

**“Cs+ for Tomorrow 2021”  
Medium-term Management  
Initiative  
Progress and Outlook**

November, 2021

Asahi Kasei Corp.

# Introduction

## ■ Environmental changes since formulation of “Cs+ for Tomorrow 2021”

U.S.–China decoupling, etc.

Rapid movement toward carbon neutral

Values changed by pandemic

New ways of living and working

Irreversible changes to industrial and demand structures

Heightened awareness for health and hygiene

Supply chains considering society and the environment



## ■ Execution aligned with environmental changes



Care for People

Active life in the new normal



Care for Earth

Carbon neutral sustainable world

**AsahiKASEI**  
 Diversity cultivated over 100-years of history and **capability to change** through the innovation of employees, organizations, and the company

While reconfirming risks in a discontinuous and uncertain environment, regarding changes as opportunities and moving proactively

# Value provision for sustainable society

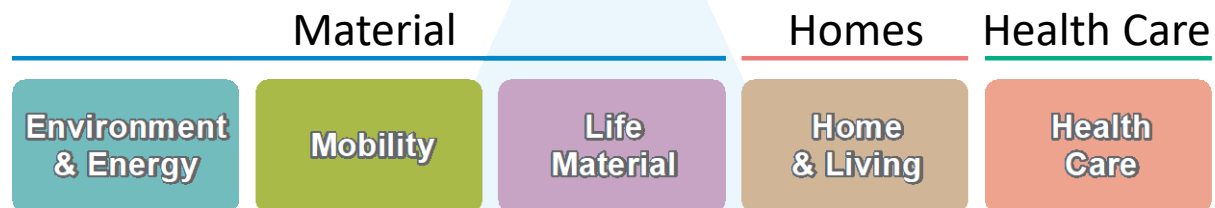
Execution aligned with management environment, but no fundamental change in concept for value provision

## Contributing to sustainable society

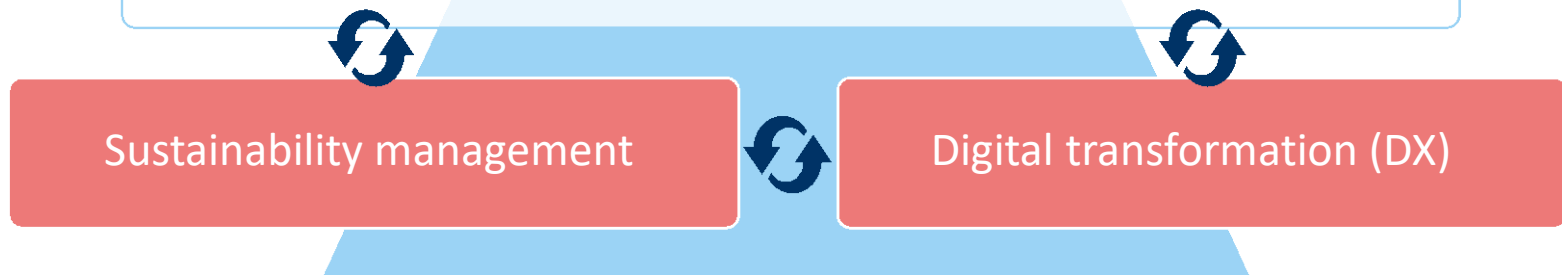
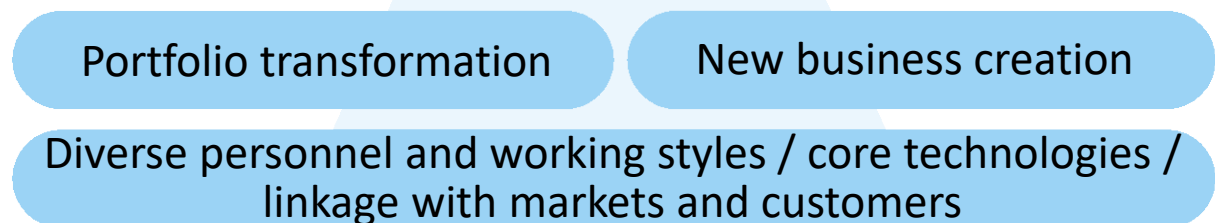
Group Mission

Contributing to life and living for people around the world

Growth strategy in priority fields for provision of value



Reinforcing the base for growth



## Policy for execution

**Growth investments considering cost of capital** emphasizing financial discipline

Business portfolio transformation and **cultivating new growth fields**

Advancing **sustainability and DX** as sources of competitiveness

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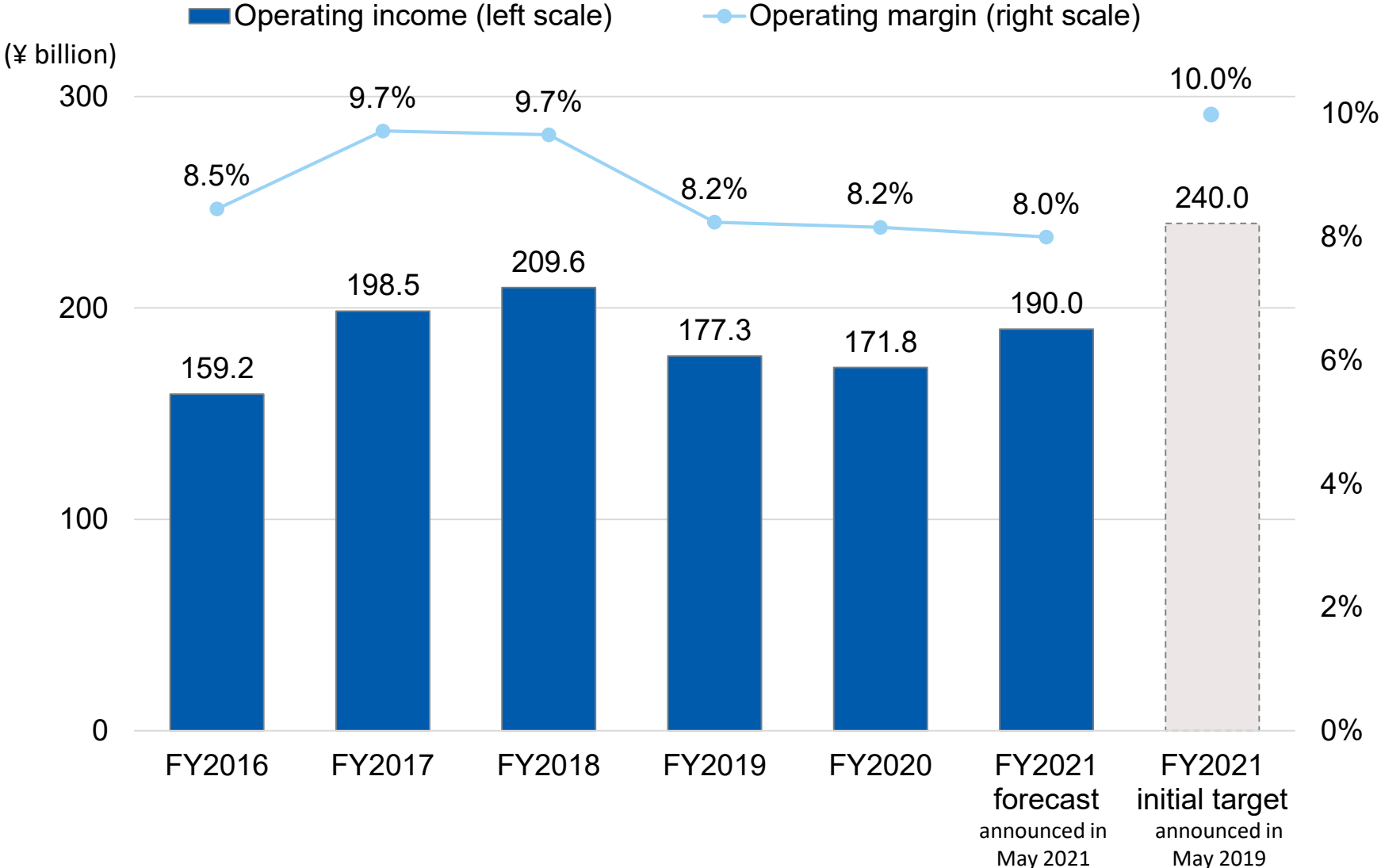
- ▶▶▶ **1. Progress on Financial Objectives**
- 2. Progress on Major Activities
  - 1) Actions in priority fields for provision of value
  - 2) Building platform for sustainable growth
- 3. Sustainability Initiatives
- 4. Toward Asahi Kasei's Next 100 Years

Disclaimer

The forecasts and estimates shown in this document are dependent on a variety of assumptions and economic conditions. Plans and figures depicting the future to not imply a guarantee of actual outcomes.

# Operating income and operating margin

Income growth stagnated due to environmental change; recovering but forecast to fall short of initial target



## Main financial metrics

Decline in net income in FY2020 with temporary tax expense (approx. ¥24 billion) etc.; profitability and capital efficiency expected to recover in FY2021

		FY2018	FY2019	FY2020	FY2021 forecast announced in May 2021	18-21 annual growth	FY2021 initial target announced in May 2019
	(¥ billion, unless otherwise specified)						
	Net sales	2,170.4	2,151.6	2,106.1	2,375.0		2,400.0
Profitability	Operating income	209.6	177.3	171.8	190.0	-3.2%	240.0
	Operating margin	9.7%	8.2%	8.2%	8.0%		10.0%
	EBITDA* <sup>1</sup>	313.6	295.6	305.1	331.0	1.8%	370.0
	EBITDA margin	14.5%	13.7%	14.5%	13.9%		15.4%
	Net income	147.5	103.9	79.8	155		180.0
	EPS (¥)	106	75	57	112	1.9%	130
Capital Efficiency	ROIC* <sup>2</sup>	8.8%	6.6%	4.9%			9.0%
	Net income per shareholder's equity (ROE)	11.1%	7.6%	5.6%			11.1%
Financial Health	D/E ratio	0.31	0.52	0.45			≈0.5
	Capital ratio	53.6%	48.6%	50.3%			
	Exchange rate (¥/ \$)	111	109	106	105		110

\*1: Operating income, depreciation, and amortization (tangible, intangible, and goodwill)

\*2: (Operating income – income taxes) / average annual invested capital

# Capital allocation

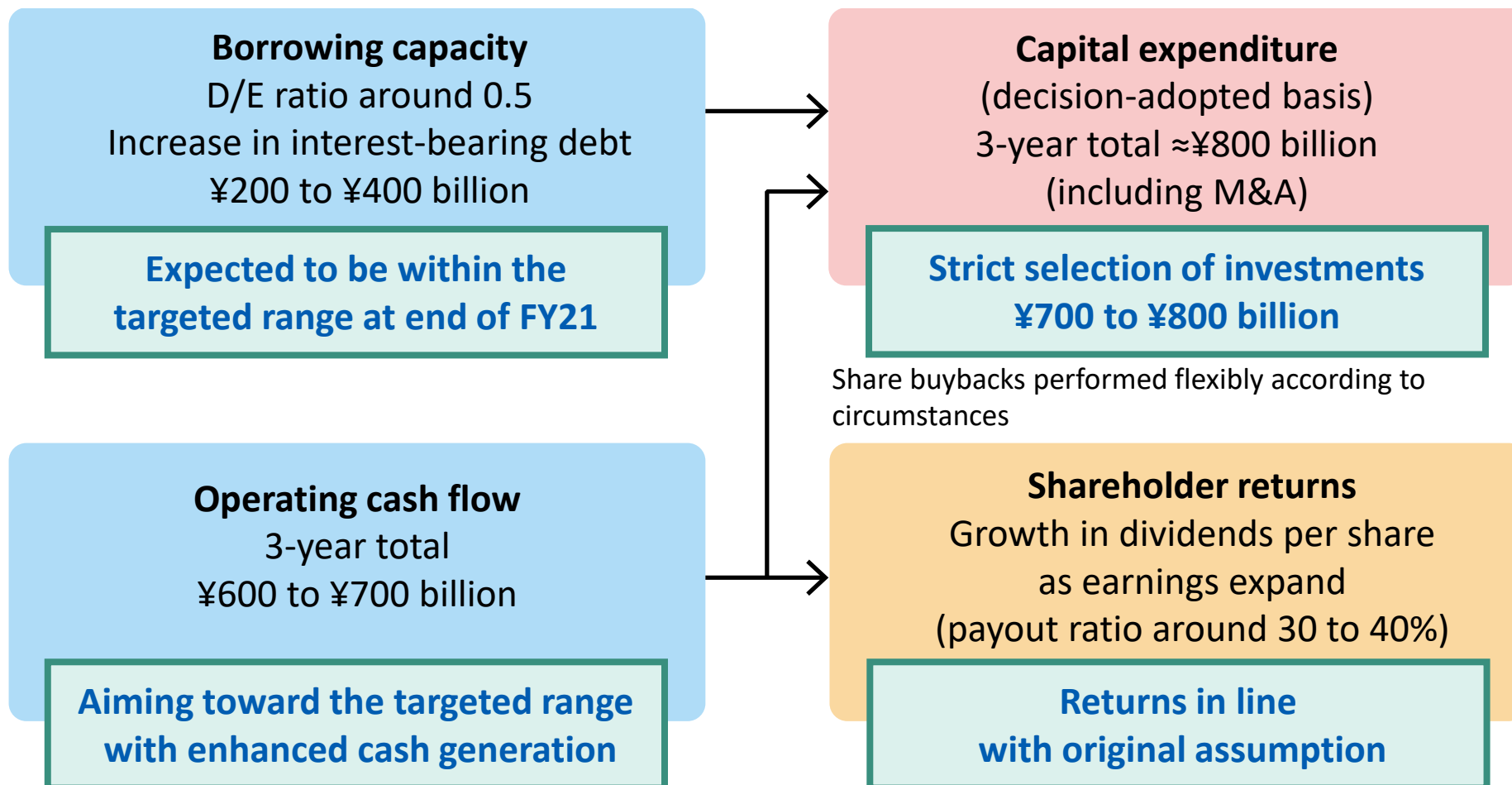
Sound financial condition maintained even with pandemic; continuing to strive for greater cash generating capacity and capital efficiency

## Framework for capital allocation (FY2019–21 3-year period)

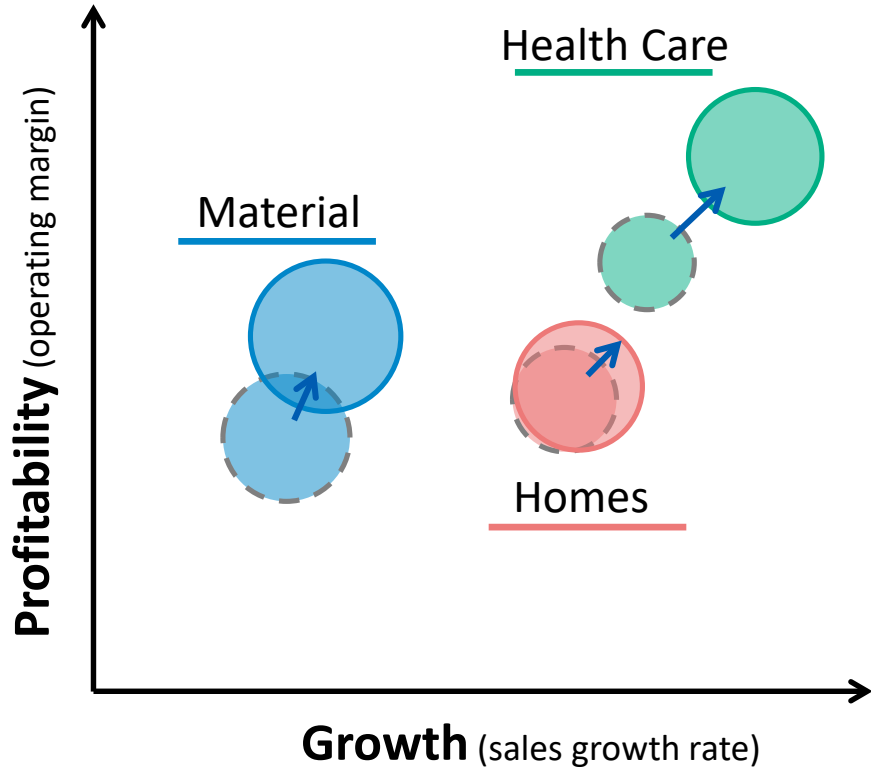
 blue letters indicate current view

Financing for growth (while maintaining financial discipline)

Pursuing returns above cost of capital



# Performance and outlook by sector



Dotted circle: current term  
 Solid circle: mid-term target  
 Circle size: operating income amount

## Current situation by sector\*

**Material**

- ▶ Slower growth and lower income due to environmental change
- ▶ Recovering, but performance below target

	FY19	FY20	FY21
Sales	1,093.1	991.2	1,168.0
Operating income	92.4	66.5	100.0
Operating margin	8.4%	6.7%	8.6%

**Homes**

- ▶ Domestic Japanese business recovering from Covid impact but 1 year behind plan
- ▶ Consolidation of McDonald Jones Homes

	FY19	FY20	FY21
Sales	704.4	692.6	791.0
Operating income	72.7	63.5	67.0
Operating margin	10.3%	9.2%	8.5%

**Health Care**

- ▶ Increased demand for ventilators and virus removal filters, income growth forecasted to achieve target

	FY19	FY20	FY21
Sales	337.8	407.9	400.0
Operating income	43.5	67.6	55.0
Operating margin	12.9%	16.6%	13.8%

## Outlook

- ▶ **Prioritizing profitability and capital efficiency** over increased scale; accelerating portfolio transformation
- ▶ **Thorough financial discipline, strict selection of growth investments**

- ▶ Domestic growth in homes for seniors and medium-rise; **overseas expansion in the US and Australia**
- ▶ Using IT to raise profitability; continued cashflow contribution

- ▶ **High earnings growth and profitability** through **returns** on previous investments
- ▶ Continuing **investment for further expansion** as growth driver for the group

\* FY19-20 results, FY21 forecast (announced in May 2021); ¥ billion

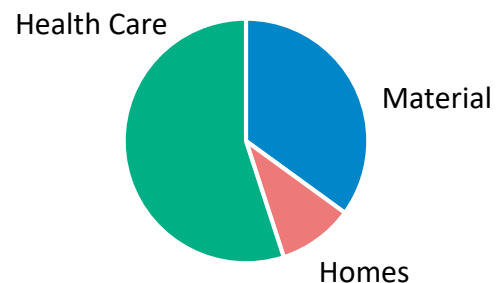
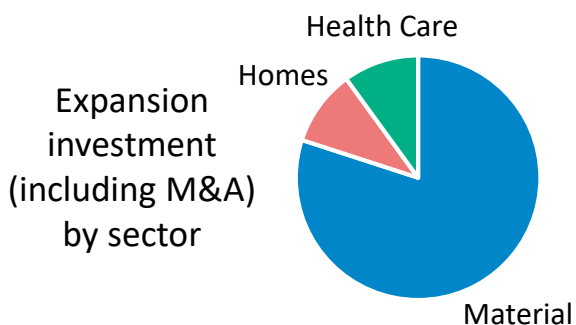
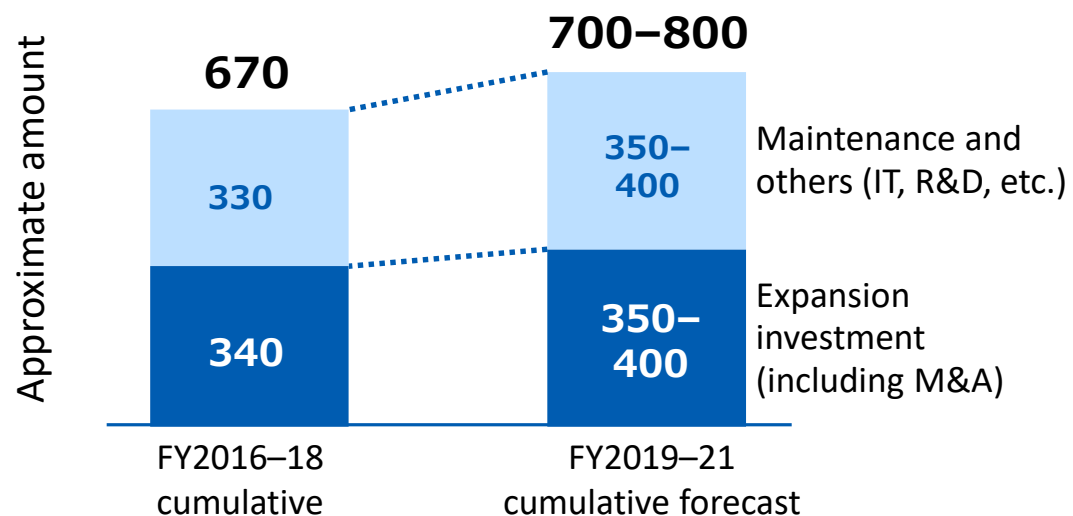


# Investment for sustainable growth

While maintaining financial discipline, proactively investing in businesses with mid-term growth prospects (Health Care, LIB separators, etc.) and in DX and sustainability

## Investment decisions adopted

(¥ billion)



## Main investments (including planned)

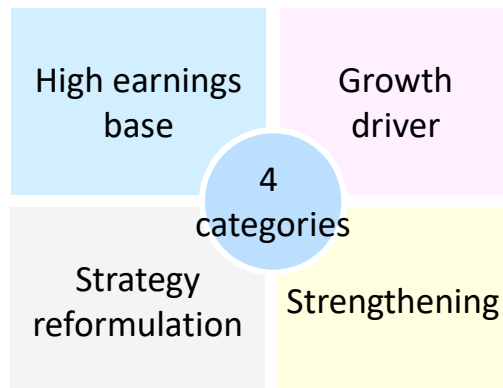
- Growth by M&A**
  - ▶ Acquisition of Adient’s automotive fabric business
  - ▶ Acquisition of controlling interest in McDonald Jones Homes
  - ▶ Acquisition of Veloxis Pharmaceuticals
  - ▶ Acquisition of Cardiac Science
  - ▶ Acquisition of Respicardia
- Expansion investment for growth businesses**
  - ▶ LIB separator capacity expansion
  - ▶ Ceolus microcrystalline cellulose capacity expansion
- Sustainability related**
  - ▶ Hydroelectric power plants in Nobeoka area
  - ▶ Chemical recycling related
- DX related**
  - ▶ Smart lab using materials informatics
  - ▶ Automated visual inspection using AI
  - ▶ Improved productivity with digital tools in Homes

# Business portfolio transformation

Raising cash generating capacity and capital efficiency by accelerating portfolio transformation through screening of “strategy reformulation businesses” based on business evaluation

## Business evaluation

- ▶ Evaluated by profitability (operating margin) and sales growth
- ▶ Additional evaluation to classify businesses in 4 categories
  - ROIC, cost of capital
  - Sustainability (GHG emissions, etc.)
  - Profit amount, profit volatility, business stage



## Strategy reformulation businesses

Among ~60 businesses evaluated

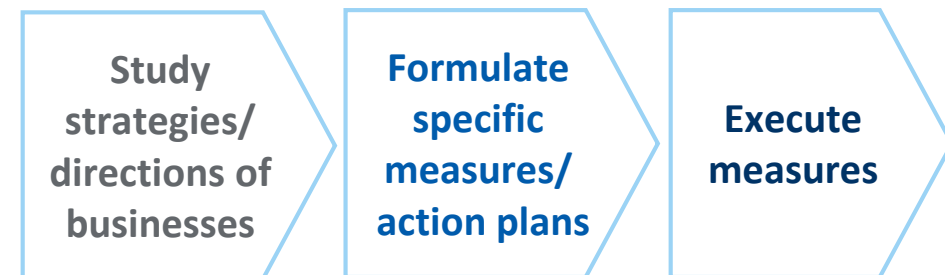
15 businesses

Mainly commodity products in Material

## Strategy study for individual businesses

- ▶ Reconsidered strategy based on view of competitive environment impacted by pandemic
- ▶ Set KPIs and milestones for strategy reformulation, continually monitoring progress

### Process stages



▶ **Actions begun for structural reform of several businesses**

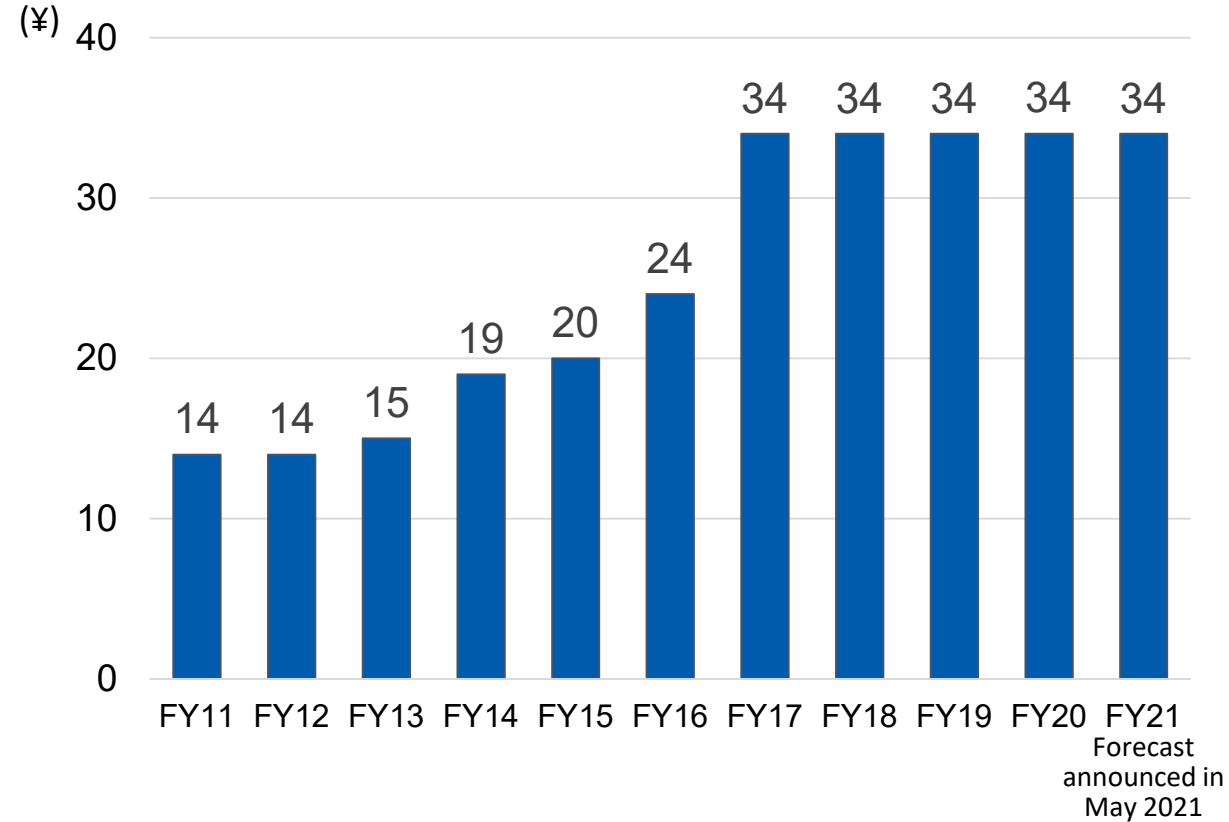
# Shareholder returns

Maintained dividends at ¥34 per share based on policy for shareholder returns

## Shareholder returns policy

- 1 Determining level of shareholder returns based on medium-term FCF outlook
- 2 Shareholder returns basically by dividends, aiming to maintain or increase dividends per share
- 3 With payout ratio of around 30–40%, considering dividend on equity (DOE) as well, aiming to steadily increase level of shareholder returns
- 4 Share buybacks as appropriate considering suitable level of equity

## Dividends per share



**Payout ratio (3-year total)**

Period	Payout Ratio
FY16-18	30%
FY19-21	≥40%

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# Material: Business strategy

Raising profitability/capital efficiency with new value provision models based on changed operating environment



Environment  
& Energy

Perceived change
<ul style="list-style-type: none"> <li>▶ Carbon neutral movement accelerates worldwide</li> <li>▶ Rapidly growing need for technologies and solutions that contribute to decarbonization</li> </ul>



Way to provide value	Example
<p><b>System/solution provider</b></p> <ul style="list-style-type: none"> <li>▶ Provide systems/solutions that combine core technologies, processes, and operational know-how of materials</li> <li>▶ Accelerate development of technologies and products that contribute to the environment</li> </ul>	<ul style="list-style-type: none"> <li>● Alkaline water electrolysis system leveraging electrolyzer, membrane, and electrode technologies cultivated with chlor-alkali</li> <li>● CO<sub>2</sub> chemistry, CO<sub>2</sub> separation/recovery system</li> </ul>



Mobility

<ul style="list-style-type: none"> <li>▶ Temporary market slowdown, but changes related to CASE continue to present opportunities to provide value with materials</li> </ul>
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<p><b>Material with proposal of usage</b></p> <ul style="list-style-type: none"> <li>▶ Propose lightweighting, modularization, and environmentally friendly materials to meet sustainability requirements for EDVs</li> <li>▶ Strengthen marketing to key customers</li> </ul>	<ul style="list-style-type: none"> <li>● Proposing parts through the use of CAE and other digital technologies</li> <li>● Providing cabin space solutions using sensors</li> </ul>
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Life Material  
(Electronic materials,  
healthcare materials)

<ul style="list-style-type: none"> <li>▶ Firm demand even under the Covid pandemic</li> <li>▶ New needs arising from advances in next-gen communications, changes in hygiene awareness, and new lifestyles</li> </ul>
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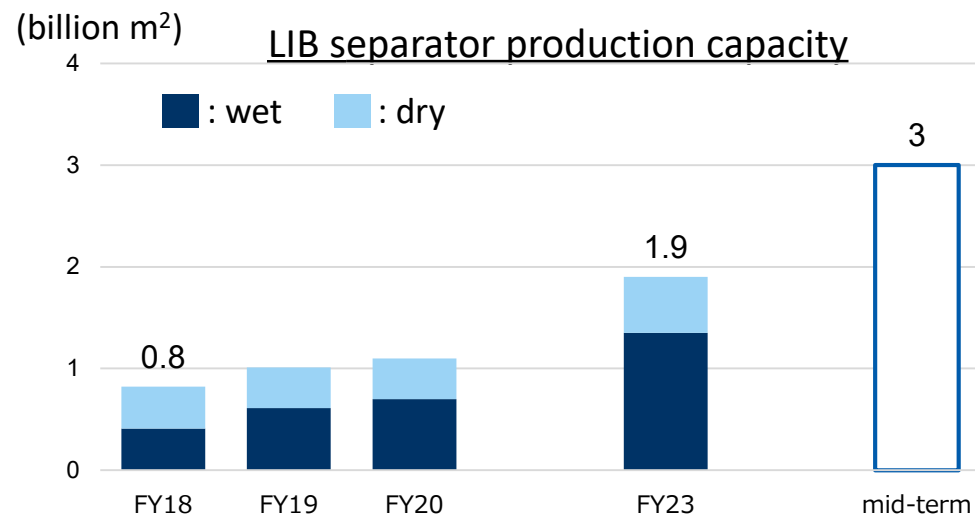
<p><b>Material differentiated by high performance/function</b></p> <ul style="list-style-type: none"> <li>▶ Provide differentiated materials required by the advancing digital society</li> <li>▶ Provide value to meet new needs in healthcare and other fields with distinctive materials and devices</li> </ul>	<ul style="list-style-type: none"> <li>● Surface disinfection solution with Klaran UVC LEDs</li> <li>● 3Cs visualization solution combining CO<sub>2</sub> sensors and live cameras</li> </ul>
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# Material: Focus on Growth Businesses

Shift resources in the Material sector to high-value-added businesses such as LIB separator and automotive interior materials

## Environment & Energy Expansion of LIB separator business

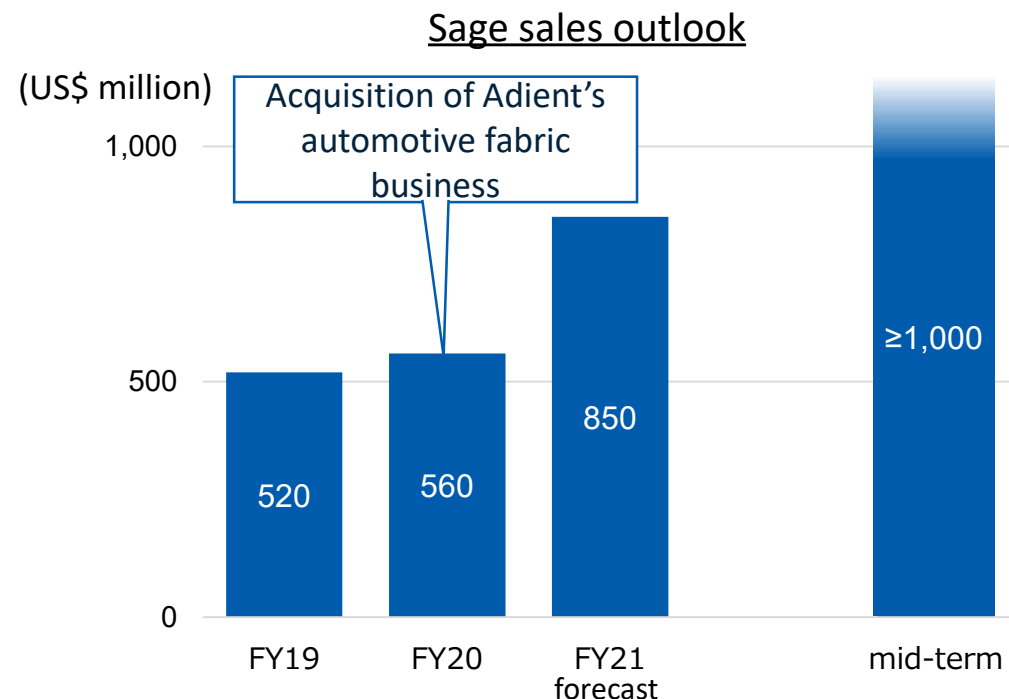
- ▶ Raising capacity to 1.9 billion m<sup>2</sup> in FY2023 and 3 billion m<sup>2</sup> in the medium term in line with EV-market growth; meeting diverse requirements with both wet and dry processes



Location	Capacity expansion	Start-up
Moriyama, Japan	≈ 0.2 billion m <sup>2</sup> /y	FY2019
Moriyama, Japan	≈ 0.09 billion m <sup>2</sup> /y	FY2020
Moriyama, Japan	≈ 0.3 billion m <sup>2</sup> /y	FY2021 (scheduled)
Hyuga, Japan	≈ 0.35 billion m <sup>2</sup> /y	FY2023 (scheduled)

## Mobility Expansion of Sage business

- ▶ Strengthening position as a leading supplier by building optimized supply network and proposing the best materials for each region, leveraging designability
- ▶ Synergy with environmentally friendly Lamous



# Material: Highlights in Life Material

Life  
Material

## Actions for Growth

### Accelerating growth of existing businesses

- ▶ Construction of second plant for Ceolus microcrystalline cellulose (completion in Spring 2023)
- ▶ Accelerate business expansion for Klaran high-performance UVC LEDs
  - High output at 265 nm wavelength effective for disinfection
  - Adopted in UV Streamer Air Purifier by Daikin Industries, Ltd.
- ▶ Automated flexo printing platemaking solution (for packaging materials), collaborating with a leading company



Klaran UVC LED



Daikin UV Streamer Air Purifier



Automated flexo platemaking solution

### Developing new business models

- ▶ Fresh Logi solution for maintaining freshness of produce
  - Reducing food waste and CO<sub>2</sub> emissions
  - In concert with SMAGt<sup>\*1</sup> system

\*1: Agricultural data platform using blockchain to visualize the production and transaction history by Information Services International-Dentsu, Ltd.



Fresh Logi

### Anti-counterfeiting solutions

- Promoting new solutions using blockchain and transparent RFID<sup>\*2</sup> tags that are difficult to replicate

\*2: Radio frequency identification





# Homes: Business Strategy

**Home & Living**

Maintaining existing medium-term growth strategy while using digital technology to meet changing lifestyle needs; strengthening resilience to disasters and adapting to carbon-free by leveraging our know-how for sustainable urban living



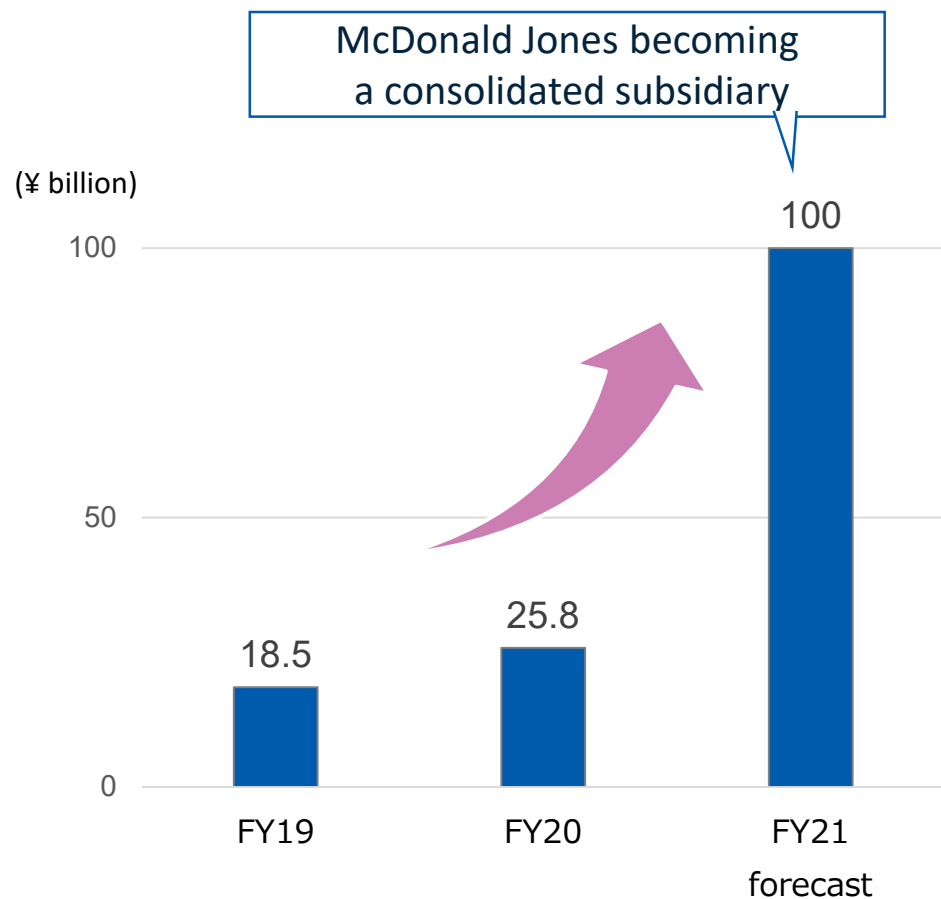
\* Resilience certification for Asahi Kasei Homes



# Homes: Expansion of Overseas Business

Pursuing growth through business models aligned with the characteristics of each region

## Net Sales of Overseas Business



## Australia

- ▶ McDonald Jones, a major steel-frame housing company, becoming a consolidated subsidiary (capital participation since 2017)



Home interior example

▶ Aiming to be Australia's leading brand through vertical integration with the steel frame supplier acquired in 2020

## North America

- ▶ Horizontal integration between Austin Companies for electrical, concrete, and HVAC (acquired in 2020) and Erickson (acquired in 2018)



Construction with Erickson's components

▶ Efficiently streamlined provision of high-quality buildings

# Homes: Sustainability and Resilience

To realize sustainable urban living, expedite initiatives of decarbonization and enhanced resilience to disasters

## Sustainability

- ▶ Participation in RE100 (Asahi Kasei Homes)
- ▶ Promotion of net-zero emission homes (reaching 66% in FY2020)
- ▶ Supply of non-FIT non-fossil power to our plants



- ▶ Neoma Foam received the 18th GSC Award (Minister of the Environment Award) and the 52nd JCIA Technology Award (Environmental Technology Award)



Neoma Foam



Comfortable Space Laboratory

## Resilience

- ▶ The 7th Japan Resilience Award (first condo rebuilt after 2016 Kumamoto earthquake)



Earthquake damage



After completion

- ▶ Joint research on real-time earthquake damage estimation system (with NIED\*)

\* National Research Institute for Earth Science and Disaster Resilience



Seismometer with Hebel Haus

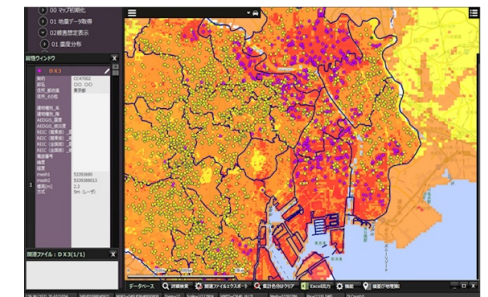


Image of the System

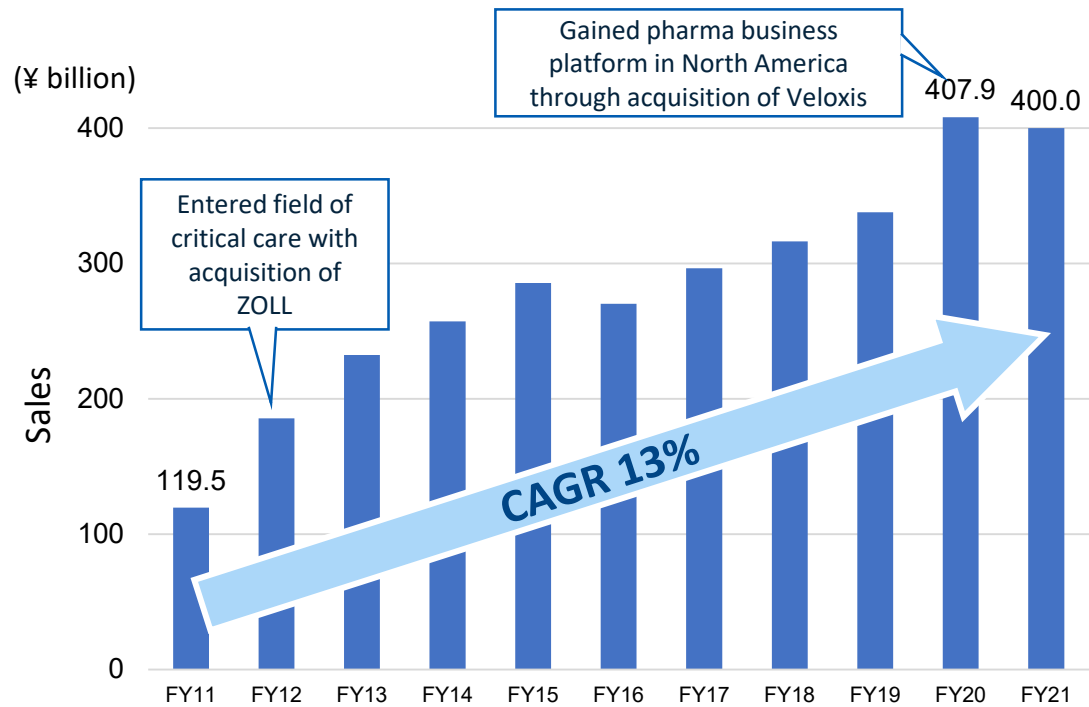
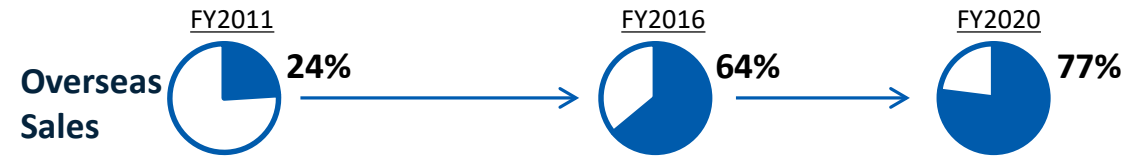
# Health Care: Business Strategy

**Health Care**

Continued growth even with Covid impact; prioritizing Group resources on Health Care; global expansion of both pharmaceuticals and medical devices, to be the third major pillar and driver of growth

**Sales Growth**

- ▶ 13% CAGR\* over past 10 years
- ▶ Driven by overseas business (reaching nearly 80%)

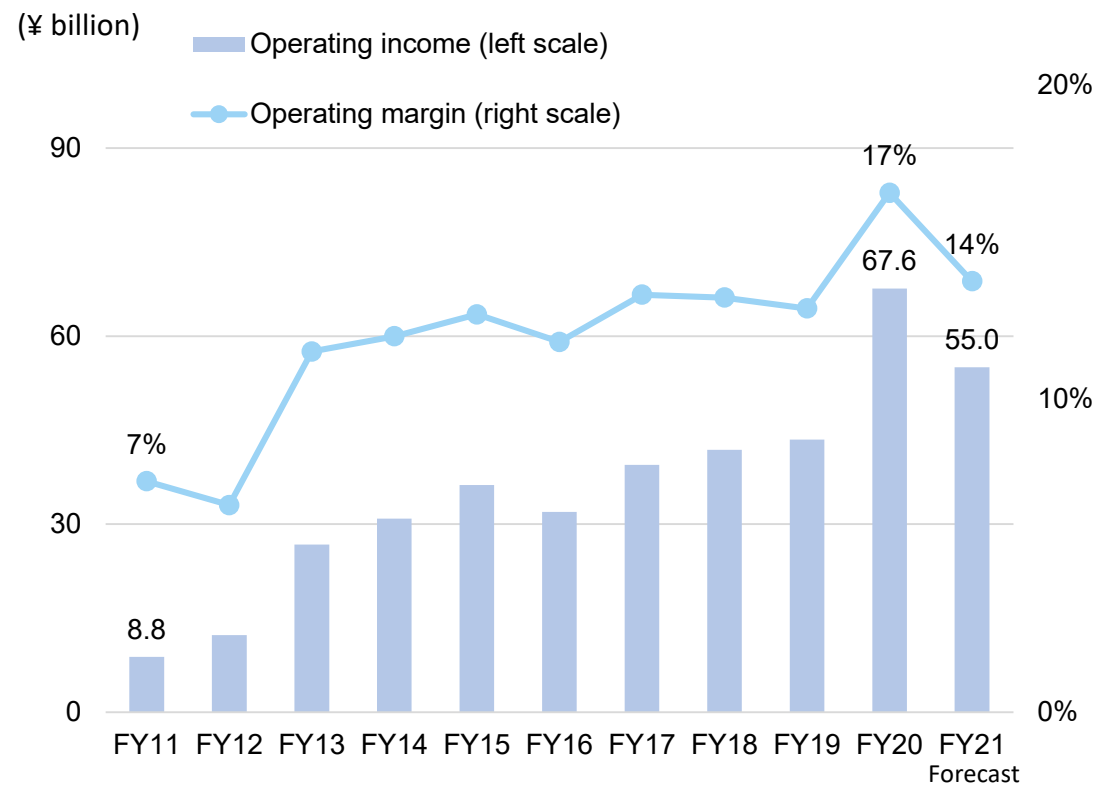


\*Compound Annual Growth Rate

Forecast (announced in May 2021)

**Income Growth**

- ▶ More than six-fold growth over past 10 years
- ▶ Both amount and margin rising



Forecast (announced in May 2021)

# Health Care: Critical Care Business Development

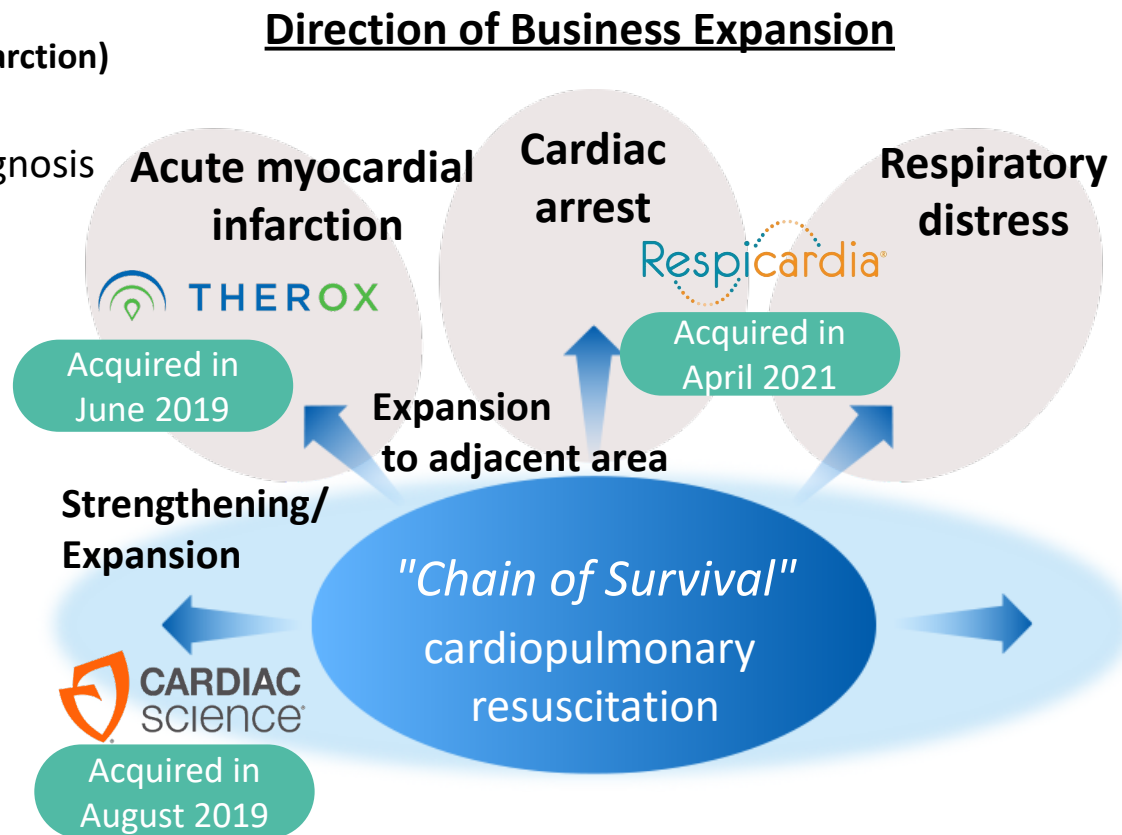
Continuing organic growth of existing businesses focused on cardiopulmonary resuscitation while promoting business development for both existing businesses and adjacent areas through acquisitions



**TherOx SSO<sub>2</sub> System**  
(for acute myocardial infarction)  
Innovative therapy for improving patient prognosis



**Cardiac Science AEDs**  
Expansion of AED product lineup



**Respicardia remedē System**  
(Implantable neurostimulation device for central sleep apnea)  
Innovative treatment for CSA, accompanied by risk of heart failure (estimated to be more than 1 million patents in the U.S. who could benefit)



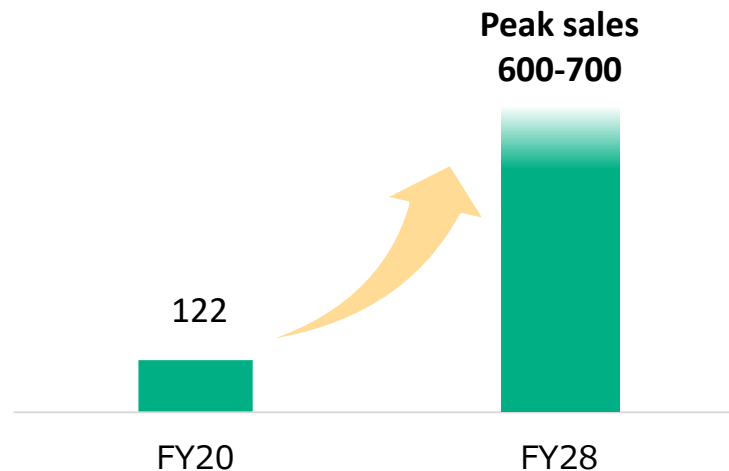


# Health Care: Pharmaceuticals and Medical Devices

## Pharmaceuticals (overseas)

- ▶ Steady growth in Veloxis Envarsus XR (immunosuppressant drug used following kidney transplant)
  - Increase of US transplantations
  - Expansion of facilities employing Envarsus XR

Envarsus XR US sales (US\$ million)



- ▶ Integration of clinical development and business development function of Asahi Kasei Pharma in the US with Veloxis

## Pharmaceuticals (domestic)

- ▶ Growth of Teribone autoinjector osteoporosis drug
  - Reached top share in Japan among teriparatide formulations
- ▶ Start of “Bone Check” project enlightening potential osteoporosis patients



Teribone autoinjector (for self-injection)

## Medical

- ▶ Strengthening bioprocess business
  - Expansion of sales and production capacity of Planova virus removal filters in line with the market growth of biologics (hollow fiber production capacity 40,000 m<sup>2</sup>/y increase ⇒ Total production capacity 130,000 m<sup>2</sup>/y)



Planova virus removal filters



Planova hollow fiber spinning plant (completed Sept. 2019)

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## Asahi Kasei DX Vision 2030

Asahi Kasei will co-create “healthy living” and “a future world full of smiles” through the borderless connections enhanced by digital innovation



Crossing boundaries and connecting with the power of digital

**To create new value for society, we will resonate across countries and cultures and co-create across companies and organizations.**



Healthy living and a future world full of smiles

**We will lead to a healthy, secure, safe, comfortable life and a world full of smiles for future generations.**



# Development of DX as a pillar of growth strategy

## Direction of DX Deployment

from 2018  
Digital Introduction Period

from 2020  
Digital Deployment Period

from 2022  
Digital Creation Period

**Foundations of functional DX**

- Materials informatics (MI), production technology innovation, IP landscape, etc.

⇒ About 400 projects

**Accelerate companywide DX promotion**

- Development of DX Vision
- Digital Value Co-Creation, co-creation laboratories, etc.

**Management Innovation through DX**

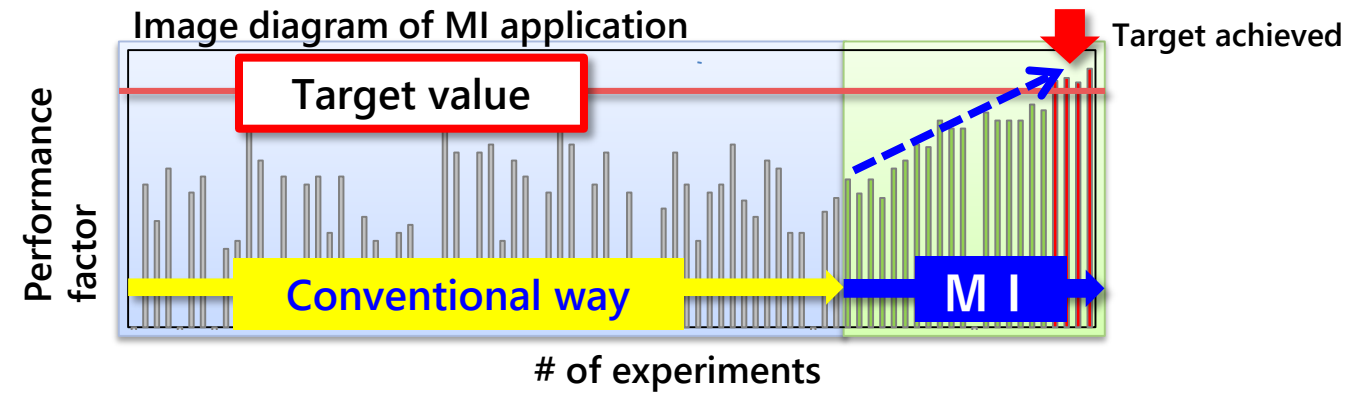
- Business model transformation, valuing intangible assets
- Utilization in management decision-making
- Use in human resource management, etc.

from 2024  
**Digital Normal Period**  
All employees become digital human resources

All employees gain a mindset of digital utilization

## Application of MI to development of innovative materials and products

▶ **MI dramatically accelerates** the search for combinations of materials × processes (melting methods, mixing methods, etc.), enables **the search for new combinations** that were not previously found, and achieves **the highest performance**.



## Development of remote monitoring system for improved productivity

▶ Ex., green hydrogen demonstration project in Germany monitored in Japan

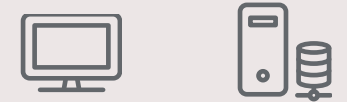


**Herten, Germany**



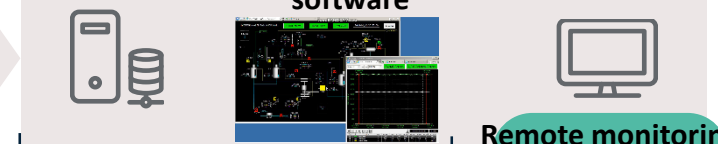
Alkaline water electrolyzer

Control PC    Edge server



**Kawasaki Works (Kanagawa, Japan)**

Edge server    Data reference software    Monitoring PC



Asahi Kasei Data Center (Miyazaki)

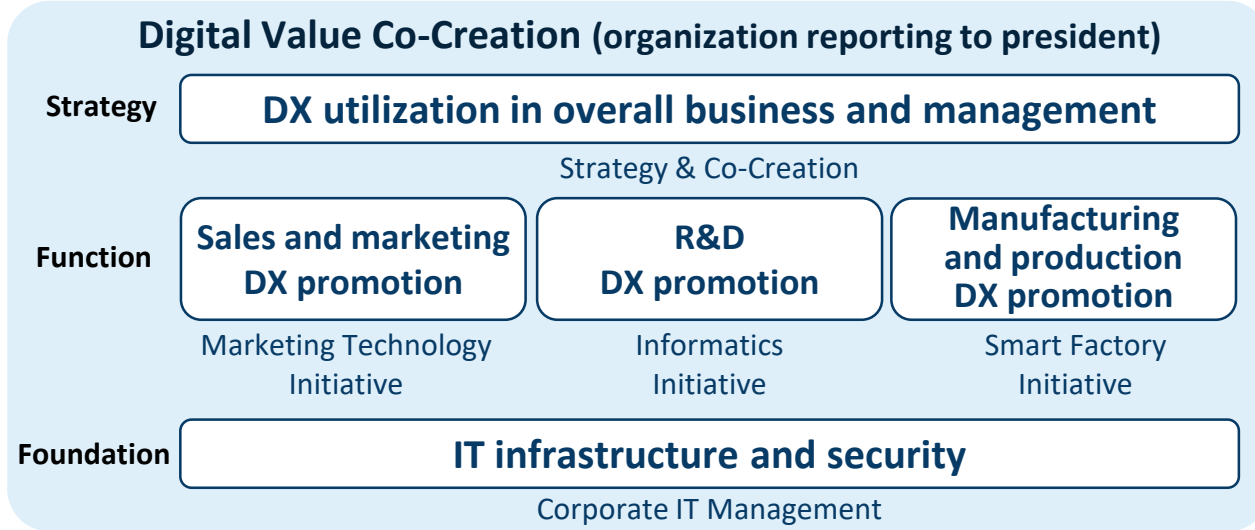
Remote monitoring /Data analysis



# DX Promotion Framework

## Establishment of Digital Value Co-Creation

- ▶ With the diversity that is a strength of the Asahi Kasei Group, promoting reforms through co-creation with digital technology across the Group



## Opened CoCo-CAFE digital co-creation laboratory



- ▶ A base where digital human resources are gathered together and create cooperatively with both inside and outside the company

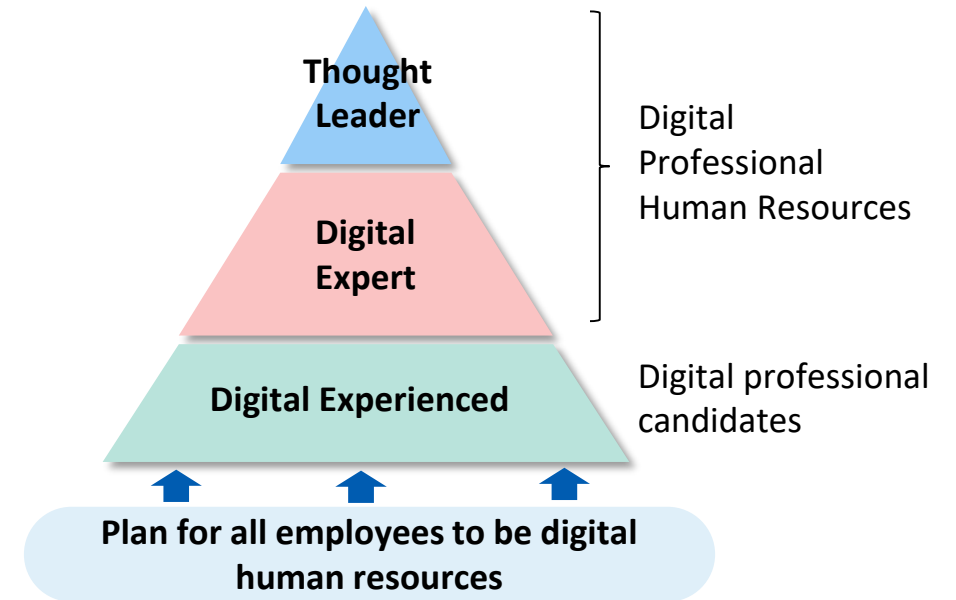


## Promoting DX education by level

- ▶ Strengthen DX education for all Asahi Kasei Group employees (started Open Badge system)
- ▶ Develop business managers into DX leaders (training program to deepen understanding of DX and strengthen its promotion)

## Developing and obtaining of DX professional human resources

- ▶ By the end of FY2021, to have 230 digital professional personnel who will promote advanced digitization through development programs and recruitment



# Use of intellectual property

**Intellectual Property Awards**  
**Minister of Economy, Trade and Industry Award**  
 (2021 Award for Excellence in Utilizing the Intellectual Property System)

## Reasons for Awards Received

1. Intellectual property activities with an awareness of contributing to business based on the mission of maximizing business value
2. As a contribution to business advancement, IP landscape and intellectual property activities to support DX were implemented company-wide
3. Succession of a strong intellectual property mindset to successive researchers through an educational program aimed at raising awareness of intellectual property

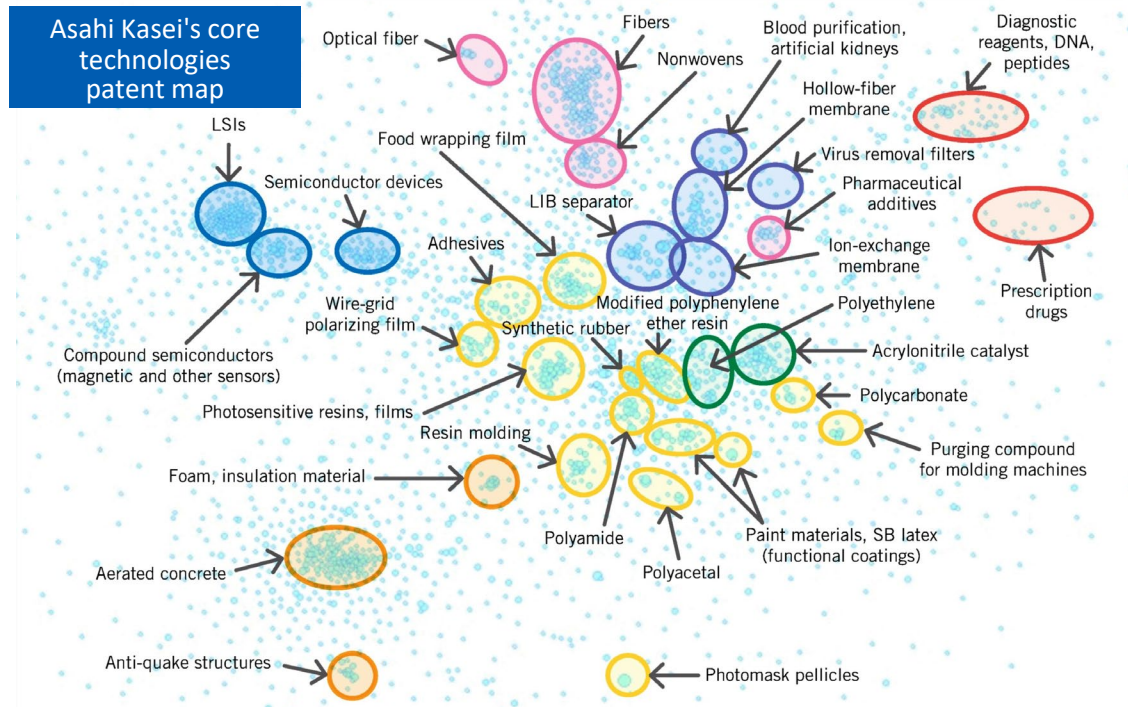
## Implementation of IP landscape activities in various businesses within the Asahi Kasei Group



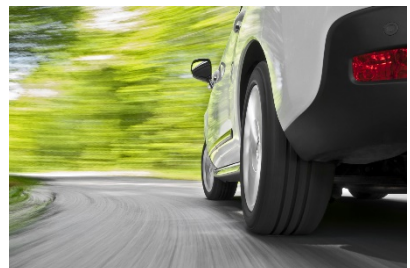
Hipore LIB separator



Hebel Haus unit home



Created by Asahi Kasei using "TechRadar Vision" (a tool provided by VALUENEX Japan Inc.)  
 Each dot shows a patent held by the Asahi Kasei Group in Japan.



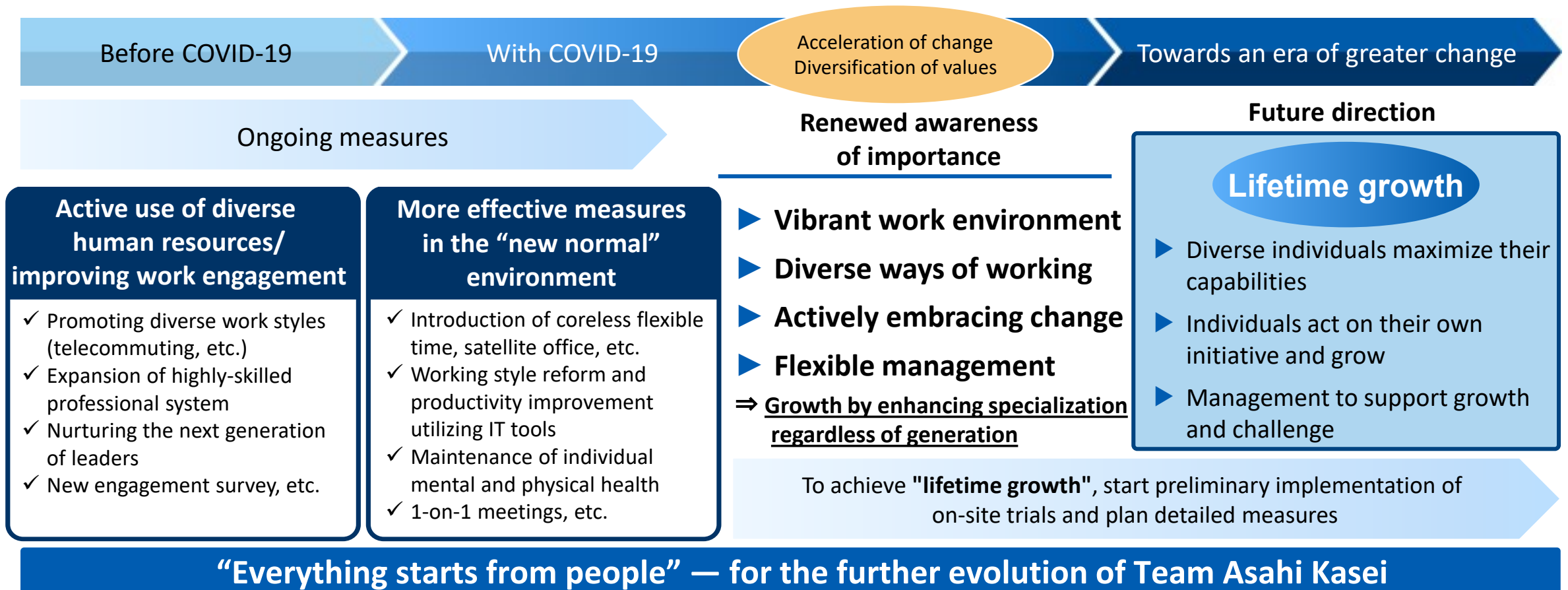
S-SBR synthetic rubber for fuel-efficient tires



Teribone osteoporosis drug

# Development of Human Resource Base

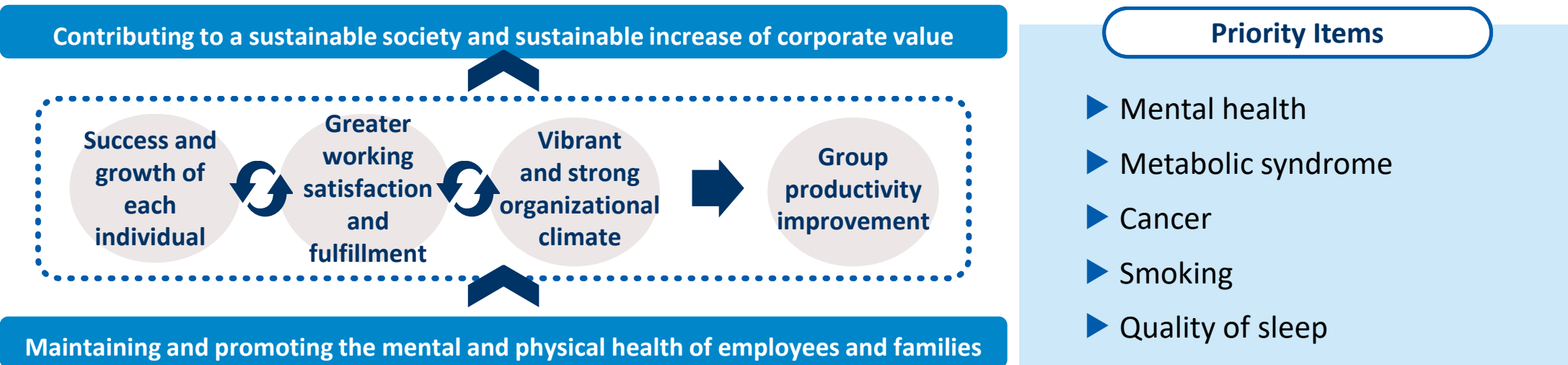
In order to respond to changes and continue to provide value to society, promoting the creation of a foundation that supports the autonomous growth of employees and enables diverse individuals to thrive



**"Diversity"** cultivated over 100-years of history and **"Capability to Change"** through the innovation of employees, organizations, and the company

# Promoting Health and Productivity Management

Enhanced health and productivity management will contribute to the two aspects of sustainability for Asahi Kasei



## Priority Items

- ▶ Mental health
- ▶ Metabolic syndrome
- ▶ Cancer
- ▶ Smoking
- ▶ Quality of sleep

## Examples of activities

- ▶ Continuous implementation of AED lifesaving seminars  
⇒ Basic lifesaving measures for emergencies
- ▶ Introduction of an osteoporosis checkup subsidy support (Asahi Kasei Pharma)  
⇒ Increased awareness of osteoporosis and improved health



AED lifesaving seminars

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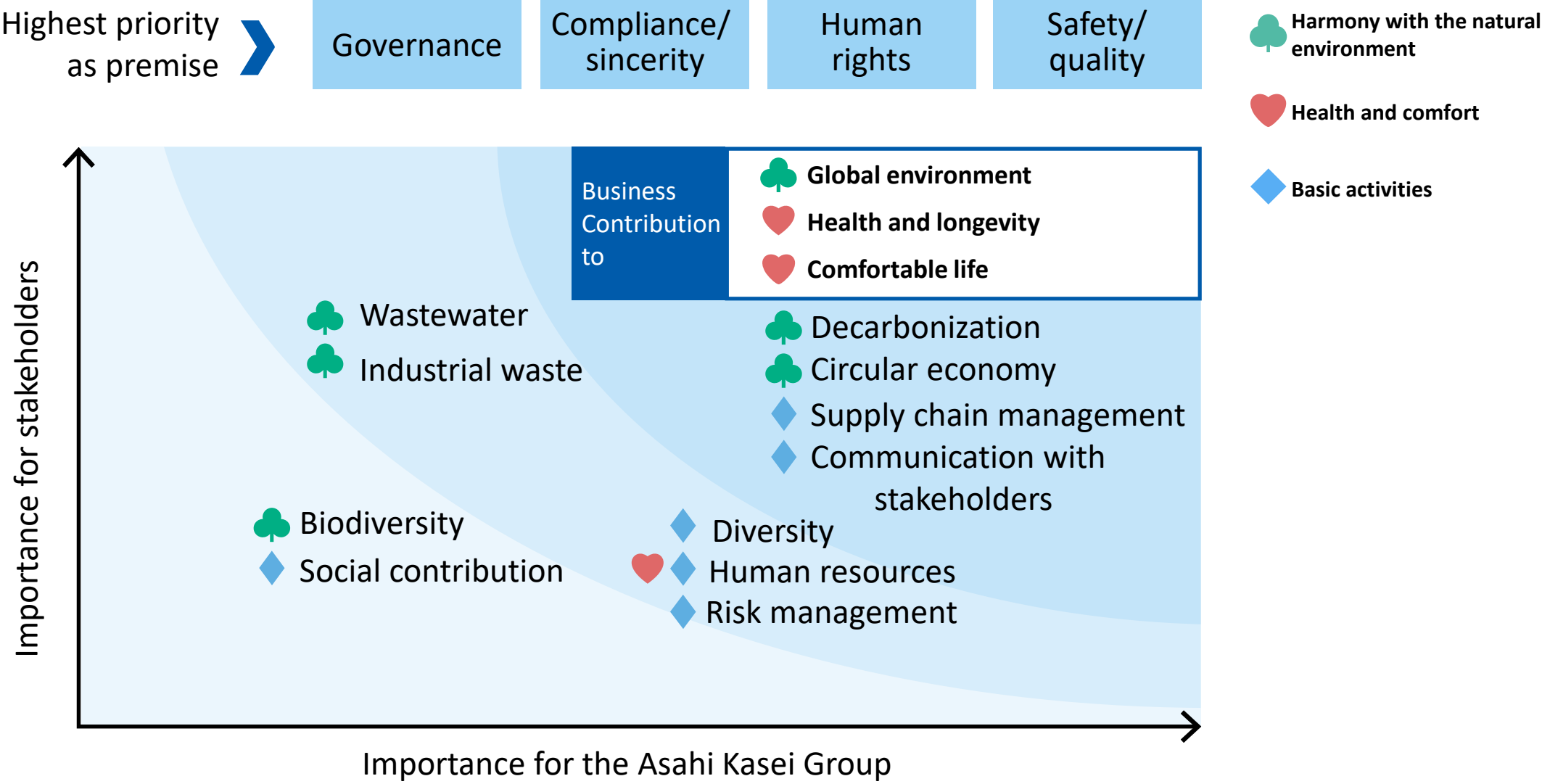
1. Progress on Financial Objectives
2. Progress on Major Activities
  - 1) Actions in priority fields for provision of value
  - 2) Building platform for sustainable growth

### 3. **Sustainability Initiatives**

4. Toward Asahi Kasei's Next 100 Years



# Materiality of the Asahi Kasei Group considering business environment change



# Contribution to realize a carbon neutral and sustainable world



Care for  
Earth

Carbon neutral  
sustainable world

The Asahi Kasei Group is addressing global climate issues by leveraging our scientific strengths cultivated since our foundation

- ▶ Contributing to the decarbonization of various industries
- ▶ Contributing to reducing global greenhouse gas (GHG) emissions through our technologies, products, and services

## Contributing to decarbonization in many ways

Next generation  
energy

- ▶ Green hydrogen production
- ▶ Energy storage
- ▶ Green ammonia, etc.

Carbon  
absorption and  
utilization

- ▶ CO<sub>2</sub> separation and recovery
- ▶ CO<sub>2</sub> chemistry, etc.

Circular  
economy

- ▶ Material Recycling
- ▶ Chemical recycling, etc.

Environmental  
contribution  
products

- ▶ LIB separator
- ▶ Ion-exchange membrane
- ▶ Lightweighting resin
- ▶ S-SBR for fuel-efficient tires
- ▶ Elastomer for asphalt modification
- ▶ CO<sub>2</sub> sensors
- ▶ Net-zero emission houses
- ▶ High-performance insulation material, etc.

# Decarbonization Initiatives

## Reducing our own GHG emissions

**To realize a sustainable society,  
the Asahi Kasei Group aims to achieve carbon neutrality by 2050 <sup>\*1</sup>**

### Main measures

- ▶ Energy decarbonization (acceleration of R&D for alkaline water electrolysis, CO<sub>2</sub> separation/recovery/utilization, etc.)
- ▶ Manufacturing process innovation
- ▶ Shift to high-value-added, low-carbon businesses, etc.

### 2030 Target

**Reduce GHG emissions by 30% or more (compared with FY2013)<sup>\*2</sup>**

**Develop a roadmap to achieve the goal,  
and accelerate decarbonization initiatives accordingly**

\*1: GHG emissions from our business activities (Scope 1, 2)

\*2: Presumption that the Japanese power supply structure will be more than 50% non-fossil in accordance with the governmental policy



# Projects for decarbonization

Working with other companies to achieve a hydrogen society, increasing our own use of renewable energy

## Green Solution Project (from April 2021)

- ▶ Aiming to create businesses that can provide value to society with an overview of the entire carbon neutral-related market

## Working toward a hydrogen society

- ▶ Contributing to the achievement of a hydrogen society through large-scale water electrolysis demonstrations, etc.
- ▶ Participation in Japan Hydrogen Association

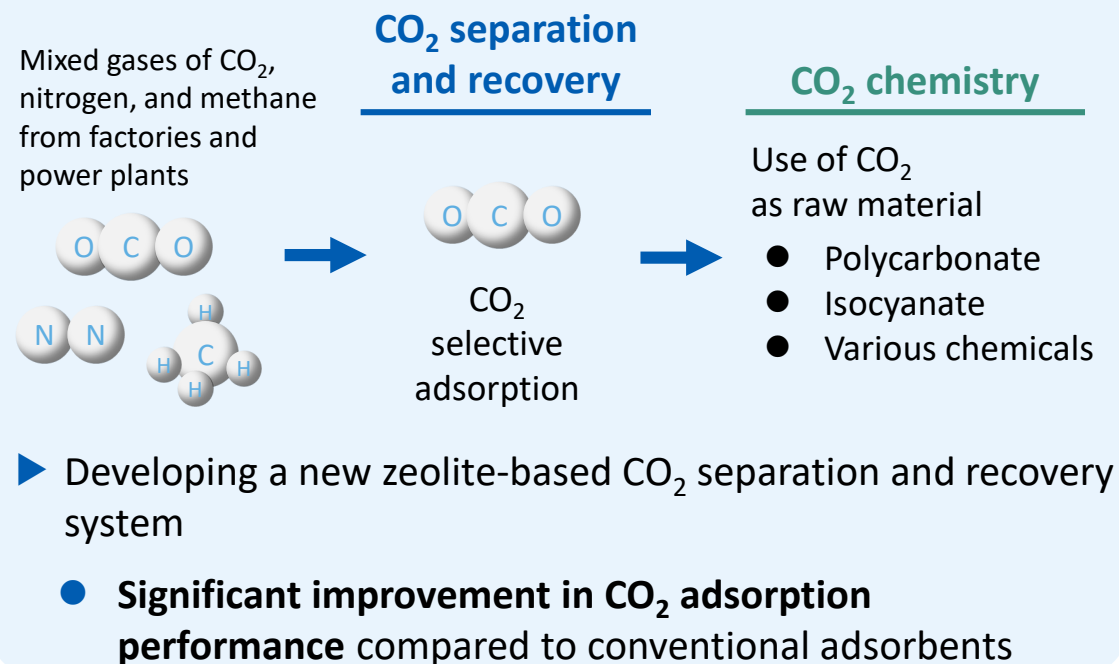


NEDO project  
Fukushima Hydrogen Energy Research Field (FH2R)



ALIGN-CCUS  
water electrolysis system  
(Niederaussem, Germany)

## Achieving CO<sub>2</sub> adsorption and utilization

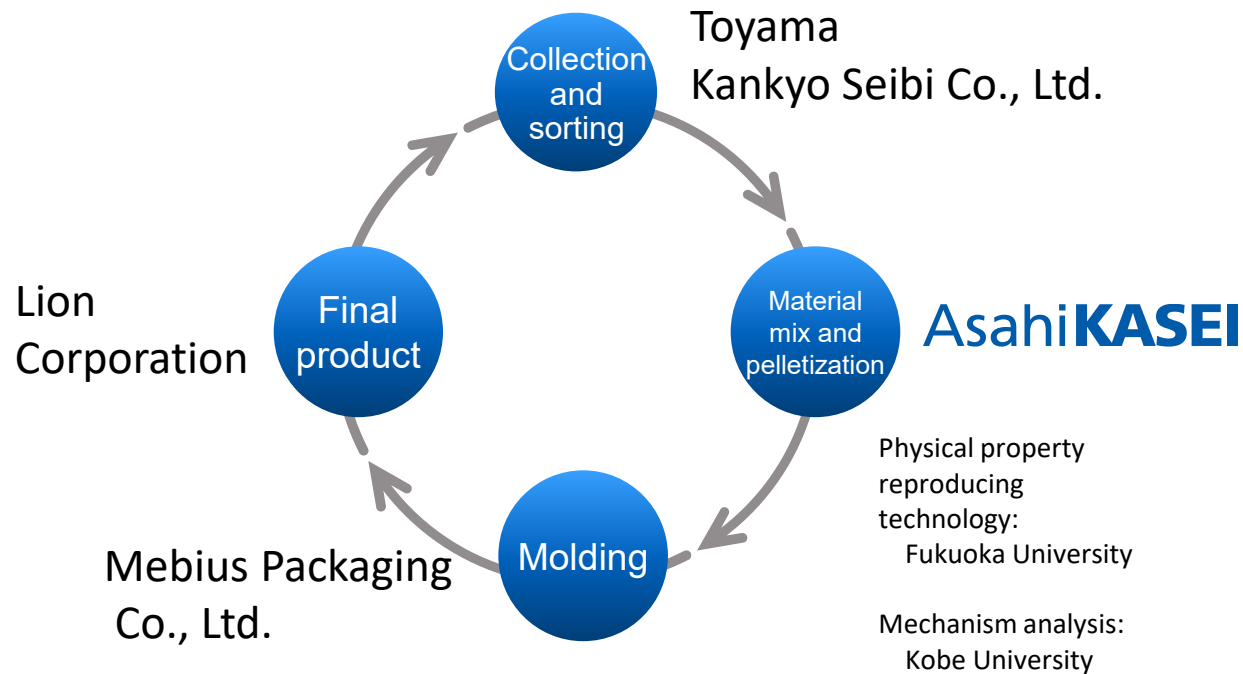


# Projects for the circular economy

Promoting projects in collaboration with other companies and academia

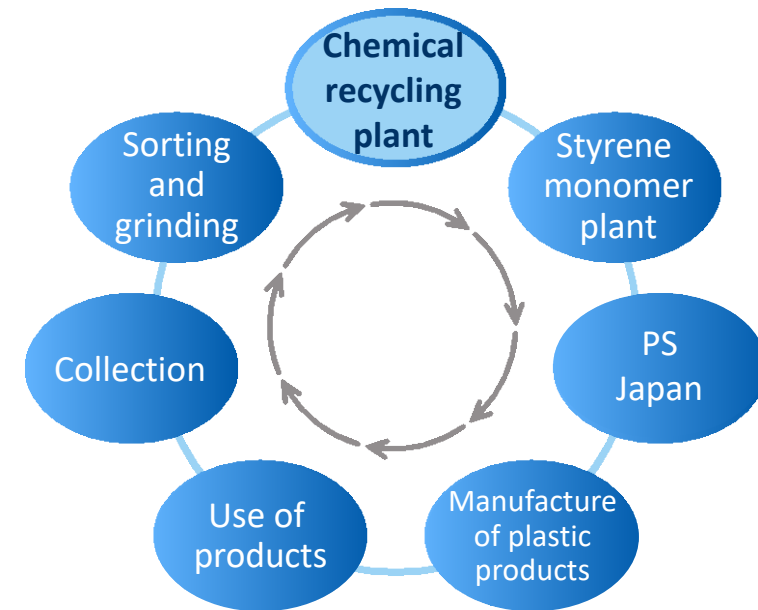
## ■ Polyethylene material recycling

- ▶ Develop recycled toiletries bottles in NEDO Project\*
- ▶ Establish a platform to manage and visualize the supply chain based on blockchain technology with IBM Japan, Ltd.



## ■ Polystyrene chemical recycling

- ▶ Plan to construct facility to convert used polystyrene products back to styrene monomer through thermal decomposition



Chemical recycling of polystyrene

\* 2019: Adoption of NEDO "Leading Research Program"/ 2020: Adoption of NEDO "Innovative Resource Recycling Process Technologies"

# Contributing to active life in the "new normal"



Care for  
**People**

Active life  
in the new normal

Providing high-quality medical care and fulfilling lives through our products, technologies, and solutions

## Contributing to anti-Covid measures



Ventilators



Therapeutic apheresis



Surface disinfection solution



Virus removal filters



Medical gown



Mask

## Contributing to high quality treatment

### Orthopedics

- ▶ Osteoporosis treatment
  - Teribone
  - Reclast
- ▶ Rheumatoid arthritis treatment
  - Kevzara

### Immune system

- ▶ Immunosuppressive agent
  - Envarsus XR
  - Bredinine

### Renal disease

- ▶ Artificial kidneys

### Critical care / Heart disease

- ▶ Defibrillators
- ▶ LifeVest (wearable defibrillator)
- ▶ Recomodulin (anticoagulant)
- ▶ Therapeutic apheresis
- ▶ Implantable neurostimulator device (central sleep apnea therapy)

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1. Progress on Financial Objectives
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  - 1) Actions in priority fields for provision of value
  - 2) Building platform for sustainable growth
3. Sustainability Initiatives

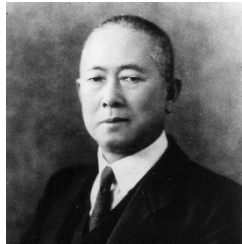
## 4. **Toward Asahi Kasei's Next 100 Years**

# Asahi Kasei's centennial and the next 100 years



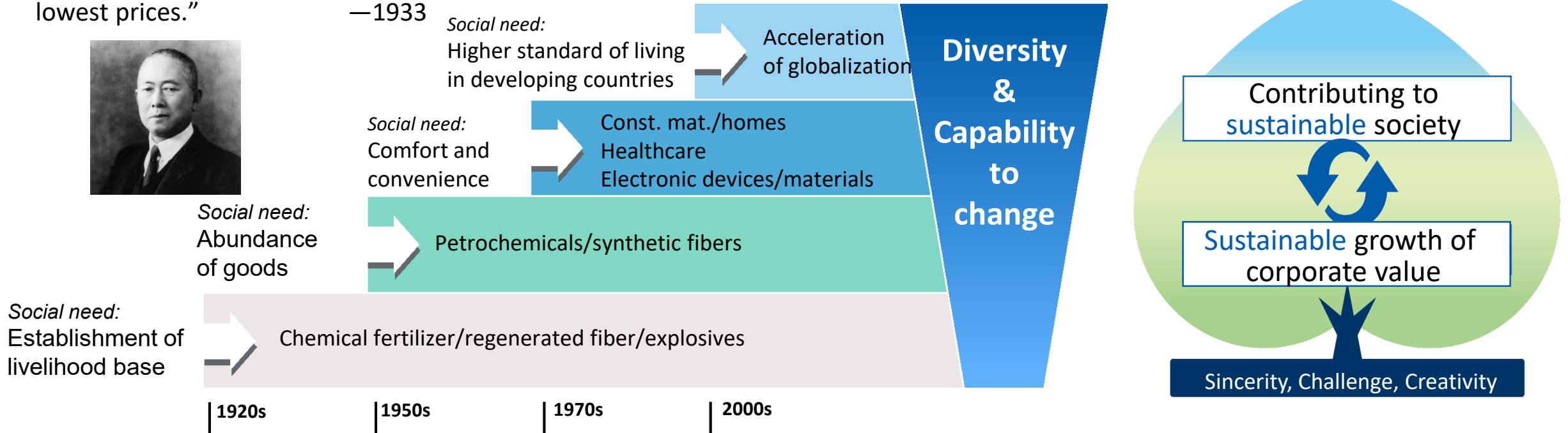
## Vision of founder Shitagau Noguchi

“As industrialists, we must be cognizant that, to improve the living standard, our ultimate mission is to contribute to people by supplying abundant highest-quality daily necessities at the lowest prices.”  
—1933



Grasping social needs,  
dynamic portfolio transformation,  
developing business that makes life better

Two aspects of sustainability  
for Asahi Kasei



# Management direction for the next 100 years

## ■ Realization of the two aspects of sustainability for Asahi Kasei

Providing solution for **a sustainable society** through innovative technologies and advanced initiatives

Providing value expected by society to realize **sustainable growth of corporate value**

## ■ Pursue a portfolio of high-profitability and high capital efficiency value-added businesses

Pursue **both high profitability and capital efficiency** and **sustainable profit growth**

Pursue **synergies** between businesses and dynamic **portfolio transformation**

## ■ Further enhance business platform, the fundamental strength of Asahi Kasei

Venue where **diverse individuals** can thrive with high motivation

Maximize use of intangible assets such as **diverse core technologies** and accumulated **know-how**

**Upgrading and streamlining operations and reforming business models** through DX

**Our diversity, capability to change, and care for the future of people and the earth will endure for another century**



# AsahiKASEI

## *Creating for Tomorrow*

### **THE COMMITMENT OF THE ASAHI KASEI GROUP:**

To do all that we can in every era to help the people of the world make the most of life and attain fulfillment in living.

Since our founding, we have always been deeply committed to contributing to the development of society, boldly anticipating the emergence of new needs.

This is what we mean by “Creating for Tomorrow.”



## (Reference) Financial performance by sector

(¥ billion)		FY2018	FY2019	FY2020	FY2021 forecast announced in May 2021	'18→'21 CAGR	FY2021 initial target announced in May 2019
Material	Net Sales (a)	1176.2	1093.1	991.2	1168.0	<b>-8.3%</b>	1350.0
	Operating income (b)	129.6	92.4	66.5	100.0		150.0
	Operating margin (b/a)	11.0%	8.4%	6.7%	8.6%		11.1%
	EBITDA (c)	190.7	163.0	137.4	176.0		240.0
	EBITDA margin (c/a)	16.2%	14.9%	13.9%	15.1%		17.8%
Homes	Net Sales (a)	659.8	704.4	692.6	791.0	<b>-0.6%</b>	750.0
	Operating income (b)	68.2	72.7	63.5	67.0		75.0
	Operating margin (b/a)	10.3%	10.3%	9.2%	8.5%		10.0%
	EBITDA (c)	77.2	83.3	74.8	79.0		89.0
	EBITDA margin (c/a)	11.7%	11.8%	10.8%	10.0%		11.9%
Health Care	Net Sales (a)	316.2	337.8	407.9	400.0	<b>9.6%</b>	370.0
	Operating income (b)	41.8	43.5	67.6	55.0		56.0
	Operating margin (b/a)	13.2%	12.9%	16.6%	13.8%		15.1%
	EBITDA (c)	68.6	72.9	111.6	100.0		83.0
	EBITDA margin (c/a)	21.7%	21.6%	27.4%	25.0%		22.4%



# Reference

# History of business portfolio transformation

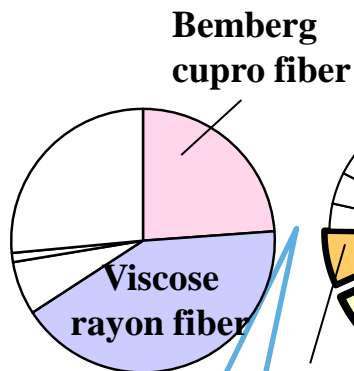
## Change in sales composition

Sufficiency of daily necessities, improvement in quality of homes, development of public infrastructure

Increased comfort and convenience

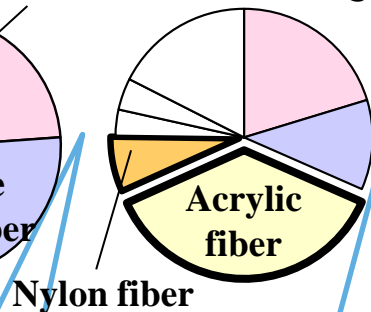
Heightened environmental consciousness, evolution of ICT

1950



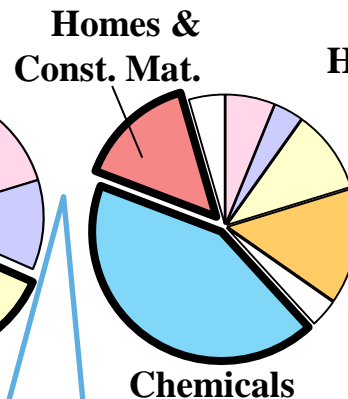
Expansion into synthetic fiber businesses

1965



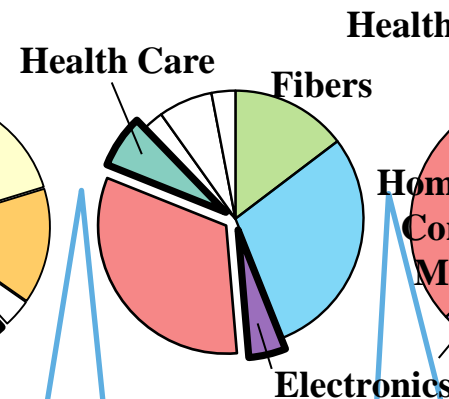
Expansion of petrochemicals; construction of petrochemical complex  
Start of housing business

1980



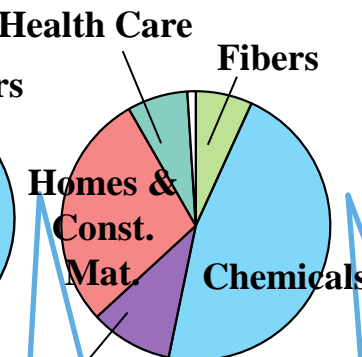
Start of electronics businesses  
Start of health care business  
Expansion of housing business

1995



Business portfolio restructuring  
Expansion of global businesses

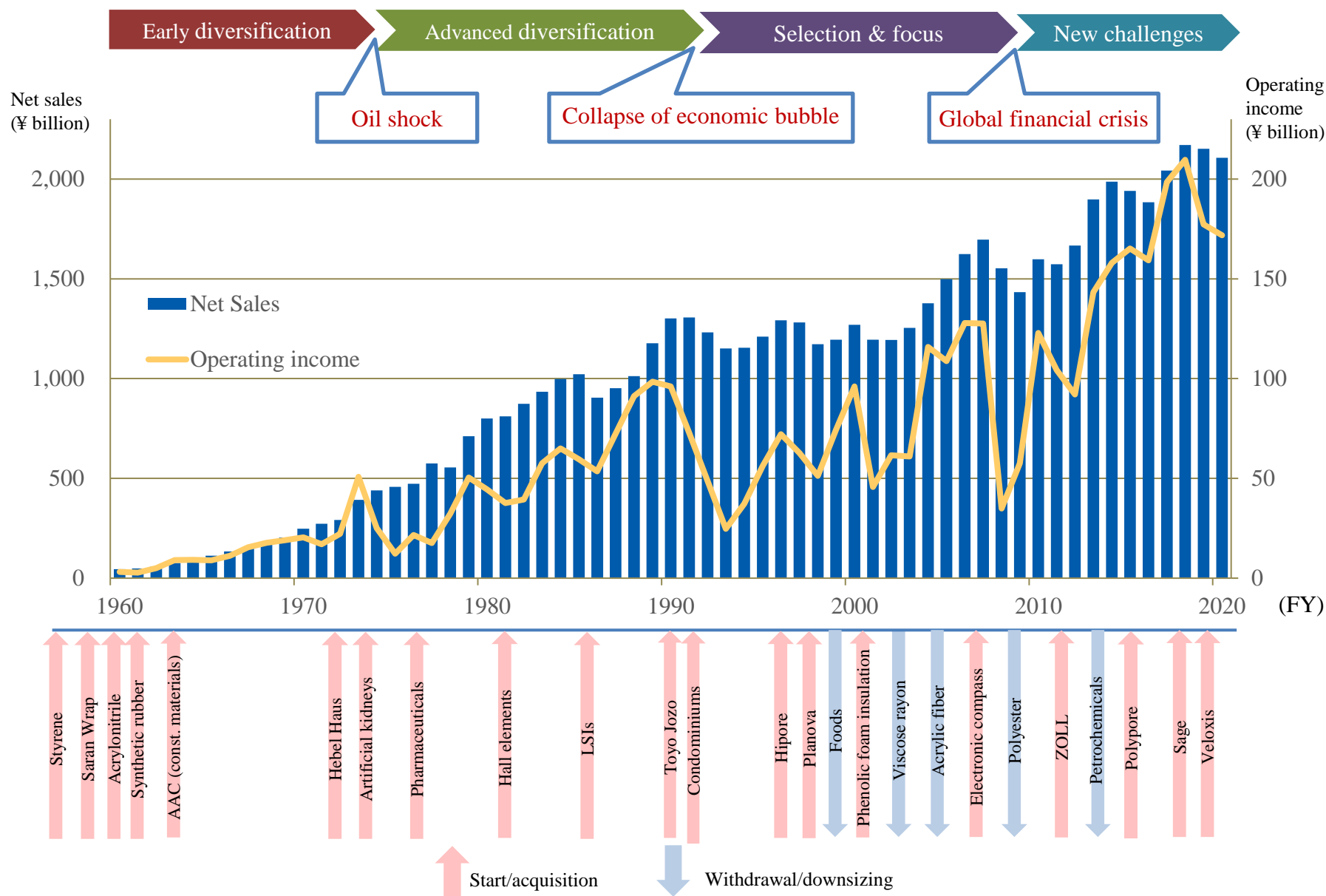
2010



Start of critical care business  
Expansion of separator business

Further expansion of businesses, responding to changes in society

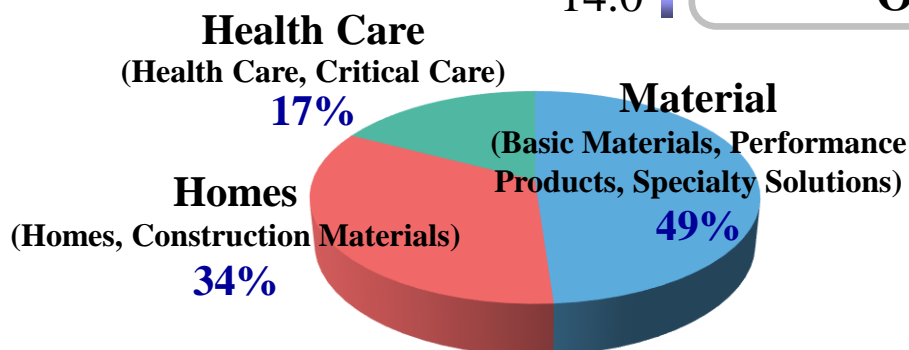
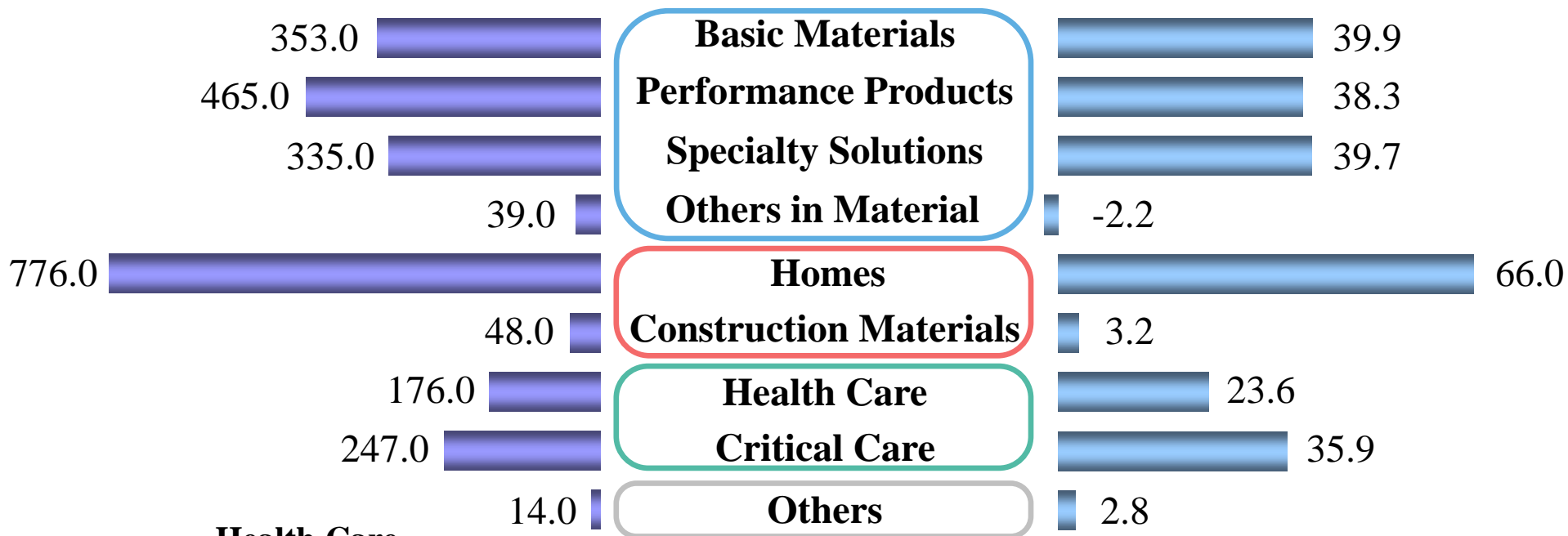
## Growth according to the changing times



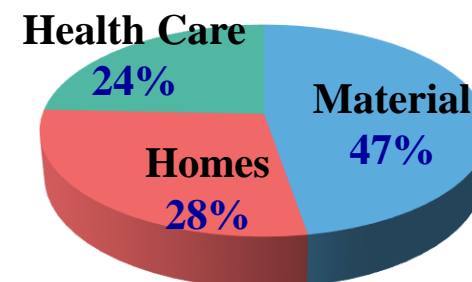
FY 2021 sales and operating income forecast by business category<sup>1 2</sup>

(¥ billion) **Sales: 2,453.0**

**Operating income: 213.1**



Share of sales by segment<sup>3</sup>



Share of operating income by segment<sup>3</sup>

<sup>1</sup> Forecast in November 2021

<sup>2</sup> Figures for operating income by business category include intrasegment transactions which are eliminated from the segment totals.

<sup>3</sup> Pie charts exclude "Others" category and "corporate expenses and eliminations."

## Ideal for Asahi Kasei (current & future)

**Mission**

**Contributing to life and living for people around the world**

**Vision**

**Providing new value to society by enabling “living in health and comfort” and “harmony with the natural environment”**

**Values**

**“Sincerity,” “Challenge,” “Creativity”**

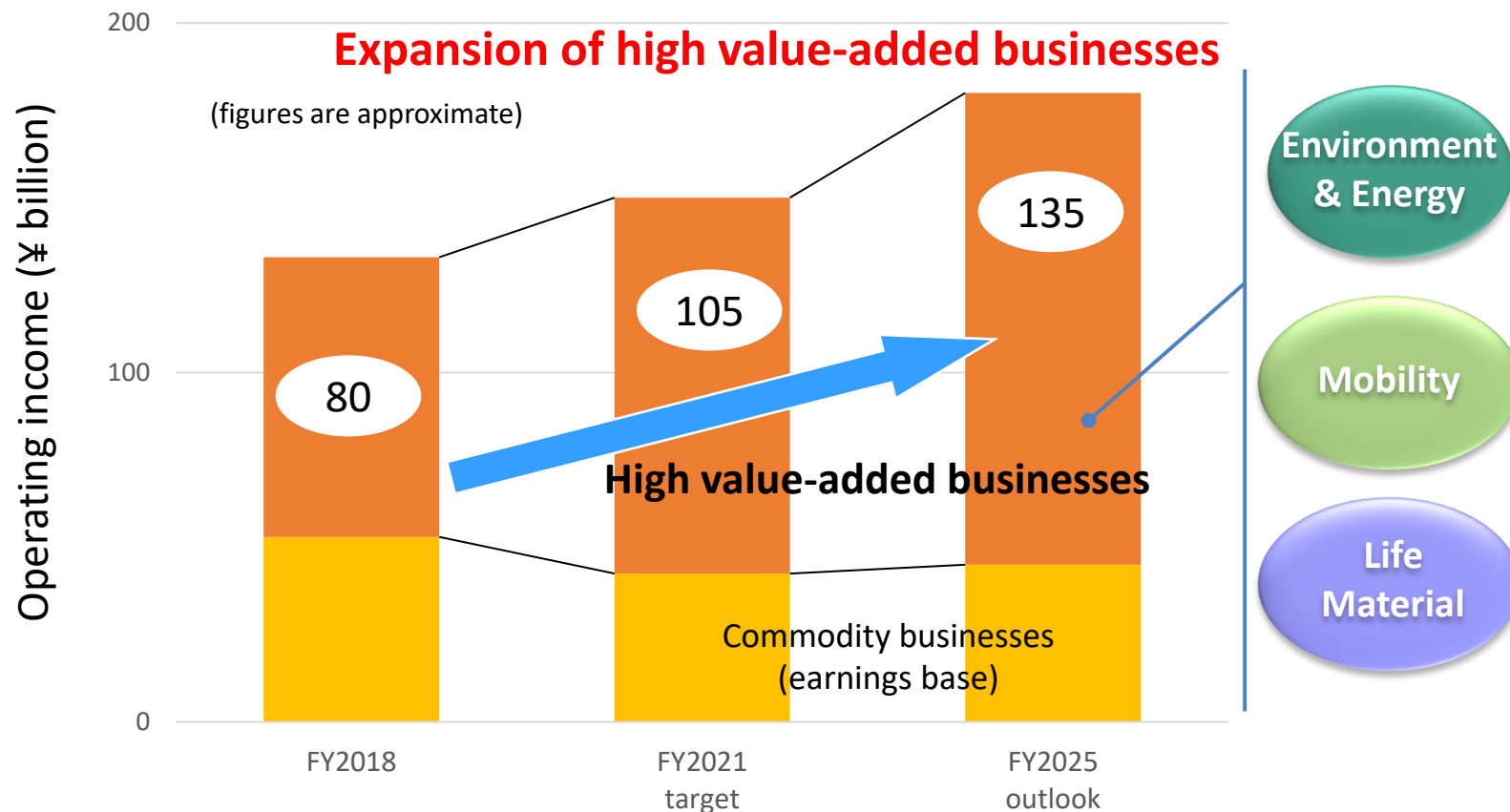
**“Creating for Tomorrow”**

**Working on ESG issues (Environmental, Social, Governance) based on our Mission, Vision, and Values**

# Growth Strategy: Material (as announced in May 2019)

Basic strategy

## Flexible allocation of management resources to priority fields

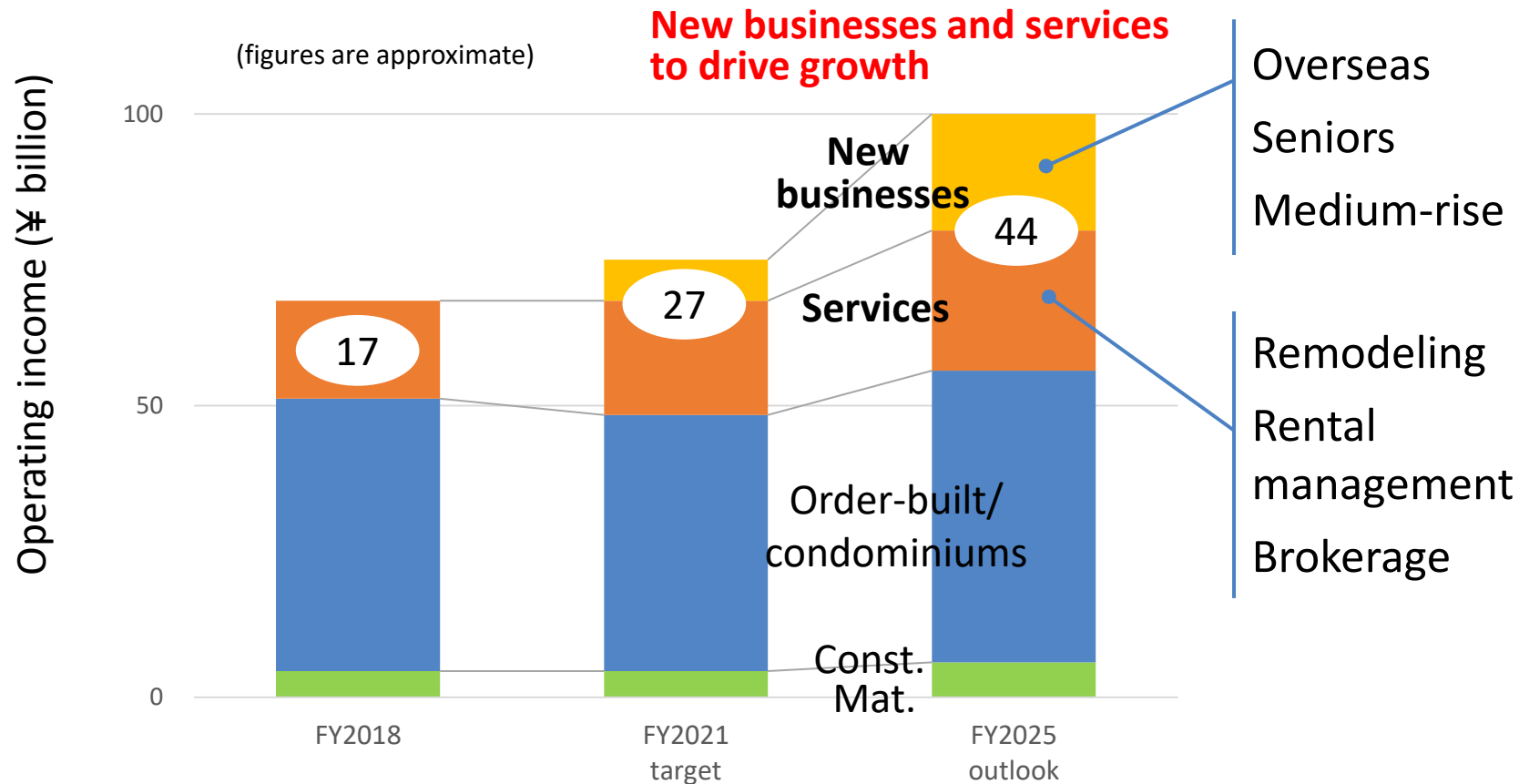


High value-added businesses: Fibers, synthetic rubber, engineering plastics, coating materials, ion-exchange membranes, electronic materials, consumables, battery separators, electronic devices, etc.

# Growth Strategy: Homes (as announced in May 2019)

Basic strategy

Reinforcing and extending value chain management

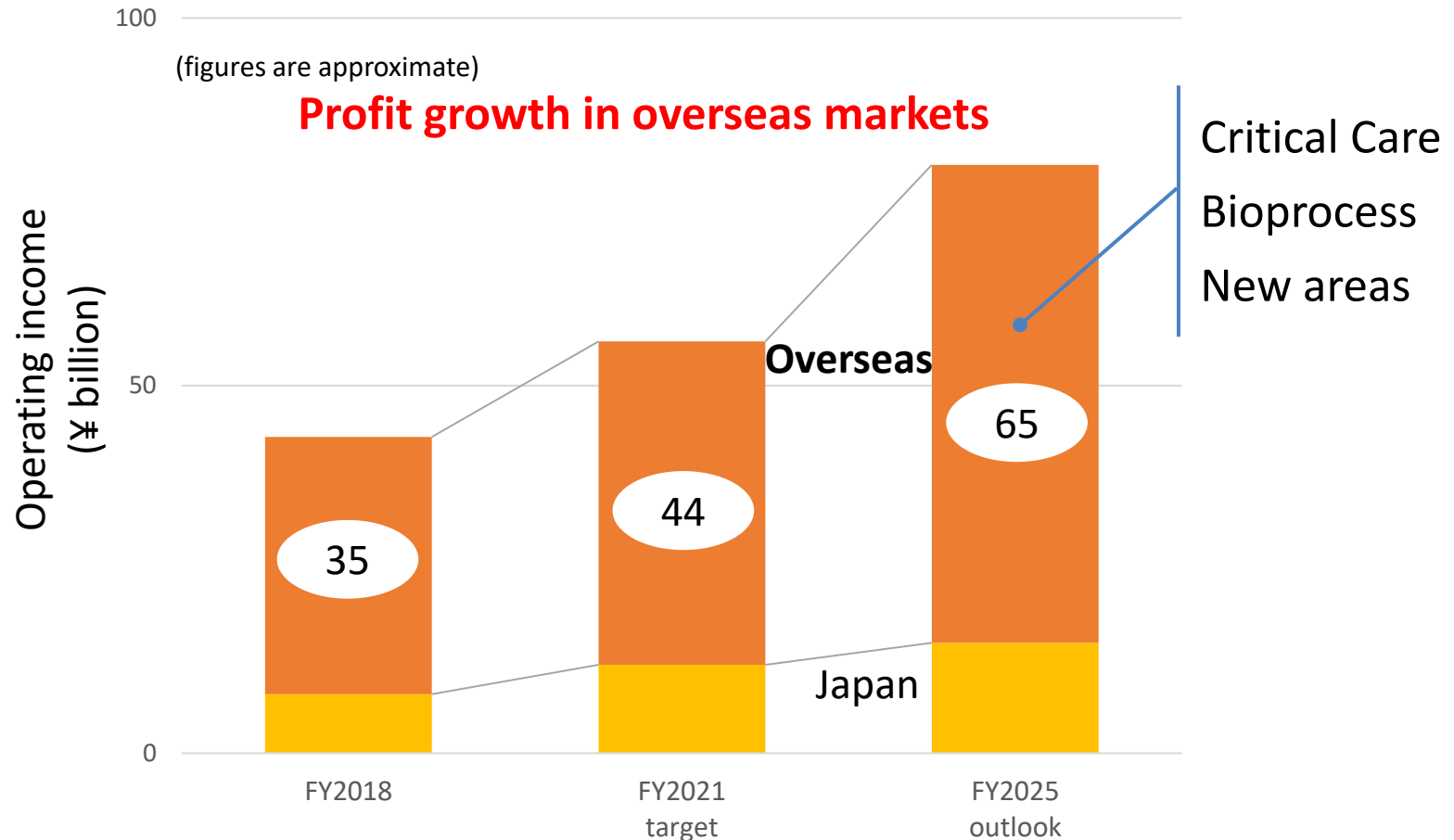




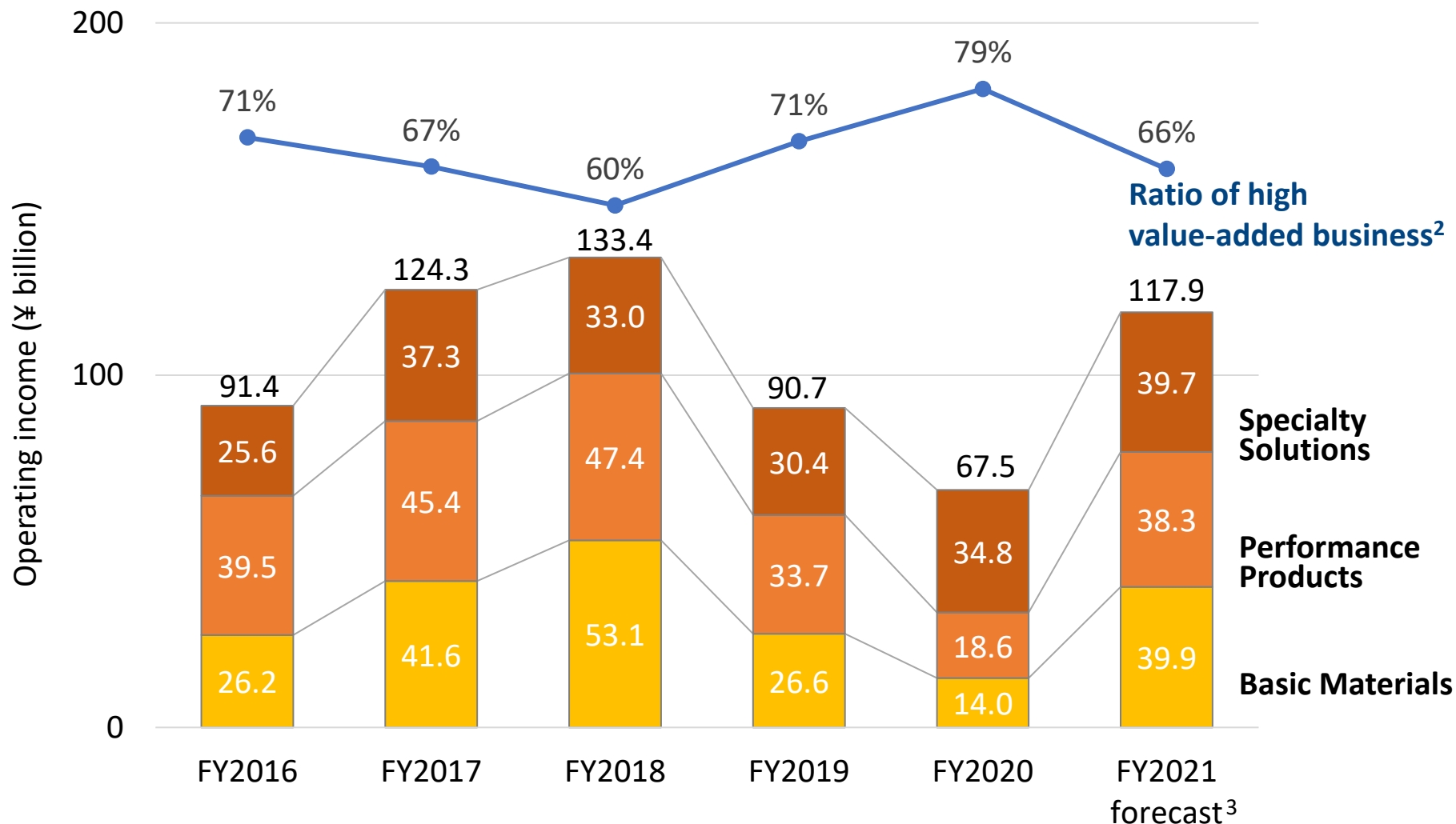
# Growth Strategy: Health Care (as announced in May 2019)

## Basic strategy

**Further accelerating transformation to a global health care company**



# Appendix: Operating income of Material segment<sup>1</sup>



<sup>1</sup> Beginning with FY2019, the business categories in the Material segment are reclassified. Results from FY2016 through FY2018 are recalculated in accordance with the new classifications. Sums of figures by category differ from Material segment total due to intrasegment expenses and others.

<sup>2</sup> High value-added business: Performance Products and Specialty Solutions

<sup>3</sup> Forecast in November 2021

## Basic Materials (1) Main products

	Asahi Kasei Capacity (kt/y)	Main competitors	Main applications	Asahi Kasei's position/strengths
Acrylonitrile	1,002 ( Mizushima: 200 Korea: 602 Thailand: 200 )	Ineos Nitriles Ascend	ABS, acrylic fiber, carbon fiber, NB latex; captive use for AS, adiponitrile	Plants in Japan, Korea, and Thailand 2nd largest producer in the world
Styrene	390	Lyondell Basell Ineos Styrolution Shell	PS, EPS, ABS, SB latex, unsaturated polyester, SBR; captive use for PS, AS, SB latex, SBR	After 320 kt/y plant in Mizushima closed in Feb. 2016, business to focus on domestic market and captive use
Methyl methacrylate	180	Mitsubishi Chemical Sumitomo Chemical	MS, MBS, coating materials, cast sheets; captive use for PMMA	Proprietary, cost-competitive C4 process
Cyclohexanol	180	Shandong Haili BASF	Adipic acid; captive use for adipic acid	Proprietary, economically-competitive, environmentally-friendly process with fewer waste Mainly for captive use
Polyethylene	236	(Domestic) Japan Polyethylene Prime Polymer	Films, miscellaneous goods, food containers, injection molding; captive use for LIB separator	Business development taking advantage of unique characteristics based on distinctive catalyst technology, including high density polyethylene
Polystyrene	315	(Domestic) Toyo Styrene DIC	Food containers, food packaging, foamed polystyrene, toys, miscellaneous goods, construction materials	Production and sales by PS Japan Largest producer in Japan

## Basic Materials (2) Strengthening of operations in Japan

Strengthening petrochemical operations by establishing the optimum production configuration for stable earnings and enhanced competitiveness to cope with contracting domestic demand and price competition from products made overseas based on low-priced feedstock

Business	Location	Capacity (thousand tons)	Major applications	Closure schedule
Naphtha cracker	Mizushima	500 (unified with Mitsubishi Chemical's facility)	Production of basic petrochemical products such as ethylene and propylene	February 2016
AN	Mizushima Kawasaki Korea Thailand	200 100 150 560 <sup>1</sup> 200	ABS, acrylic fiber, carbon fiber, acrylamide, adiponitrile	August 2014
Styrene	Mizushima	320 390	Polystyrene, ABS, synthetic rubber	February 2016
ABS resin	Mizushima	65	Automotive, home electronics, office equipment	December 2015
SB latex	Mizushima Kawasaki	24 36	Paper coating, adhesives, paint	December 2015
Epoxy resin	Mizushima Fuji	37 (undisclosed)	Coatings, adhesives, electronics	May 2015

  Closure      Dedication to another product

<sup>1</sup> Capacity as of February 2014, at the time of announcement of the strengthening of petrochemical operations; currently 602 thousand tons after debottlenecking.

# Performance Products (1) Main products: Fibers

## Bemberg cupro fiber

- Only manufacturer in the world; global development for applications such as linings, innerwear, and ethnic garments

## Roica premium stretch fiber

- High-function products manufactured at our global sites in Japan, Taiwan, China, Thailand, and Germany
- Decision to optimize the global strategy of Roica spandex business, in August 2021

## Leona nylon 66 filament

- Expansion in automotive airbag application in addition to tire cord application with superior strength and heat resistance

## Nonwovens

### Eltas spunbond

Increased demand in applications for hygiene products such as diapers and masks for Asian market

### Bemliese continuous-filament cellulose nonwoven

Increased demand in applications for facial mask, medical use, and industrial wiper towel

### Lamous artificial suede

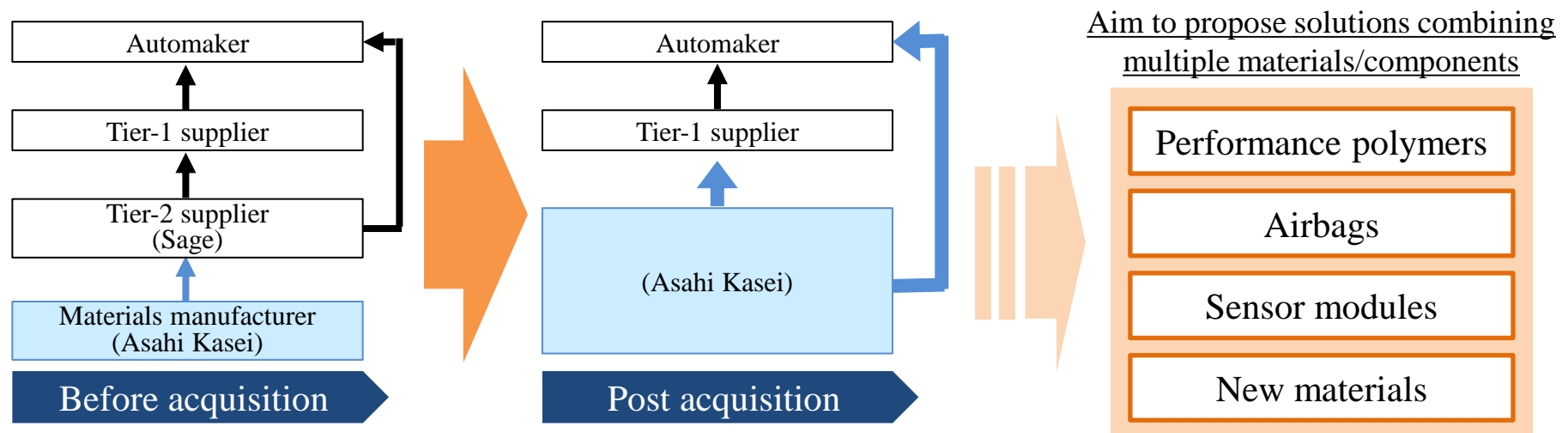
- Sales expansion centered on automotive upholstery application; Decision to expand capacity; start-up in second half of FY 2021
- Acquisition of Sage Automotive Interiors, Inc., manufacturing and selling vehicle seat fabric using Lamous, in September 2018



## Performance Products (2) Acquisition of Sage

### Acquisition of Sage Automotive Interiors, a US-based manufacturer of automotive interior material, in September 2018

- ✓ Enhanced access to vehicle manufacturers and Tier-1 suppliers, in order to swiftly and accurately ascertain trends and needs in the automotive industry, by expansion of supply chain from upstream to midstream.
- ✓ Proposal and provision of comprehensive solutions for vehicle interior leveraging Sage's design and marketing capabilities in combination with various Asahi Kasei products and technologies, such as fibers, plastics, and sensors, in response to new trends including CASE<sup>1</sup>.
- ✓ No. 1 global share for vehicle seat fabric<sup>2</sup>; marketing Dinamica brand using Lamous microfiber suede of Asahi Kasei, centered on US and Europe.
- ✓ Acquisition of automotive fabrics business of Adient, US, in September 2020.



<sup>1</sup> Connected, Autonomous, Shared & Service, Electric.

<sup>2</sup> Woven and knitted fabric for vehicle seats (not including natural and synthetic leather)

## Performance Products (3) Engineering plastics, synthetic rubber

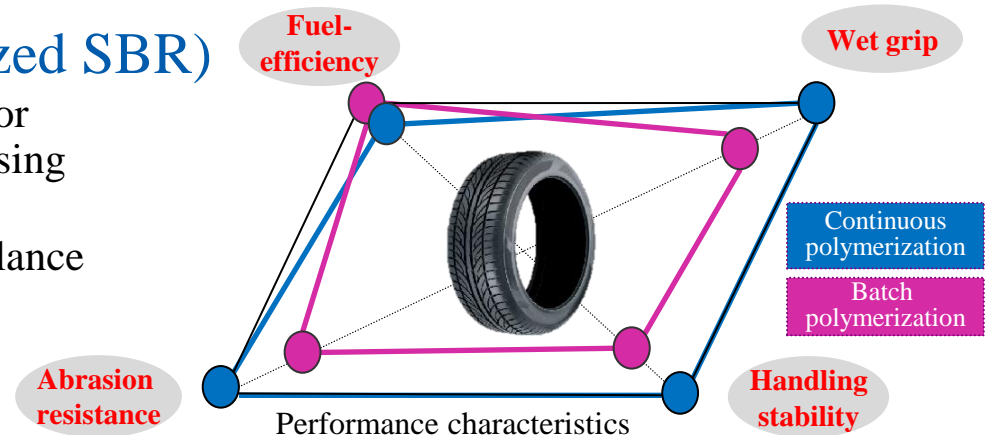
### Engineering plastics

- Leveraging computer-aided engineering (CAE) technology with weight-saving proposals for automotive parts
- Development of materials based on sophisticated technologies for polymer design, alloys, and compounding
- Global operations for production, sales, and technical service centered on automotive applications

Product	Features/strategy	Main applications
Leona polyamide 66	Specialty polyamide with superior heat resistance and durability	Automobiles (engine compartment parts, electrical parts)
Tenac polyacetal	Production of low-VOC products in Mizushima, Japan, and Zhangjiagang, China	Automobiles (interior parts, fuel-system parts, electric motor parts), office equipment
Xyron modified polyphenylene ether	Global development of superior grades	Photovoltaics, automobile battery parts, relay blocks, office equipment

### Synthetic rubber (solution-polymerized SBR)

- Developing solution-polymerized SBR (S-SBR) for fuel-efficient tires centered on Asian market, focusing on differentiation with cutting-edge grades
- Enhancing overall tire performance, with good balance of fuel efficiency and wet grip
- Technology for both continuous and batch polymerization processes





## Performance Products (4) Foamed engineering plastics

Develop our unique high value-added products to respond to the increasing environmental needs in mobility society, aiming at achieving long-term growth

Our technologies accumulated over time

Polymer processing technology  
• Foaming technology



Application development technology



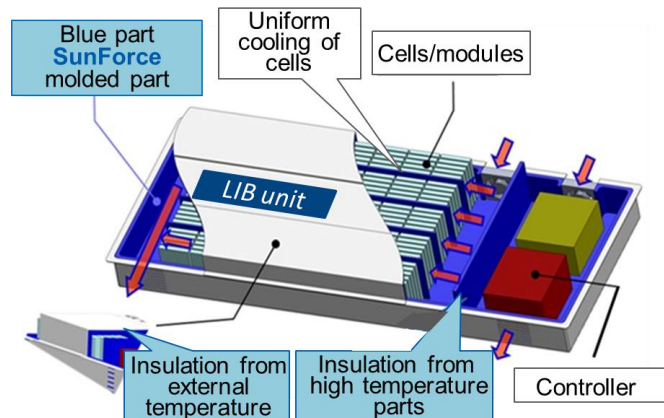
Unique, high value-added products

Modified-PPE foamed beads

Foamed polyamide (PA)

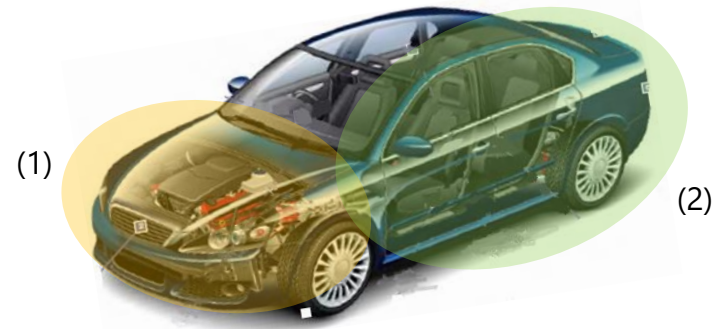
### Application example

Heat management of a Li-ion battery case for vehicles:  
Contributes to higher output in a safer and more efficient way









### Application example

- (1) Sound absorbing parts, particularly in engine room, to comply with restrictions on accelerated running noise
- (2) Exterior parts leveraging lightweight, rigidity, heat resistance, and heat insulation properties



## Specialty Solutions (1) Main products (i) Performance materials

Product	Main applications	Asahi Kasei's position
Aciplex ion-exchange membranes, membrane-process electrolyzers 	Chlor-alkali electrolysis	Membranes: No. 1 world share Electrolyzers: No. 2 world share
Glass fabric 	Electrical insulation for printed circuit boards in portable devices such as smartphones and equipment for telecommunications infrastructure	Top-tier world share in super thin fabric and low dielectric fabric
Sunfort dry film photoresist 	Forming copper circuit patterns on printed wiring boards and semiconductor packaging	World top-3 share: 30%
Ceolus microcrystalline cellulose 	Additives for pharmaceuticals and foods	No. 1 domestic share
Duranate HDI-based polyisocyanate 	Non-yellowing polyurethane curing (coatings, inks, adhesives, cast molding, etc.)	World top-3 share No. 1 domestic share
APR and AFP photopolymers and platemaking systems 	Printing plates for packaging such as cardboard, labels, and film	No. 1 domestic share

## Specialty Solutions (2) Main products (ii) Battery separators

**Integrate technology and marketing, deliver value to customers**

- Utilize Asahi Kasei Group technology for materials, analysis, and manufacturing
- Optimum global manufacturing, marketing, and development configuration to meet customer needs



### HIPORE

Wet-process Li-ion  
battery separator

- Presence and development strength in consumer electronics
- Expansion in automotive applications in developed countries

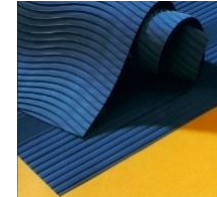
Solidify leading position in the market through unique solution proposal ability having both wet and dry processes, with global manufacturing, marketing, and development configuration, meeting various customer needs



### CELGARD

Dry-process Li-ion  
battery separator

- Presence in automotive applications
- Adoption in ESS<sup>1</sup> applications



### DARAMIC

Lead-acid battery  
separator

- World-leading presence
- Stable market growth centering in emerging countries
- Market inflection with spread of ISS<sup>2</sup> vehicles

Strengthen customer support, capture demand in emerging markets, develop new products with group technology

**Pursue synergy between lead-acid and Li-ion battery separators**

<sup>1</sup> Energy storage systems

<sup>2</sup> Idling stop and start

## Specialty Solutions (4) Main products (iii) Electronic devices

### Core technologies

Analog/digital signal conversion technology (LSIs); sensing technology using compound semiconductors for high sensitivity and fast response

### For consumer electronics



Identifying direction you are facing on the map

#### Electronic compass

World's No. 1

Optical autofocus/image stabilization for higher-quality pictures

#### High-precision position control IC for camera module

Top tier in the world (magnetic sensors)

Higher-quality sound with smartphones

#### Signal processing IC for audio equipment

Top tier in the world

### For automotive

Quieter and more comfortable space

#### Signal processing IC for noise and echo cancellation

Top tier in Japan

Power window anti-pinch function, windshield wiper control, etc.

#### Motor control sensor

Top tier in Japan

Monitoring EV charge

#### Current sensor



### For industrial equipment



Precision control of robots

#### Magnetic rotational angle sensor

# Homes (1) Order-built homes

## Hebel Haus and Hebel Maison high-end homes

- Exceptional resistance to earthquake and fire, and full-fledged after-sale service (60-year inspection system)
- Top-tier market share in urban areas; No. 1 share in Tokyo area with strengths in medium-rise homes (3–4 story), expanding into 5+ story homes



Hebel Haus  
unit homes

## Innovative proposals for urban lifestyle

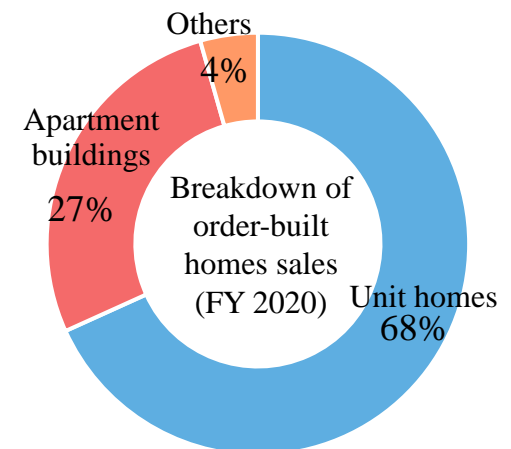
- A pioneer of two-generation homes, and apartments for dual-income families and pet owners
- Developing business in homes for seniors; Hebel Village apartments for healthy active seniors



Hebel Maison  
apartment buildings

## Development of urban markets and focus on order-built homes

- Most of sales in order-built homes coming from 3 major areas in Japan (Tokyo area, Nagoya area, Osaka area)
- Rebuilding accounts for approximately half of order-built homes
- Not purchasing large tracts of land, building houses, and selling parcels; specializing in order-built homes





# Homes (2) Housing-related businesses

## Real estate

### Atlas condominium buildings

- Leading position in rebuilding of older condominiums based on obtaining accord among owners



### Rental management

- Management of Hebel Maison rental units, amounting to approx. 100,000 units, mainly in buildings subject to 30-year all-unit leaseback system

## Remodeling

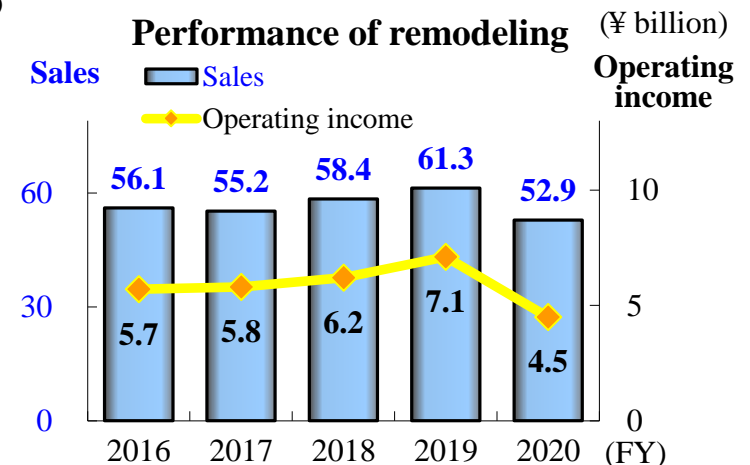
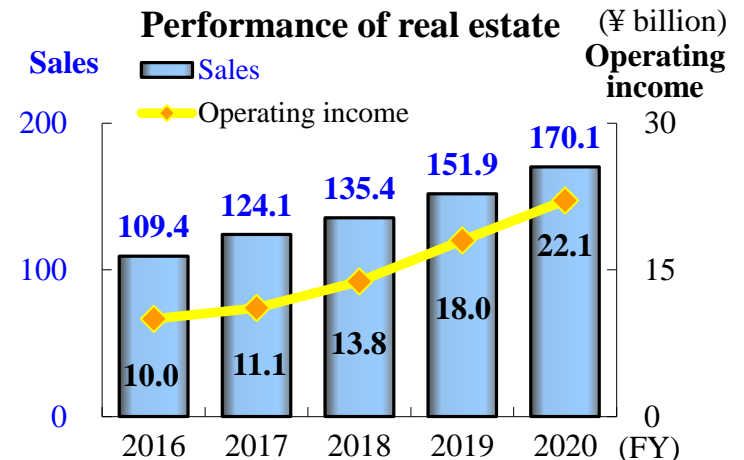
Targeting the 280,000 Hebel Haus and Hebel Maison buildings sold to date



## Overseas businesses

Development centered on the US and Australia.

- Capital alliance with McDonald Jones Homes Pty Ltd, an Australian company which constructs and sells unit homes, in 2017; acquisition in 2021.
- Acquisition of Erickson Framing Operations LLC, a US-based supplier of pre-fabricated building products, in 2018.
- Acquisition of Austin Companies providing electric, foundation, and HVAC work for home construction in the US, in September 2020.



# Homes (3) Sales and order trends

(¥ billion, % indicates year-on-year comparison)

		Value of new orders during the term	Sales of order-built homes, etc.				Sales of real estate				Sales of remodeling	Other sales <sup>2, 3</sup>	Consolidated	Order backlog
			Unit homes	Multi-dwelling homes	Other <sup>1</sup>	Total	Pre-built homes	Rental housing	Other	Total				
FY17	H1	193.1 (-6.5%)	143.2	36.7	2.7	182.7	12.0	45.3	1.6	59.0	26.8	1.1	269.6	528.9
	H2	212.5 (+9.4%)	161.7	58.8	3.6	224.1	14.7	47.8	2.5	65.1	28.4	1.1	318.7	520.9
	annual	405.6 (+1.2%)	304.9	95.6	6.3	406.8	26.8	93.2	4.2	124.1	55.2	2.2	588.3	
FY18	H1	210.1 (+8.8%)	136.4	36.8	2.3	175.5	16.8	49.7	1.6	68.1	27.2	1.0	271.8	557.8
	H2	241.5 (+13.6%)	162.8	61.4	4.0	228.2	13.2	52.1	2.1	67.4	31.2	6.1	332.9	575.0
	annual	451.6 (+11.3%)	299.3	98.1	6.3	403.7	29.9	101.8	3.7	135.4	58.4	7.1	604.7	
FY19	H1	201.9 (-3.9%)	144.0	43.9	9.4	197.3	7.6	54.4	2.3	64.3	32.0	11.3	304.9	589.0
	H2	198.4 (-17.8%)	146.9	62.3	9.2	218.4	28.0	56.8	2.8	87.6	29.4	9.0	344.4	578.2
	annual	400.3 (-11.3%)	290.9	106.2	18.6	415.7	35.5	111.2	5.1	151.9	61.3	20.4	649.3	
FY20	H1	145.3 (-28.1%)	132.8	46.9	8.1	187.8	30.9	58.1	2.1	91.0	25.8	9.8	314.4	543.8
	H2	181.3 (-8.6%)	136.6	61.1	9.2	206.9	11.1	60.8	7.1	79.0	27.2	17.4	330.4	527.5
	annual	326.6 (-18.4%)	269.3	108.0	17.4	394.7	42.0	118.9	9.1	170.1	52.9	27.2	644.8	
FY21 <sup>4</sup>	H1	206.3 (+42.0%)	127.4	51.0	10.6	189.0	20.5	62.5	3.1	86.0	26.7	74.0	375.8	563.5
	H2 forecast	202.0 (+11.4%)				206.5	24.0	65.0	8.4	97.5	26.8	69.5	400.2	559.2
	annual forecast	408.3 (+25.0%)				395.5	44.5	127.5	11.5	183.5	53.5	143.5	776.0	

<sup>1</sup> Income from maintenance service which was previously included in SG&A is included in sales beginning with FY 2019.

<sup>2</sup> Results of Erickson Framing Operations LLC and its consolidated subsidiaries are included from Q4 2018.

<sup>3</sup> Results of Australian company McDonald Jones Homes Pty Ltd and its consolidated subsidiaries are included from Q1 2021.

<sup>4</sup> Forecast in November 2021. The Accounting Standard for Revenue Recognition is applied beginning with FY 2021. Order backlog shown above remains based on the previous method.



# Construction Materials: Main products

## Hebel autoclaved aerated concrete (AAC)

- No. 1 share in Japan
- Lightweight and highly durable with outstanding flame-resistance and thermal insulation



## Neoma Foam phenolic foam insulation panels

- Long-lasting, world-leading insulation performance

Neoma Zeus launched in January 2018 with the highest level of performance among insulation materials

- Eco-friendly material with no CFCs used during production
- High flame resistance; carbonizes without spreading flame



# Pharmaceuticals (1) Main products

Products	Generic name	Mechanism/ substance class	Indication	Formulation	Sales					
					Region	Monetary unit	FY17	FY18	FY19	FY20
Asahi Kasei Pharma										
Teribone	Teriparatide acetate	Synthetic human parathyroid hormone (PTH)	Osteoporosis with high risk of fracture	Injection	Japan	¥ billion	26.8	28.3	27.5	31.0
Recomodulin	Recombinant thrombomodulin alfa	Anticoagulant	Disseminated intravascular coagulation	Injection	Japan	¥ billion	11.8	11.8	10.9	9.4
Kevzara	Sarilumab (rDNA origin)	Interleukin-6 inhibitor	Rheumatoid arthritis not responding well to conventional treatments	Injection	Japan	¥ billion	0.0	1.3	4.3	5.3
Reclast	Zoledronic acid	Osteoporosis drug	Osteoporosis	Injection	Japan	¥ billion	1.1	1.4	1.4	1.3
Veloxis Pharmaceuticals										
Envarsus XR	Tacrolimus extended-release tablets	Immunosuppressant drug	Kidney transplantation	Tablet	US	\$ million	—	—	—	122

# Pharmaceuticals (2) Product pipeline

Development stage	Code name, form, generic name	Classification	Indication	Region	Origin	Remarks
Pending approval	AK1820, injection/ capsule, isavuconazole	Antifungal agent	Invasive fungal infections	Japan	Licensed	
Phase II	ART-123, injection, recombinant thrombomodulin alfa	Anticoagulant	Chemotherapy- induced peripheral neuropathy (CIPN)	Japan	In-house	Additional indication
Phase II	AK1830, oral	Analgesic	Pain associated with osteoarthritis	Japan	Licensed	
Phase II			Chronic low back pain			
Pending approval (overseas)	HE-69, tablet, mizoribine	Immunosuppressant	Lupus nephritis, nephrotic syndrome	China	In-house	Additional indication
Phase III (overseas)	ART-123, injection, recombinant thrombomodulin alfa	Anticoagulant	Severe sepsis with coagulopathy	United States, Europe, etc.	In-house	

## Pharmaceuticals (3) Acquisition of Veloxis (i)

- ✓ Acquisition of US-based Veloxis Pharmaceuticals Inc. in March 2020; total acquisition price approx. DKK 9 billion, JPY 147.2 billion
- ✓ Accelerating global expansion of Health Care business by obtaining platform in the US pharmaceuticals market

### ● Overview of Veloxis

Business overview	Sale of Envarsus XR, an immunosuppressant drug used following kidney transplant which uses a proprietary drug delivery technology <sup>1</sup>			
Location	Cary, North Carolina, the United States			
Revenue (million \$, fiscal year ends at December)	2016	2017	2018	2019 forecast <sup>2</sup>
	9	30	39	75–82
Strengths	<ul style="list-style-type: none"> <li>▪ Excellent management team having a history of growing pharmaceutical companies specializing in advanced medical care</li> <li>▪ Efficient sales team focused on approx. 200 transplant centers in US</li> <li>▪ High growth potential of Envarsus XR</li> <li>▪ Growth potential including possibility to in-license transplant-related products</li> </ul>			

<sup>1</sup> Technology to enhance oral bioavailability and control the release of a drug to improve efficacy and/or reduce side effects.

<sup>2</sup> Forecast at the announcement of acquisition in November 2019. Earnings of Veloxis is consolidated into the Asahi Kasei Group beginning with FY 2020 and included in the Health Care business category of the Health Care segment

### ● Envarsus XR

- Proprietary extended-release technology suppresses the rise in maximum blood concentration after administration and extends the duration that effective blood concentration is maintained
- This enables once-daily administration and reduces side-effects

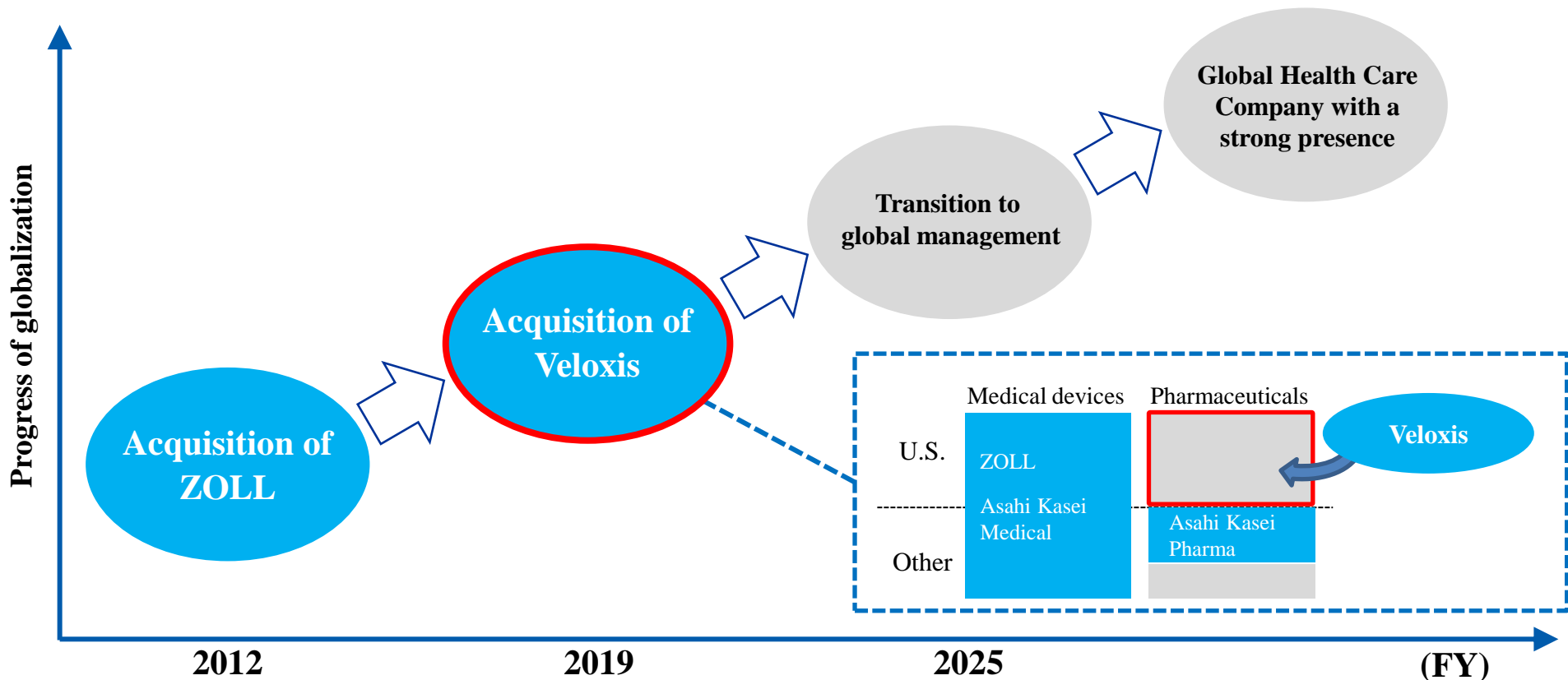


(extended-release formulation of tacrolimus)

# Pharmaceuticals (4) Acquisition of Veloxis (ii)

✓ Expansion of Health Care business by accelerating globalization and obtaining diverse sources of growth and competitiveness in both pharmaceutical and medical device businesses

- Obtaining overseas business platform for medical device business by acquisition of ZOLL in 2012
- Accelerating global growth in pharmaceutical business by acquisition of Veloxis, obtaining business platform in US pharmaceuticals market that is world’s largest and fastest-growing





# Medical devices: Main products

## Dialysis-related products

- Leading position in hemodialysis-related products market in Japan
- Accelerated overseas development to meet needs in different countries and different regions



## Planova virus removal filters

- World's No. 1 share; contributing to improved viral safety and productivity in manufacturing processes for biopharmaceuticals and plasma derivatives<sup>1</sup>
- Growth accompanying market expansion for biopharmaceuticals and plasma derivatives
- Tightening regulations for virus removal, proliferation of biosimilar products
- Growth in emerging markets (China, India, South America) in addition to main markets of Europe and US
- Construction of a new plant for the spinning of cellulose hollow-fiber membranes for Planova virus removal filters (completed in September 2019)
- Acquisition of ViruSure, an Austrian provider of biosafety testing services, in October 2019
- Decision to double production capacity for Planova BioEX, in July 2021



<sup>1</sup> Mainly monoclonal antibodies and immunoglobulins.

# Critical Care (1)

## Resuscitation

### ✓ Wide lineup of resuscitation-related products

- Defibrillators for hospitals and EMS
- AEDs (automated external defibrillators)
- Automated CPR
- Ventilators, etc.



Defibrillators for hospitals and EMS

No. 1 share in the world



AED



AutoPulse non-invasive cardiac support pump



Ventilator

## Circulation

- ✓ Intravascular temperature management system
- ✓ Expanding into area of acute myocardial infarction through acquisition of TherOx, Inc.

Thermogard temperature management system



## Cardiac Management Solutions

### ✓ The only product of its kind to receive regulatory approval

- Wearable defibrillator for patients at risk of sudden cardiac arrest—provides protection during high-risk periods such as while waiting for an ICD<sup>1</sup> implant (average usage duration 3 months; rented to patients)
- Recommended in both Europe and US clinical guidelines; has been used by almost 600,000 patients worldwide



LifeVest wearable defibrillator

## Data

### ✓ Software for EMS & fire

- Managing operations from dispatching and tracking emergency vehicles to transmitting patient data from ambulance to hospital

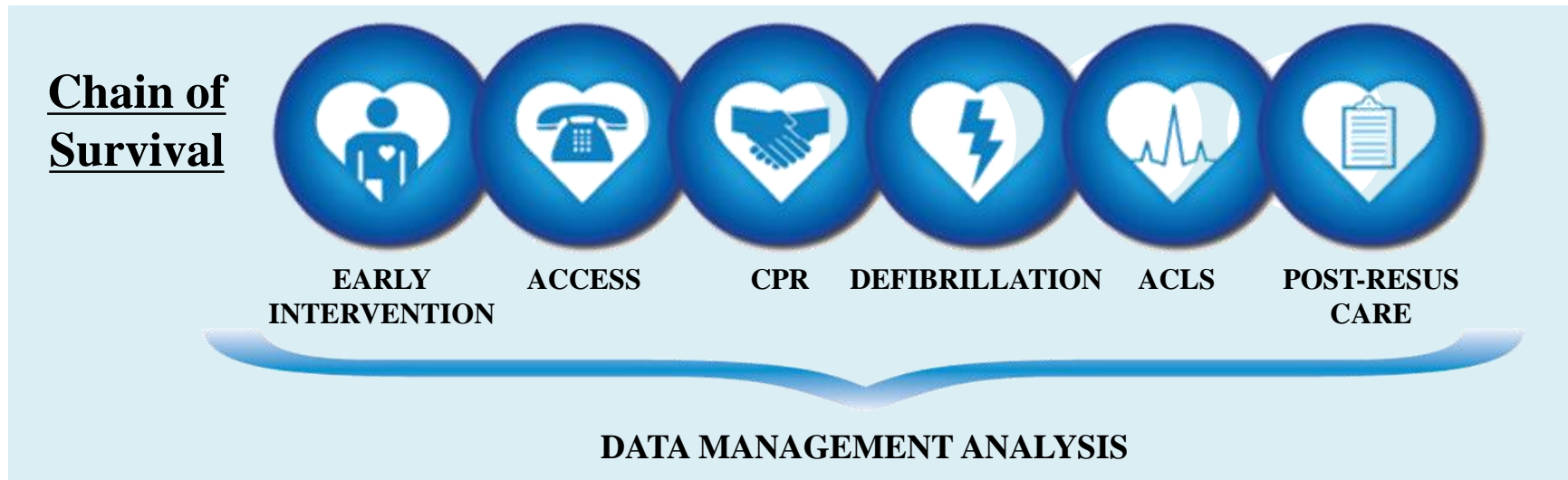


RescueNet ePCR

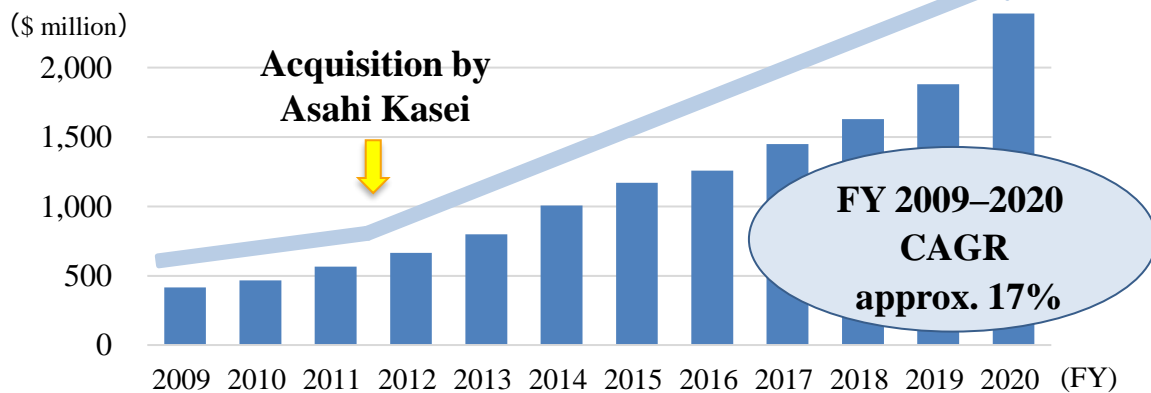
<sup>1</sup> Implantable cardioverter defibrillator

# Critical Care (2)

- ✓ Product lineup addressing every link in the Chain of Survival
- ✓ Strengthening the acute critical care product portfolio by M&A



## Sales trend of ZOLL



## Recent M&A activity



# Example (1) CO<sub>2</sub> gas sensor business

Clean environmental energy

Healthy/comfortable longevity  
with peace of mind

## Air quality

Human health  
Productivity

Well-sealed buildings  
(increased CO<sub>2</sub> concentration)

## Energy saving

Efficient ventilation

Global warming

CO<sub>2</sub>  
refrigerant

### CO<sub>2</sub> gas sensor

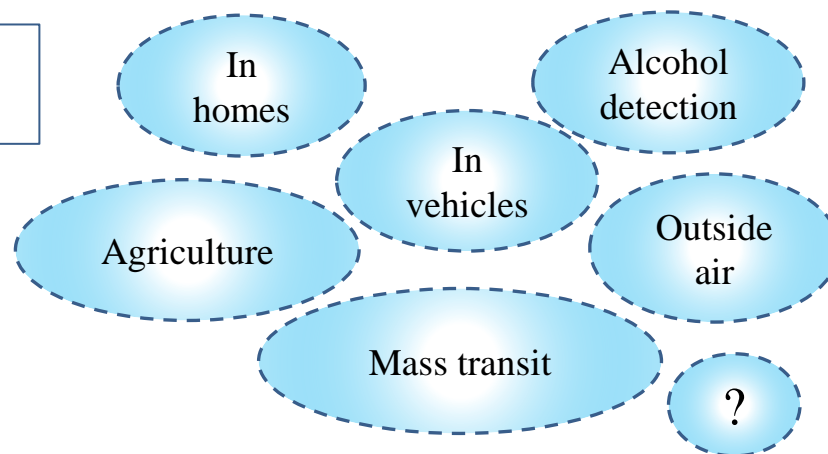
Application for invisible optics sensing  
technology



Potential use for different gases and  
various purposes

Compound semiconductors (Asahi Kasei)  
+  
CO<sub>2</sub> sensor modules (Senseair AB)

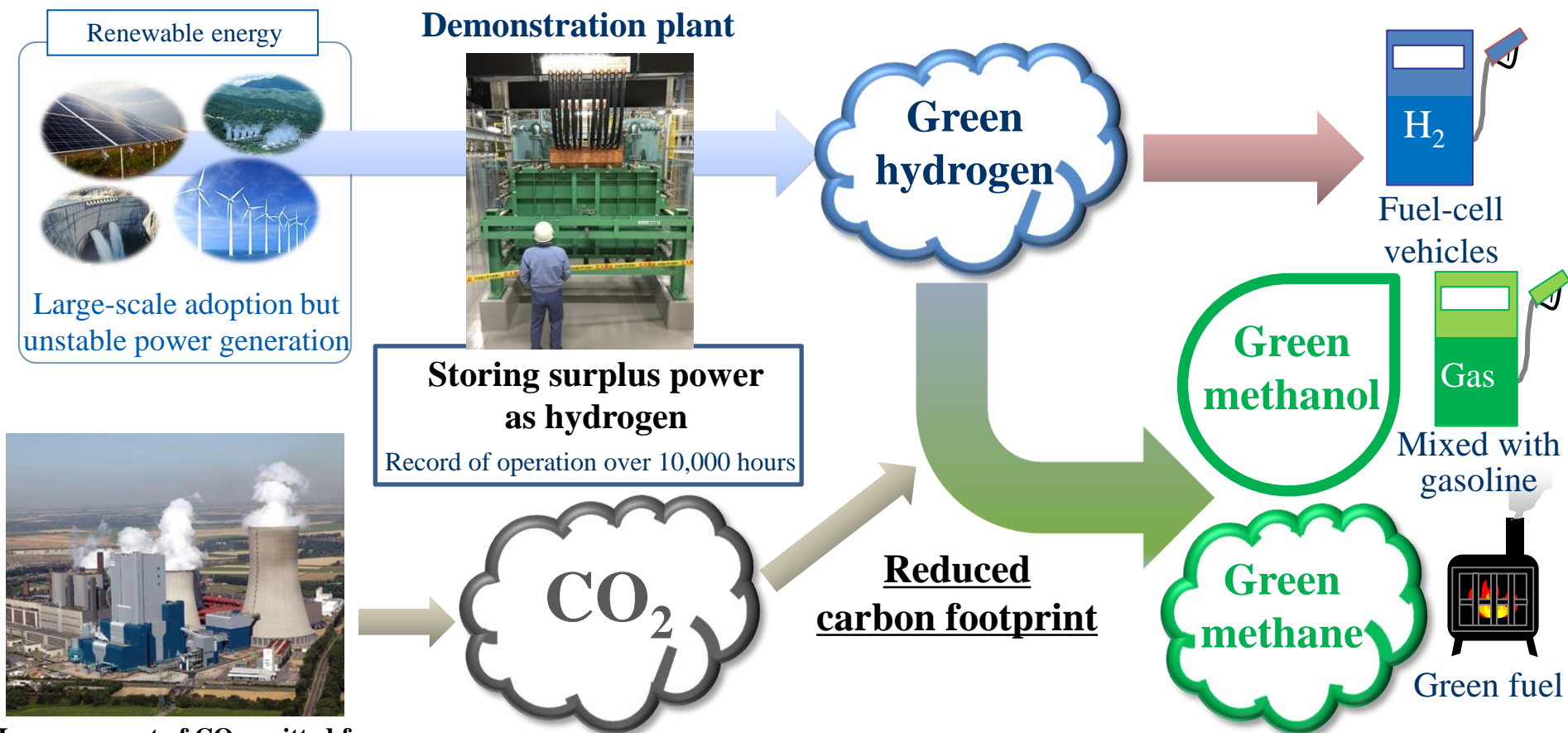
Small size  
High sensitivity  
Low power consumption  
Long life  
Fast response



# Example (2) Alkaline water electrolysis system

## Addressing challenges in a growth market by combining electrolysis, catalyst, and membrane technology

- World's highest energy efficiency with demonstration plant anticipating 10 MW capacity
- Accelerating commercialization with demonstration plant in Europe, the market with the greatest potential
- Selected for the Fukushima Hydrogen Research Field, the world's largest-scale system of 10 MW



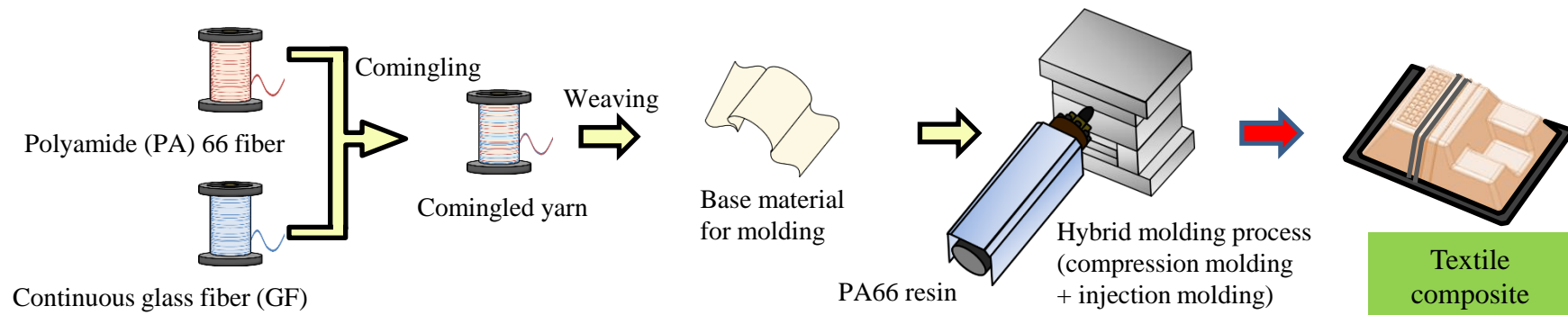
Large amount of CO<sub>2</sub> emitted from thermal power stations



## Example (3) High-performance composite materials

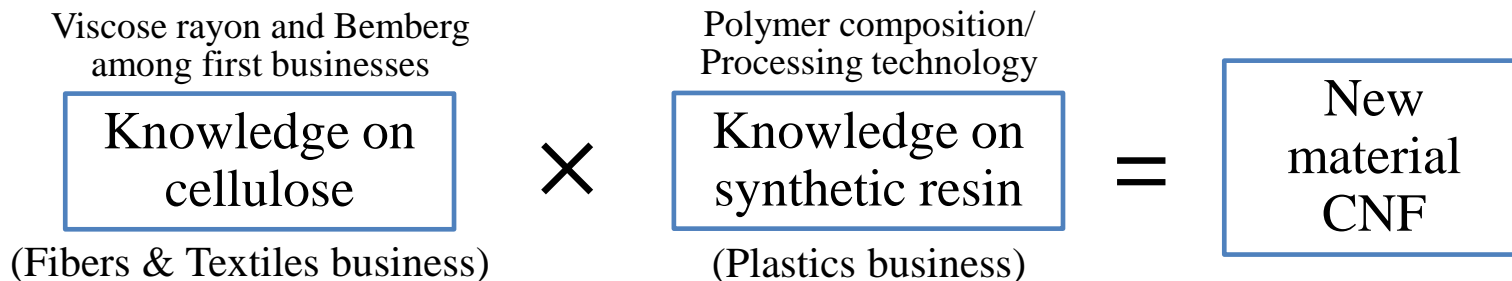
### Connecting fiber, resin, and processing technology

#### 1) Material to replace metal for weight reduction in automotive structural parts



- ✓ High degree of design freedom: Able to create parts that have complex shapes
- ✓ Outstanding strength-to-weight ratio: Improved strength and rigidity compared with conventional GF reinforced PA66 resin

#### 2) Development of cellulose nanofiber (CNF) composite





# Example (4) UVC LED

## Business expansion based on core technology in compound semiconductors

Hall elements (world-leading share) → IR sensor, CO<sub>2</sub> sensor, etc. → UVC LED using aluminum nitride (AlN)

### Mass production of UVC LEDs using the world's only 2-inch single-crystal AlN substrate

High-quality Single-crystal AlN



Klaran

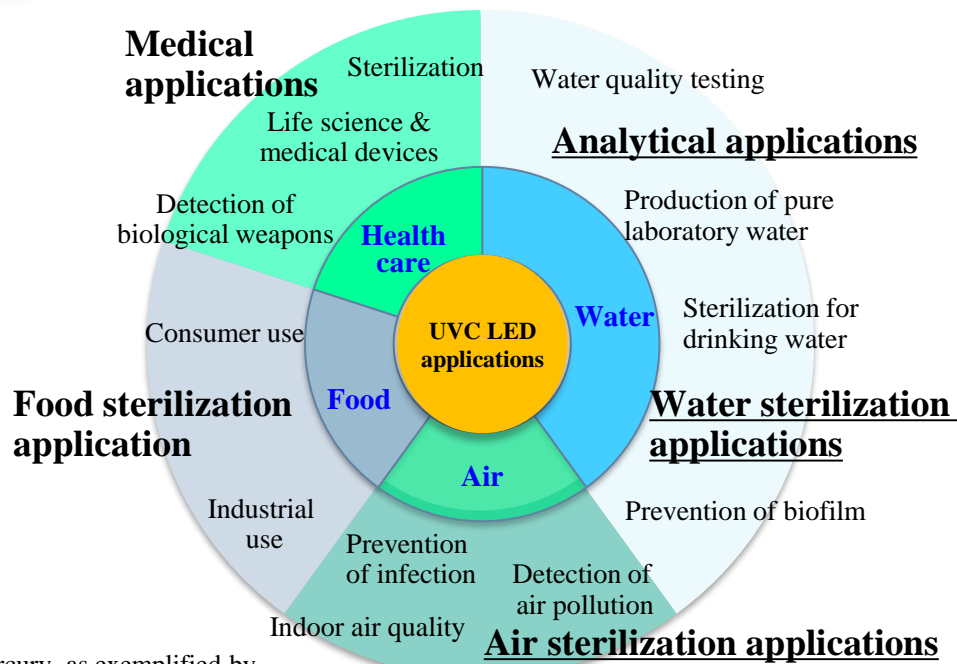
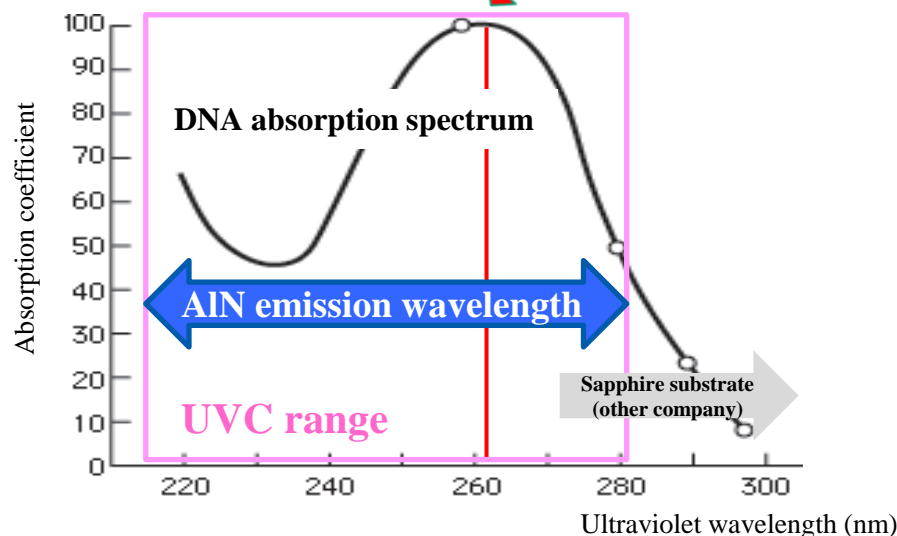


Klaran-AKR a small UVC LED running water sterilizer



- High sterilization efficiency
- Small size, low power consumption
- Long service life
- Safety (mercury-free<sup>1</sup>)

Optimum wavelength for disinfection



<sup>1</sup> With increasing global awareness of environmental risks associated with the use of mercury, as exemplified by the Minamata Convention on Mercury which came into force in August 2017, there has been a heightening need for a UV light source to replace mercury lamps that are currently used to disinfect drinking water, etc.

# Example (5) IoT for plant diagnosis—applied to solutions for shipping industry

## Providing remote diagnostic service for rotating equipment on ships leveraging onshore plant diagnostic technology

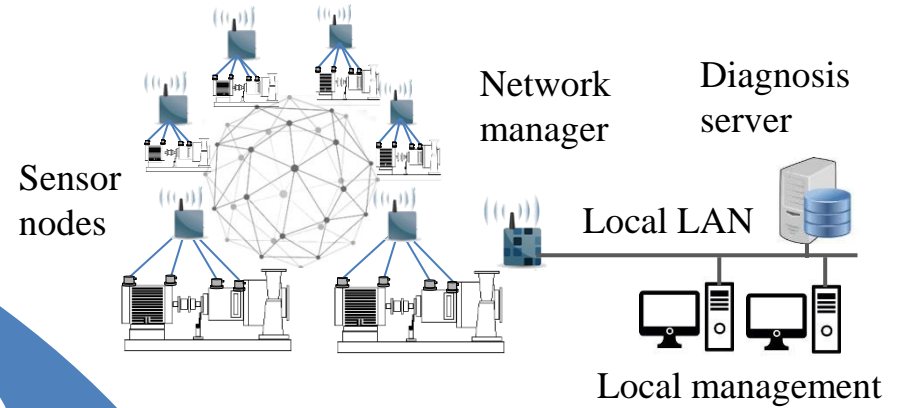
Diagnosis of onshore plant



Portable diagnostic device

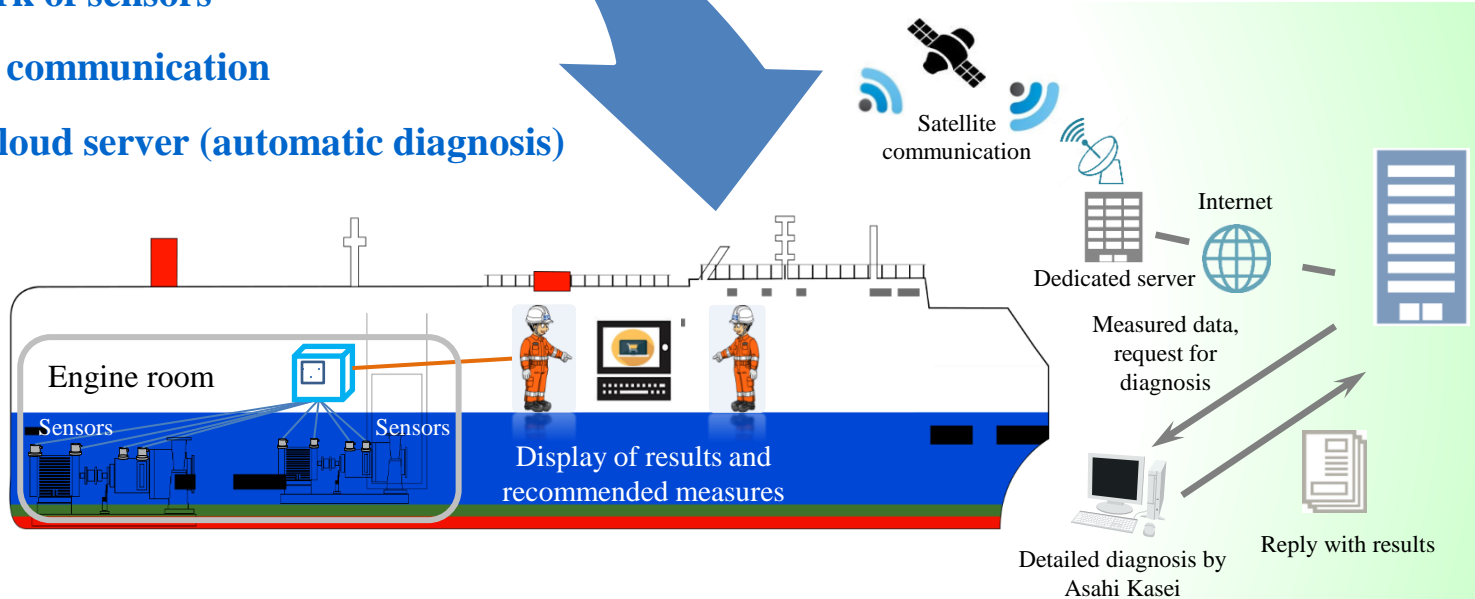


Online diagnostic system



- Accumulated diagnostic data for rotating equipment
- Wireless network of sensors
- Internet communication
- Cloud server (automatic diagnosis)

Remote diagnostic service for rotating equipment on ships



# Creating for Tomorrow

The commitment of the Asahi Kasei Group:

To do all that we can in every era to help the people of the world make the most of life and attain fulfillment in living.

Since our founding, we have always been deeply committed to contributing to the development of society, boldly anticipating the emergence of new needs.

This is what we mean by “Creating for Tomorrow.”

**AsahiKASEI**