to society, and are linked to materiality.



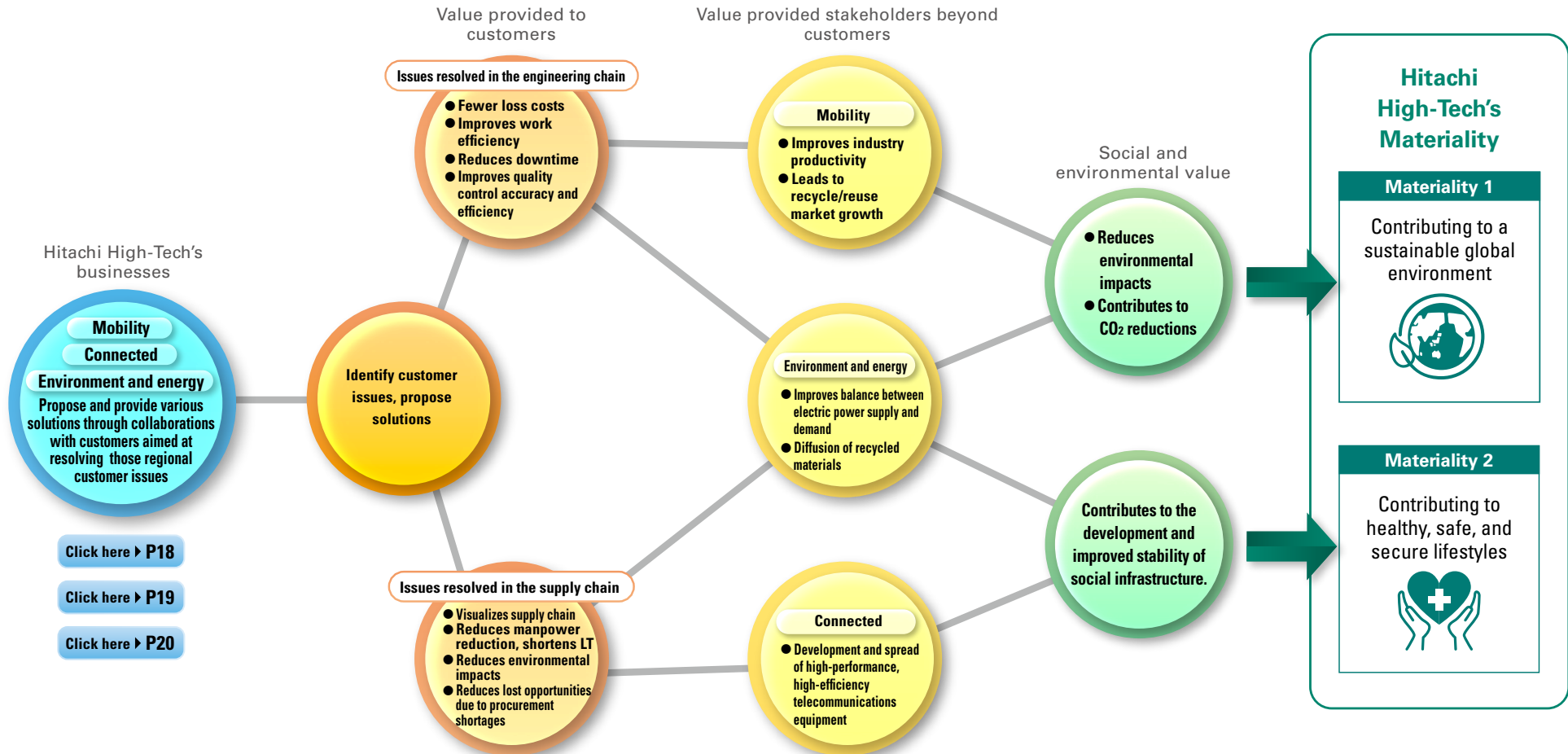
# Healthcare Solutions Chain of Indicators

This chart shows the chain of indicators for each business and operation and how they create value, contribute to society, and are linked to materiality.



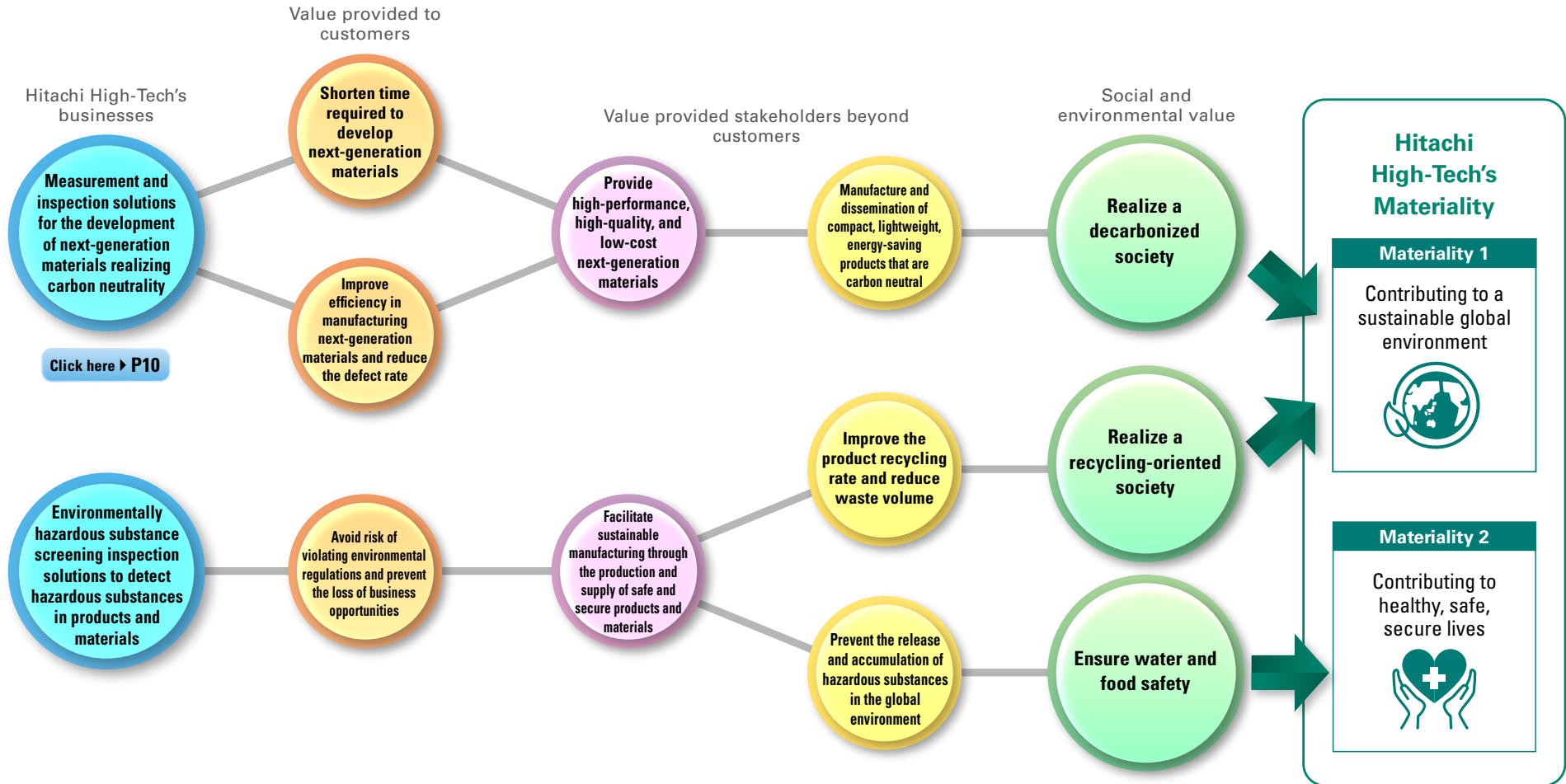
# Value Chain Solutions Chain of Indicators

This chart shows the chain of indicators for each business and operation and how they create value, contribute to society, and are linked to materiality.



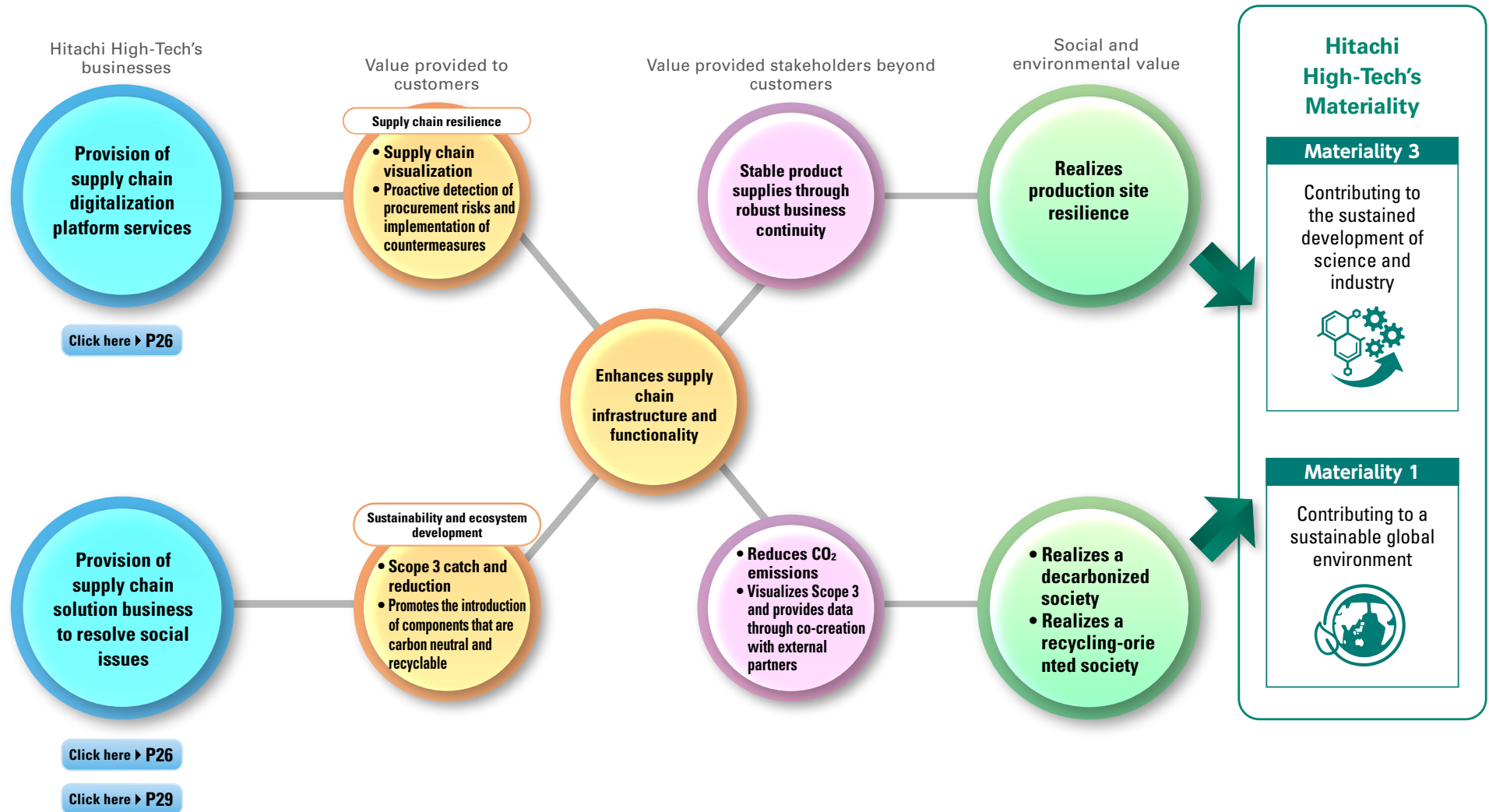
# Core Technology Solutions Chain of Indicators

This chart shows the chain of indicators for each business and operation and how they create value, contribute to society, and are linked to materiality.



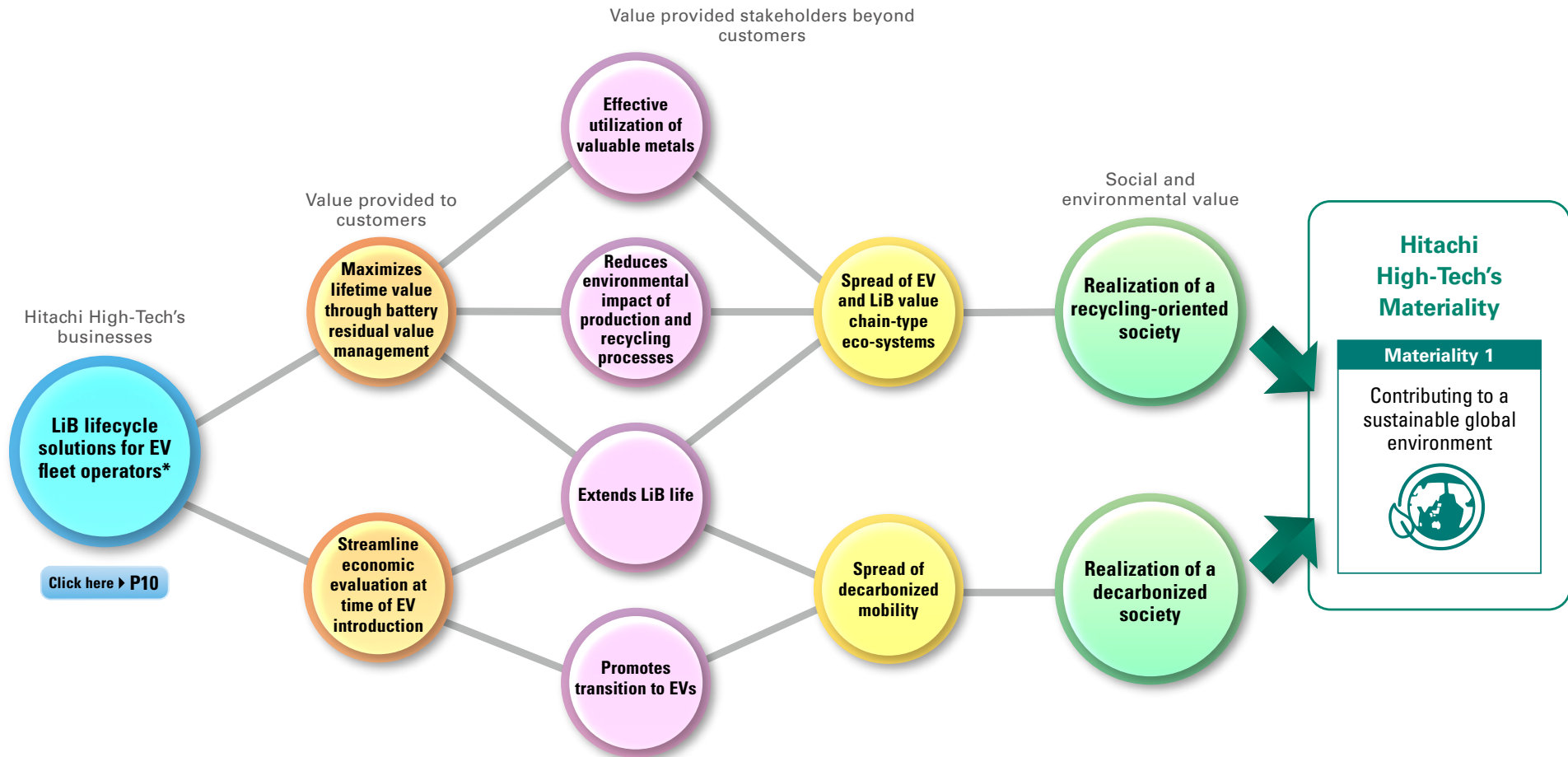
# Supply Chain Solutions Chain of Indicators

This chart shows the chain of indicators for each business and operation and how they create value, contribute to society, and are linked to materiality.



# Business Development Division Chain of Indicators

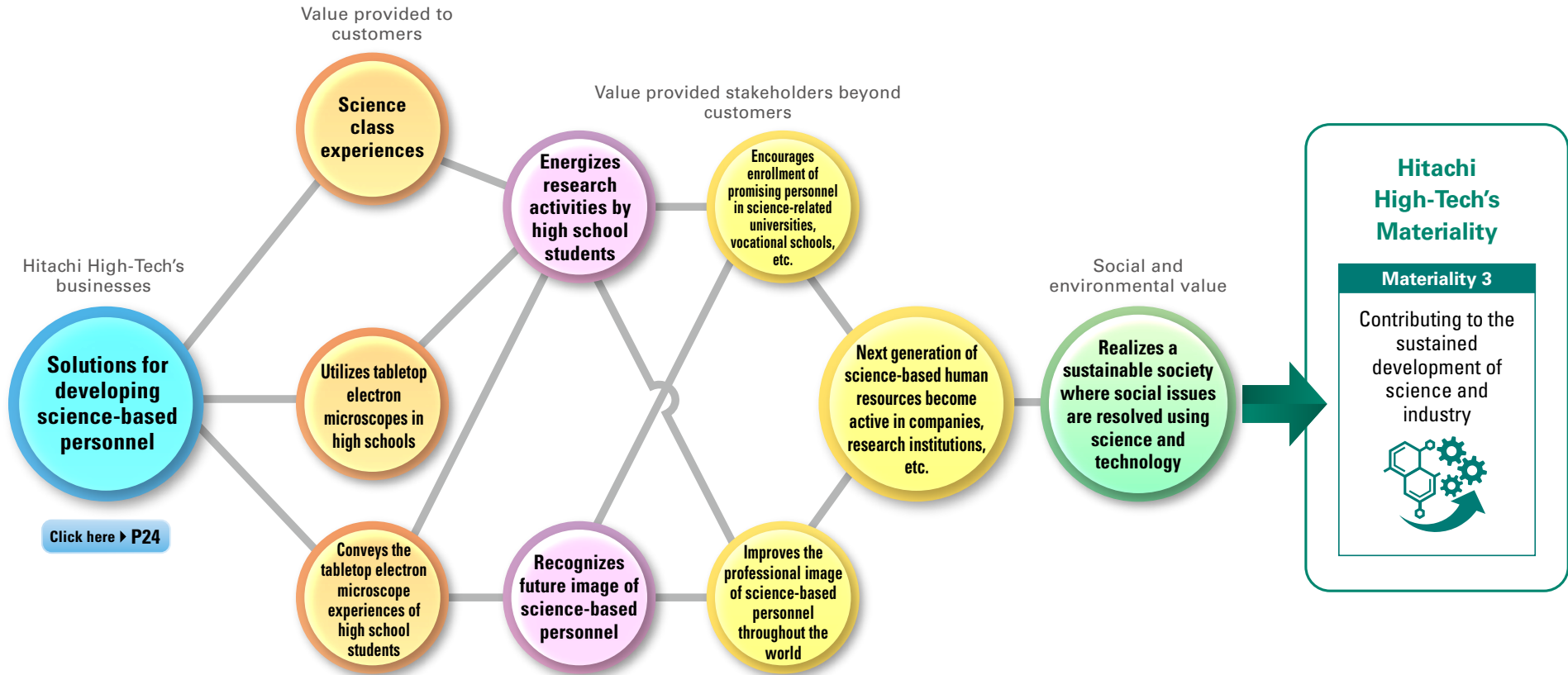
This chart shows the chain of indicators for each business and operation and how they create value, contribute to society, and are linked to materiality.



\* Transportation companies, buses, taxis, car rental and leasing companies, and other businesses that operate a large number of vehicles for the purpose of moving people and goods.

# Science Education Activities Chain of Indicators

This chart shows the chain of indicators for each business and operation and how they create value, contribute to society, and are linked to materiality.





# External Evaluations

## In 2023, Received an "A" Rating on the Climate Change Questionnaire, and an "A" Rating on the Water Security Questionnaire

Hitachi High-Tech received an "A" rating for climate change initiatives and an "A" rating for water security initiatives from CDP, a non-governmental organization that conducts environmental surveys and discloses information globally.



## Certified by the Ministry of the Environment as a Natural Symbiosis Site

The Woodlands of Hitachi High-Tech Science, located in the Fuji Oyama Works of Hitachi High-Tech Science Corporation, a group company of Hitachi High-Tech Corporation ("Hitachi High-Tech"), has been certified by the Ministry of the Environment as a Natural Symbiosis Site



## New Diversity Management Selection 100

The Ministry of Economy, Trade and Industry promotes the New Diversity Management Selection 100 program to expand the base of companies that engage in diversity management by recognizing companies that are creating value by leveraging the capabilities of their diverse human resources. Hitachi High-Tech's ongoing efforts to improve the working environment and foster an organizational culture, including the development of systems facilitating diverse workstyles and initiatives supporting female employee career development, were recognized as diversity management achievements leading to the expansion of business performance.



## Eruboshi Certification

Eruboshi certification is conferred by the Minister of Health, Labor and Welfare to companies that have made outstanding efforts in formulating and submitting action plans for the promotion of women's active participation in the workplace. Hitachi High-Tech satisfied criteria in all five evaluation items and received the third stage evaluation



## PRIDE Index Gold Award

Hitachi High-Tech received the Gold Award in the PRIDE Index for sexual minority initiatives certified by work with Pride (wwP), a voluntary organization that supports diversity management related to LGBT. Using this award as an opportunity to further deepen our understanding of LGBT, we will respect diverse sensitivities and values and further promote the creation of workplaces where employees with various attributes can play active roles.



## J-Win Diversity Award

At the 2022 J-Win Diversity Awards held by NPO J-Win, Hitachi High-Tech received the Basic Achievement Grand Prize in the Company Prize: Basic Category. The J-Win Diversity Awards recognize leading companies that promote diversity and inclusion (D&I), and are intended to accelerate the promotion of D&I in Japanese companies. Within the Company Prize segment, we received the Basic Achievement Grand Prize, the top award in the Basic Category, which is conferred to companies that exemplify the significance and purpose of women's active participation, set targets, and establish mechanisms and systems that are put into practice as a first step in promoting D&I.



## Platinum Kurumin Certification

Platinum Kurumin certification is granted to companies that have acquired Kurumin certification under the Act on Advancement of Measures to Support Raising Next-Generation Children that are engaged in higher-level efforts as companies that support childcare. Hitachi High-Tech is working to create systems and a culture that enables all employees to continue playing active roles long after various life events by establishing systems that support a balance between work and childcare that exceed legal requirements, diversifying childcare leave systems, and implementing the Zenryoku Childcare Support Project aiming for 100% male employee participation in childcare leave.



## 2024 Health and Productivity Management Organization (Large Enterprise Category) Certification

Hitachi High-Tech has been certified as a 2024 Health and Productivity Management Organization (Large Enterprise Category), jointly implemented by the Ministry of Economy, Trade and Industry, and the Nippon Kenko kaigi.

This is the seventh consecutive year that we been certified as a Health and Productivity Management Organization, and along with seven domestic Group companies,\* a total of eight Hitachi High-Tech Group companies have been certified as a 2024 Health and Productivity Management Organizations.

In 2023, we were highly evaluated for efforts supporting employees balancing work with child or nursing care in the area of "responding to social issues," as well as for our expanded disclosure of safety and health information, including the frequency of accidents and illness, in the area of "promoting information disclosure."

\* Seven domestic Group companies: Hitachi High-Tech Manufacturing & Service Corporation, Hitachi High-Tech Science Corporation, Hitachi High-Tech Nexus Corporation, Hitachi High-Tech Fielding Corporation, Hitachi High-Tech Kyushu Corporation, Hitachi High-Tech Solutions Corporation, and Hitachi High-Tech Support Corporation



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