



# Care for People Care for Earth

Hiroshi Yoshida  
Director, Vice-Presidential Executive Officer  
Executive Officer for Material business sector

**AsahiKASEI**

November 14, 2019

# Outline

## 1. Introduction

## 2. Material sector growth strategy

- (1) Management policy
- (2) Sustainability
- (3) Business strategy

Priority fields for provision of value, reorganization, investment strategy, R&D policy

- (4) Heightening business platform

## 3. Contribution to solving plastic issues

### 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 do not imply a guarantee of actual outcomes.

# 1. Introduction

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# Overview of the Asahi Kasei Group

**Material accounts for over half of Asahi Kasei's total sales**

## Asahi Kasei Corp. (holding function)

Sales ¥2,170.4 billion  
Operating income ¥209.6 billion

### Health Care

Sales ¥316.2 billion  
Operating income ¥41.8 billion

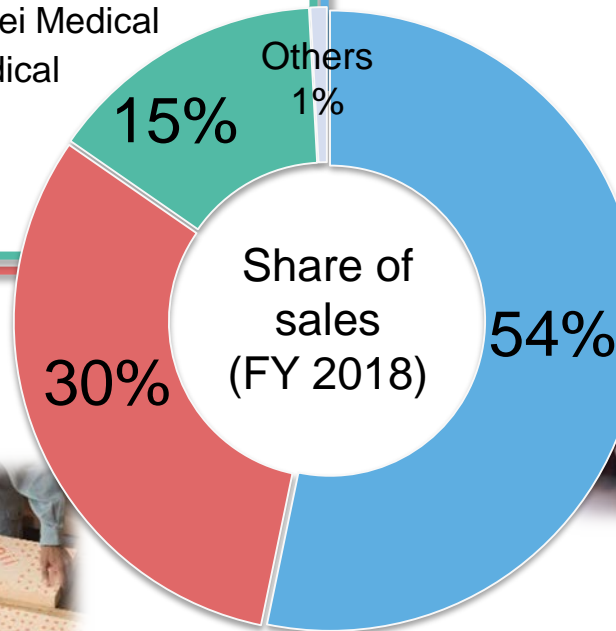


- Asahi Kasei Pharma
- Asahi Kasei Medical
- ZOLL Medical

### Material

Sales ¥1,176.2 billion  
Operating income ¥129.6 billion

- Asahi Kasei Corp. (business function)
  - Basic Materials SBU
  - Performance Products SBU
  - Specialty Solutions SBU
- Asahi Kasei Microdevices



Share of sales (FY 2018)



- Asahi Kasei Homes
- Asahi Kasei Construction Materials

### Homes

Sales ¥659.8 billion  
Operating income ¥68.2 billion

# Priority fields for provision of value

Asahi Kasei has 5 priority fields for provision of value to contribute to sustainable society; 3 of these are in the Material sector

## Contributing to sustainable society

Environment

Innovation

Longevity

Challenges and needs

Contributing to life and living for people around the world

Group Mission

Enabling “living in health and comfort” and “harmony with the natural environment”

Group Vision

Material

Environment & Energy

Reduced burden

Mobility

Safety and comfort

Life Material

Comfort and convenience

Homes

Home & Living

Security and fulfillment

Health Care

Health Care

Healthy longevity

Priority fields for provision of value

## 2. Material sector growth strategy

### (1) Management policy

# Management policy

## 1. Sustainability

- Achieving both sustainable growth and contribution to sustainable society

## 2. Business strategy

- Expanding business in priority fields for provision of value to achieve portfolio transformation and provide new value and solutions to society
- Reorganization to stimulate connections and generate synergy

## 3. Heightening business platform

- Heightening businesses by digital transformation
- Fostering a culture of continuously taking on challenges for personal growth of employees and for business growth



## 2. Material sector growth strategy (2) Sustainability

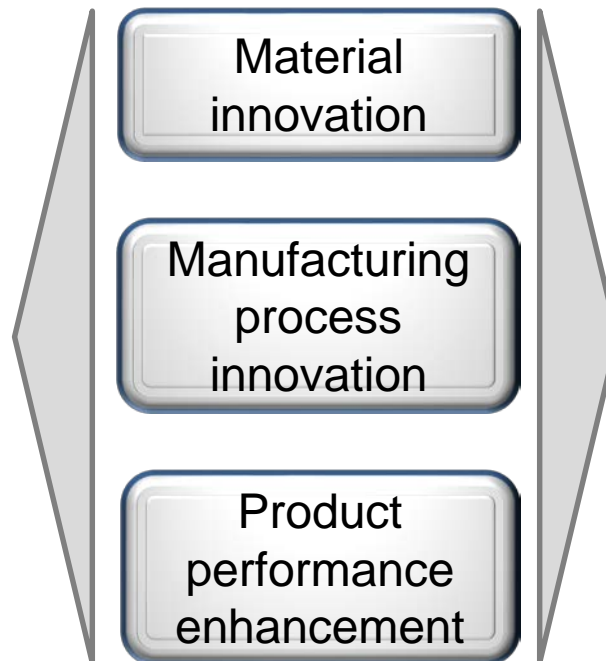
# Basic concept for contributing to sustainable society

**3 approaches to further develop existing businesses and create new businesses**

Further development  
of existing businesses

New business creation

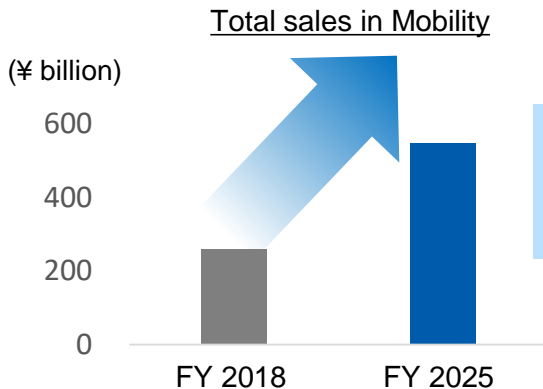
Existing markets



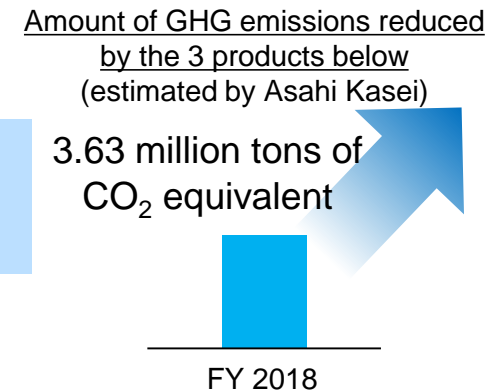
New markets

# Contributing to sustainable society through expansion of businesses that support environmental protection

## Achieving both business growth and environmental contribution



**Business growth & environmental contribution**



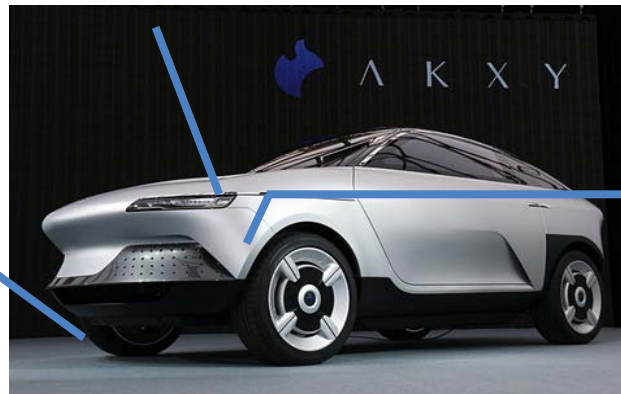
### Fuel efficiency

S-SBR<sup>1</sup> for fuel-efficient tires



### Lightweighting

Xyron m-PPE<sup>2</sup>



### Electric drive

LIB<sup>3</sup> separator



<sup>1</sup> Solution-polymerized styrene-butadiene rubber  
<sup>2</sup> Modified polyphenylene ether  
<sup>3</sup> Lithium-ion battery

## 2. Material sector growth strategy

### (3) Business strategy

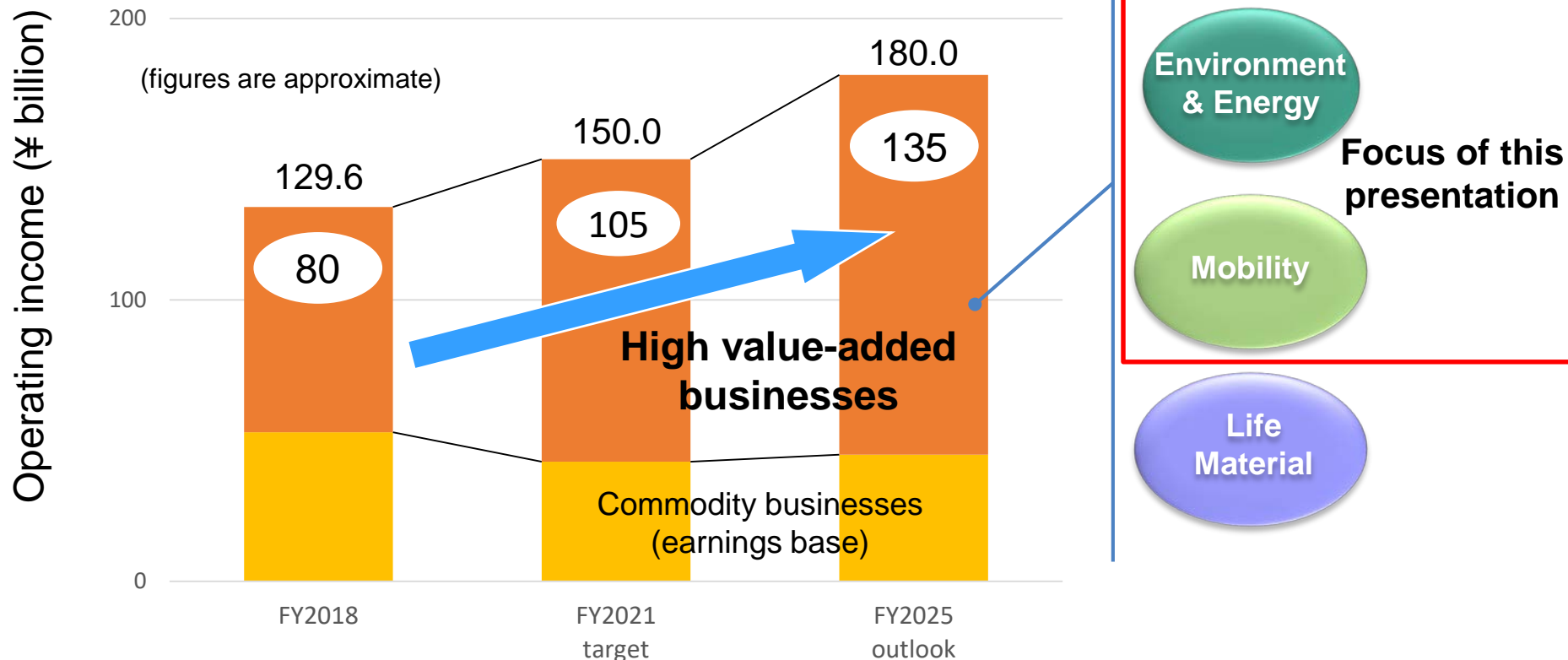
Priority fields for provision of value

# Basic strategy and financial objectives

## Basic strategy

### Flexible allocation of management resources to priority fields

#### Expansion of high value-added businesses



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



# Priority fields for provision of value

**Various approaches to expand businesses in priority fields for provision of value**

**Further development of existing businesses**

**New business creation**

**Material innovation**



- ✓ Foamed materials
- ✓ Cellulose nanofiber
- ✓ CO<sub>2</sub> sensor

**Manufacturing process innovation**



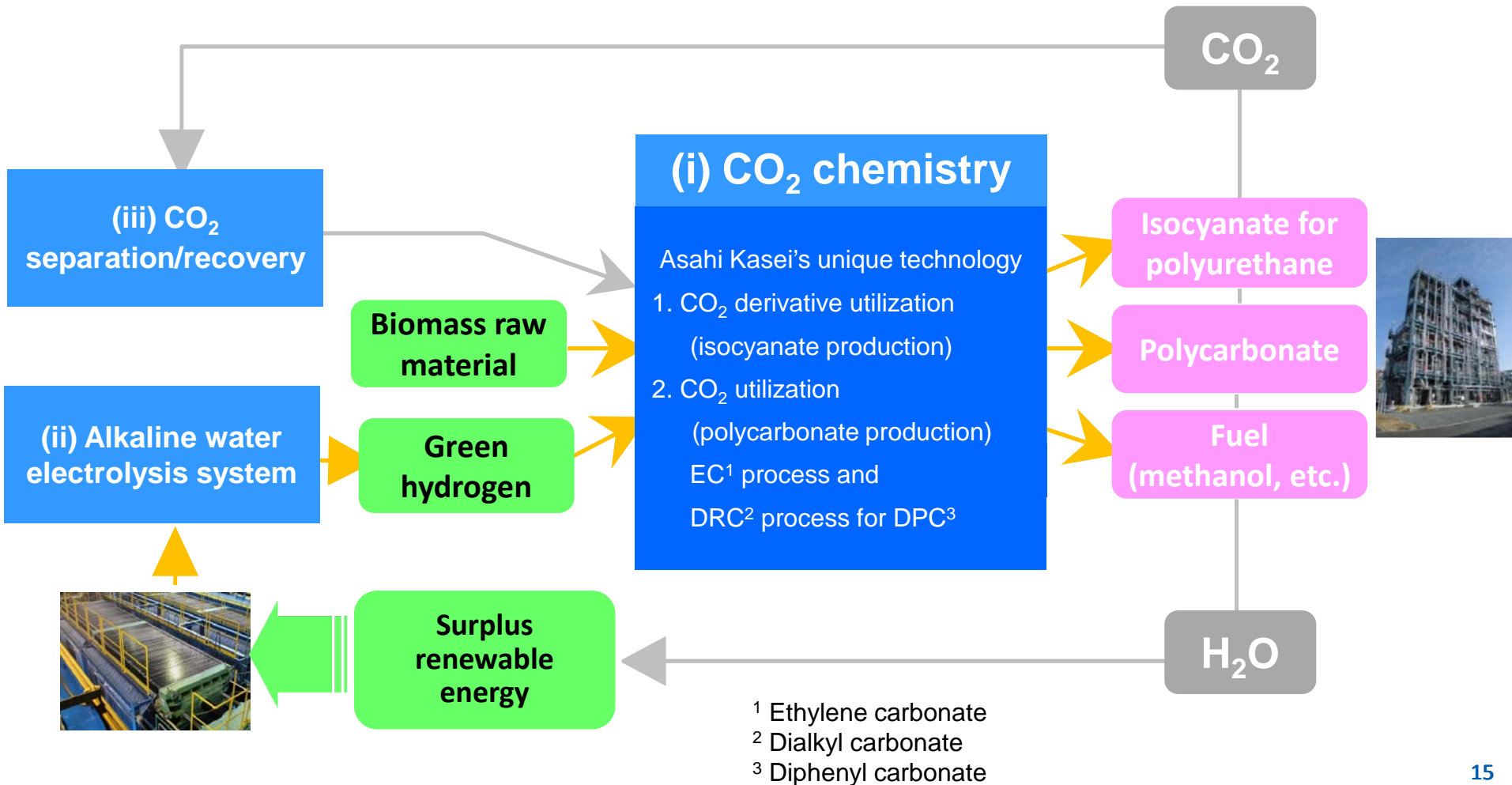
- ✓ CO<sub>2</sub> chemistry
- ✓ Green hydrogen
- ✓ CO<sub>2</sub> separation/recovery

**Growth engines**

- ✓ Sage
- ✓ Battery separators

Development of new technology contributing to sustainable society: Business reinforcement and expansion in CCU (carbon capture and utilization)

**Asahi Kasei has essential technology for sustainable society: (i) CO<sub>2</sub> chemistry, (ii) alkaline water electrolysis system, and (iii) CO<sub>2</sub> separation/recovery**



# Contribution in Mobility

**Achieve reduced environmental burden and comfortable vehicle interiors**

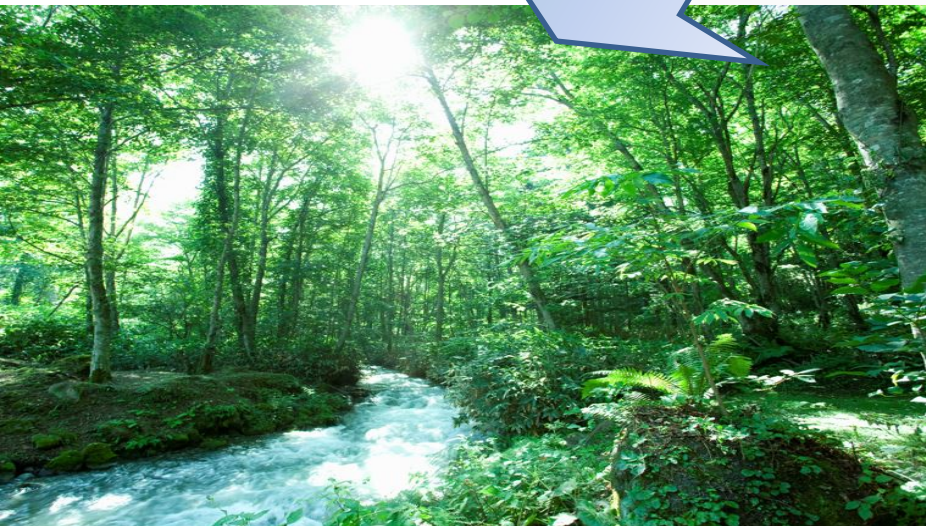
**Reduction of environmental burden**

**Care for Earth**



**Comfort of vehicle interiors**

**Care for People**

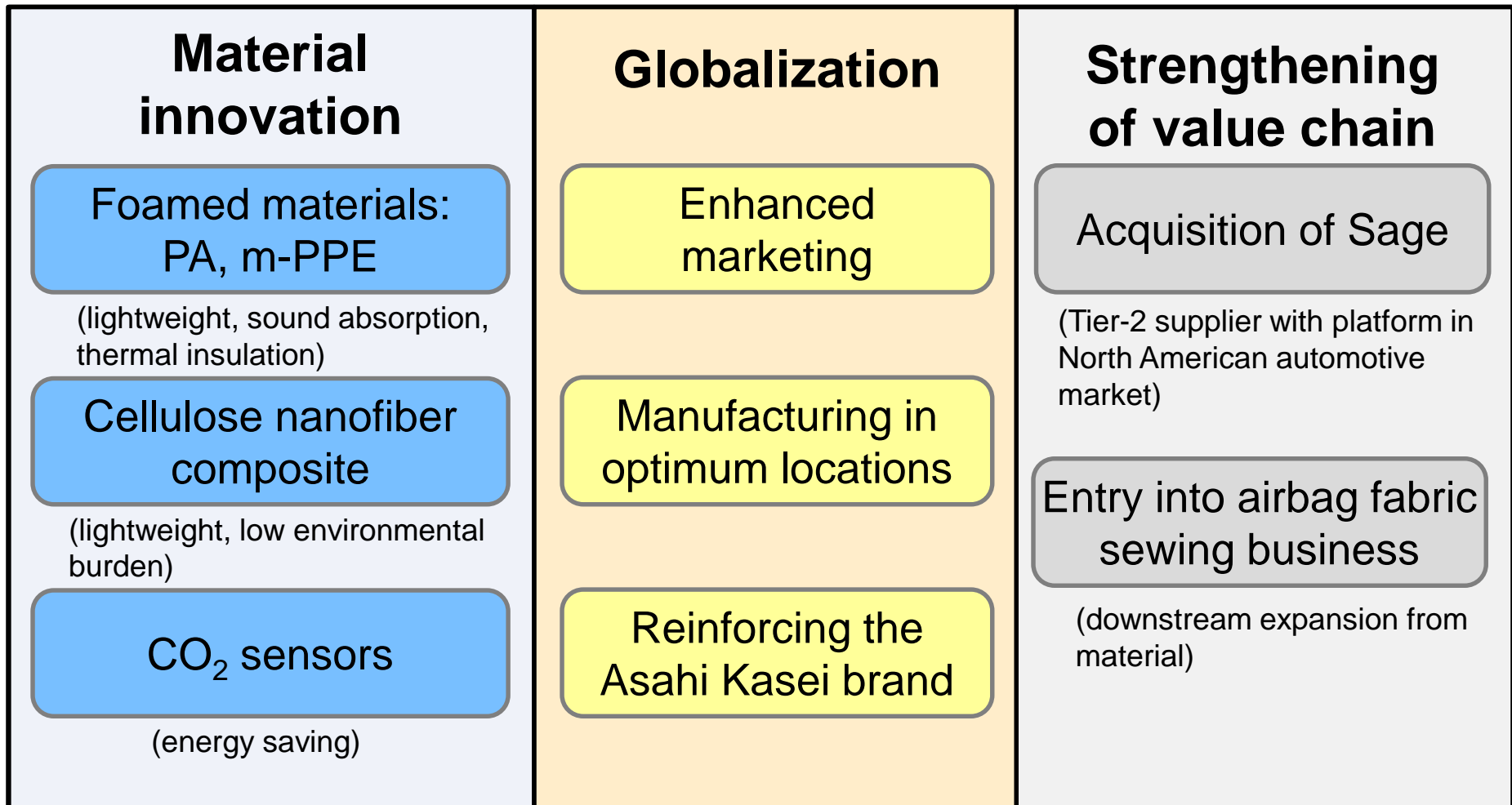




# Steps to achieve contribution

**Care for Earth**

**Care for People**



## 2. Material sector growth strategy

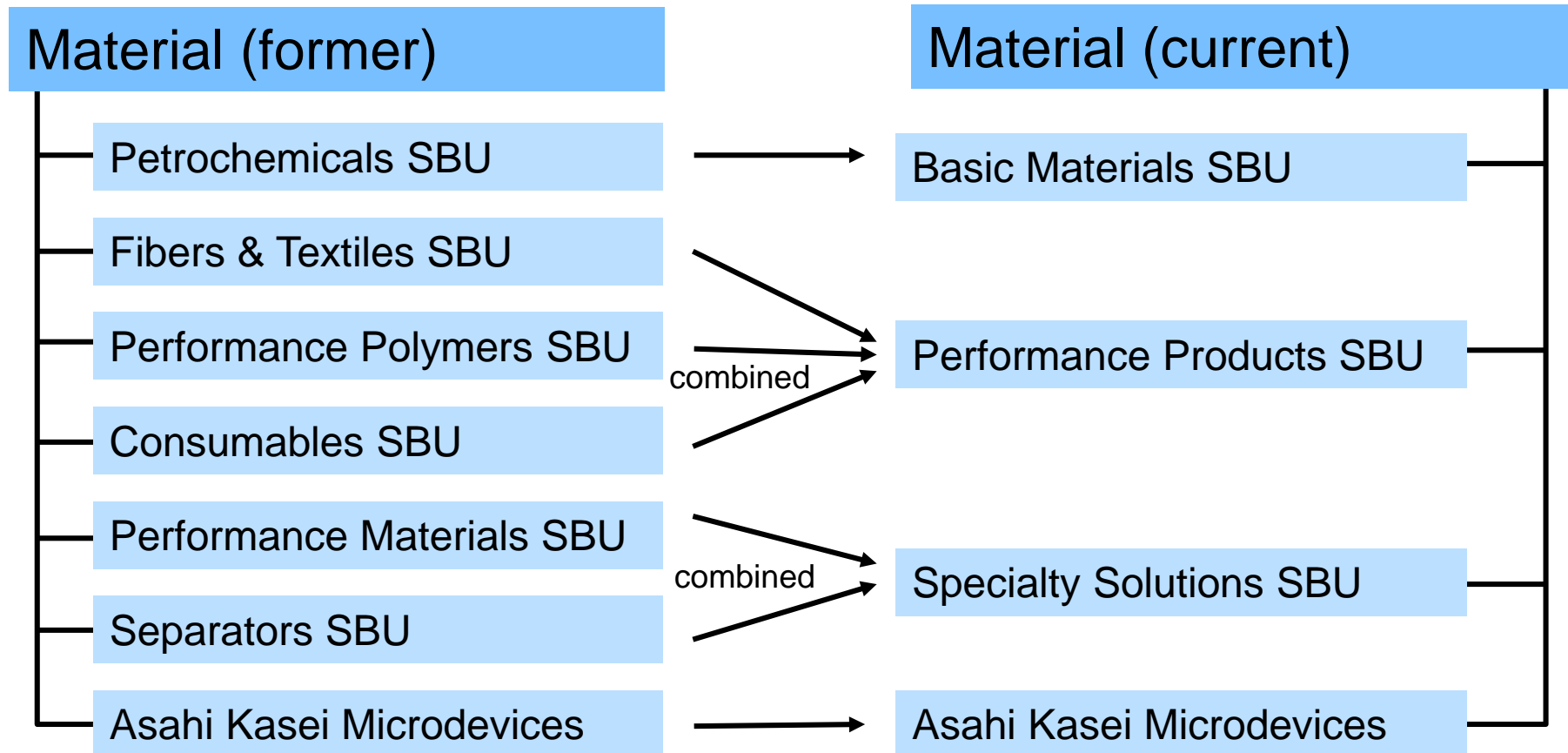
### (3) Business strategy

Reorganization, investment strategy,  
R&D policy

# Reorganization

## Reorganization for flexible allocation of management resources to priority fields for provision of value

- Raise flexibility of management resources and establish configuration to fully leverage collective strength
- Stimulate connections to enhance growth in priority fields for provision of value
- Advance business portfolio transformation

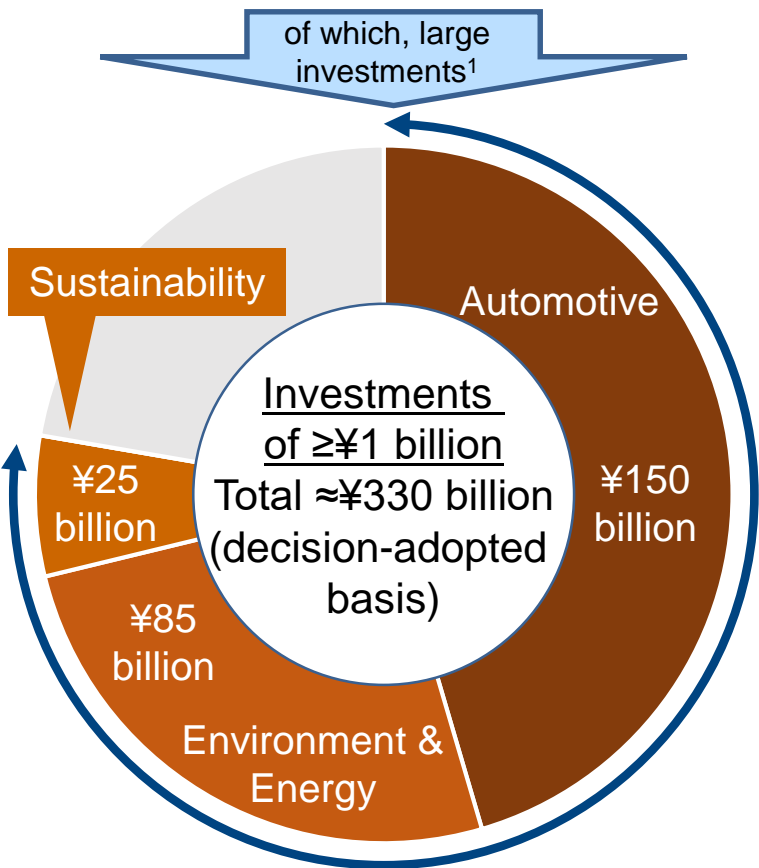


# Maximization of earnings from previous investments (FY 2016–2018)

**Making the most of previous investments to increase earnings during the current medium-term initiative**

Investments of ≈¥500 billion for Material (decision-adopted basis)

of which, large investments<sup>1</sup>



Field	Care for Earth	Care for People
<b>Automotive</b> <ul style="list-style-type: none"> <li>Capacity expansion for Lamous artificial suede</li> <li>Capacity expansion for S-SBR for fuel-efficient tires</li> <li>Capacity expansion for Leona nylon 66 filament</li> <li>Acquisition of Sage Automotive Interiors, Inc.</li> <li>Acquisition of Swedish gas sensor module maker Senseair AB</li> </ul>	○ ○ ○ ○ ○	○  ○ ○ ○
<b>Environment &amp; Energy</b> <ul style="list-style-type: none"> <li>Capacity expansion for Li-ion battery separator</li> </ul>	○	
<b>Sustainability</b> <ul style="list-style-type: none"> <li>Renovation of hydroelectric power plants</li> <li>Conversion of coal-fired power plant to natural gas-fired power plant</li> </ul>	○ ○	

<sup>1</sup> Only main investments shown; figures by field are approximate

# Investment strategy for FY 2019–2021

## **Perform investments to drive growth as the core sector of the Asahi Kasei Group**

**Asahi Kasei Group 3-year total investment: Approx. ¥800 billion**

- **Active investment in new business, including M&A, in addition to investment in the existing business for expansion, maintenance, etc.**

## **Investment strategy for Material sector**

- **Focus on investments in the priority fields for provision of value to further enhance existing businesses and create new businesses**
- **Continue investments that contribute to sustainability**

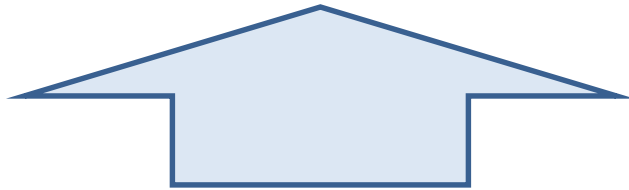
# R&D policy

**Creating new businesses based on Asahi Kasei's accumulated core technologies**

Care for People

Care for Earth

**New business creation**



**Examples of core technologies**

Polymerization/  
spinning

Polymers/  
processing

Catalysts/  
processes

Compound  
semiconductors/  
LSIs

Membranes/  
separation

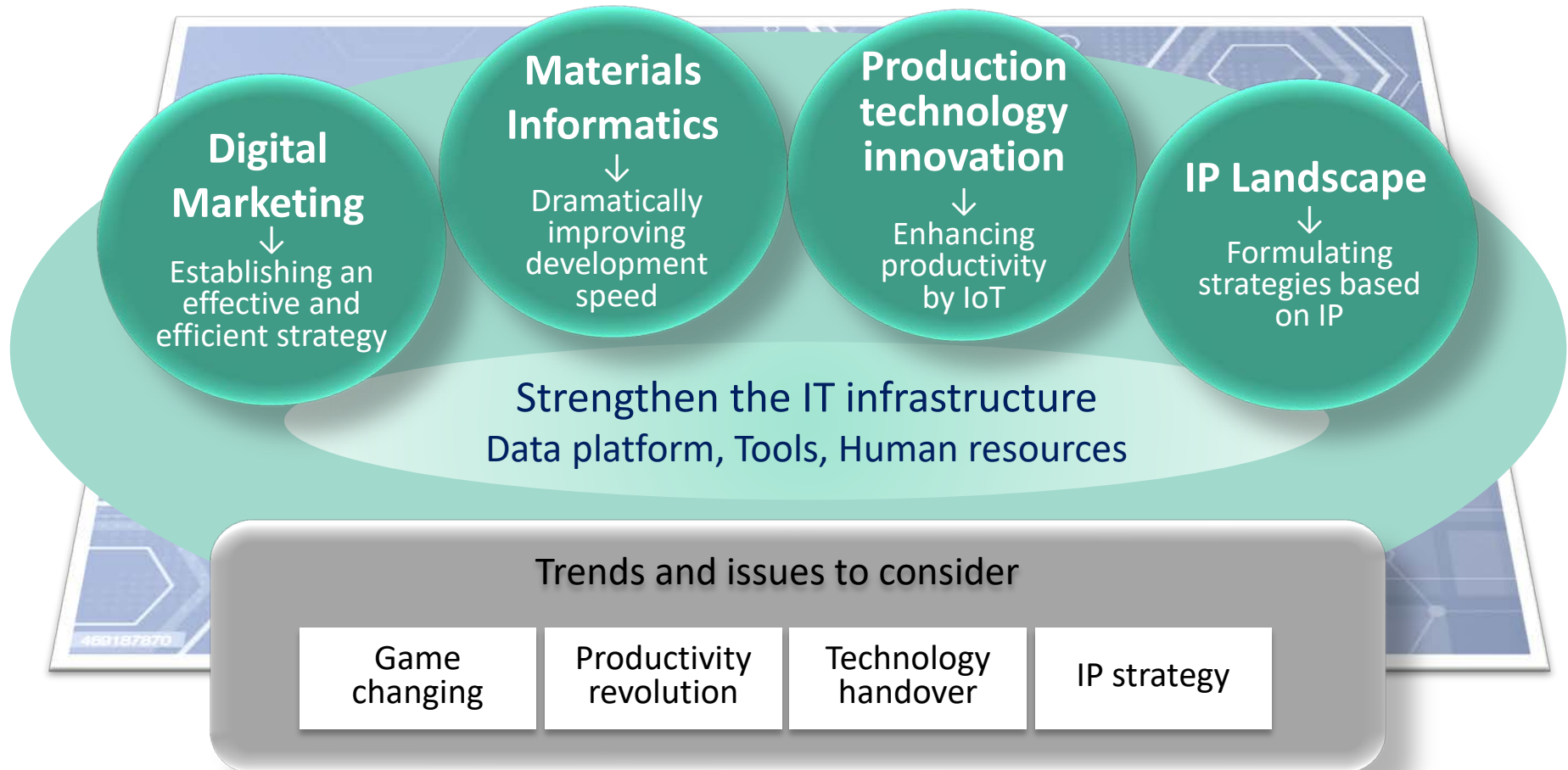


## 2. Material sector growth strategy

### (4) Heightening business platform

# Heightening business platform

## Heightening by digital transformation

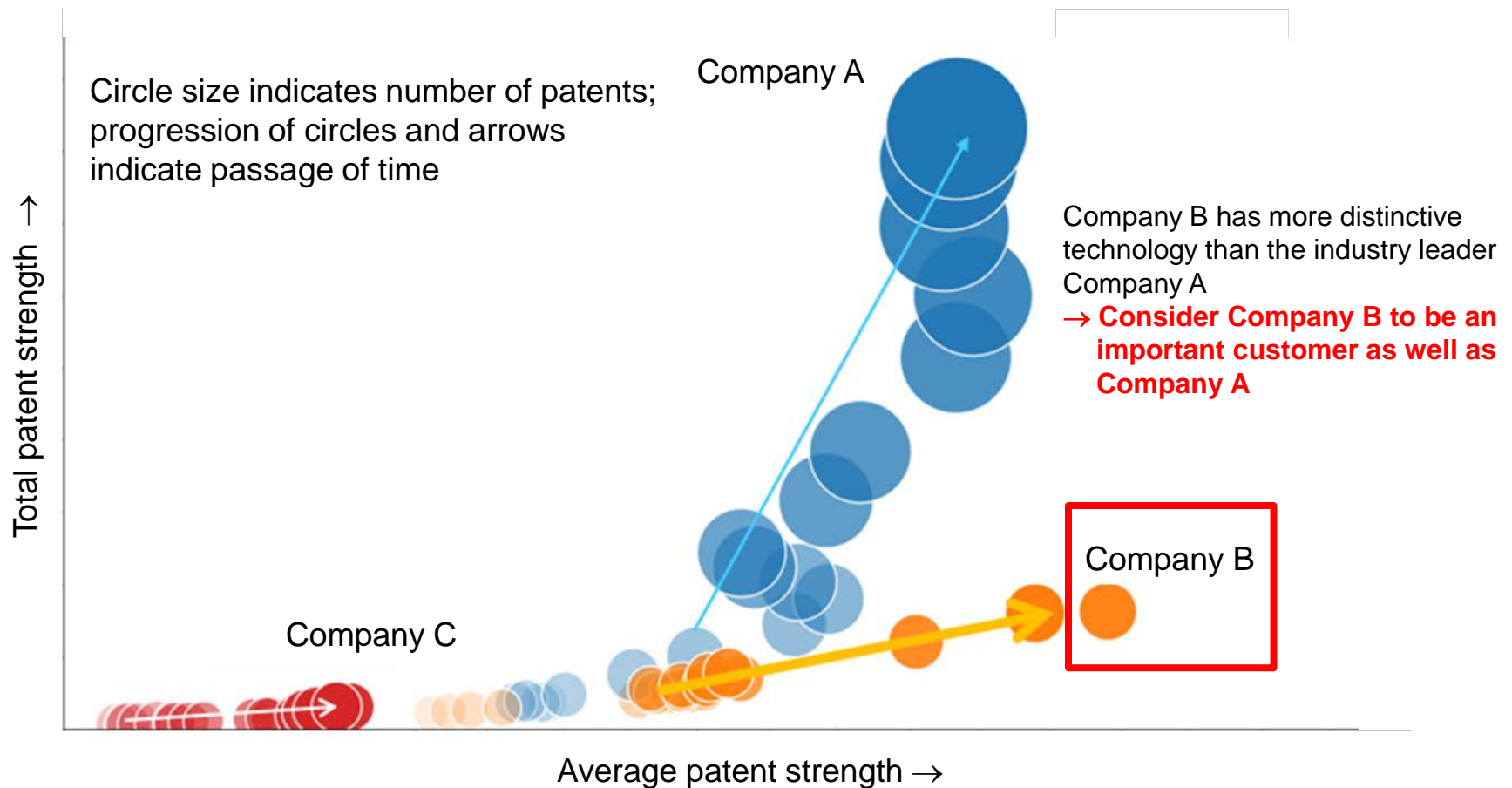


Increase digital professional personnel to over 150 people by March 2022 to accelerate digital transformation



## Example of IP landscaping for business strategy in polymers

**Formulation of business strategy considering the trajectory of customers and competitors as indicated by patent information**



# Application of materials informatics (MI) to catalyst development

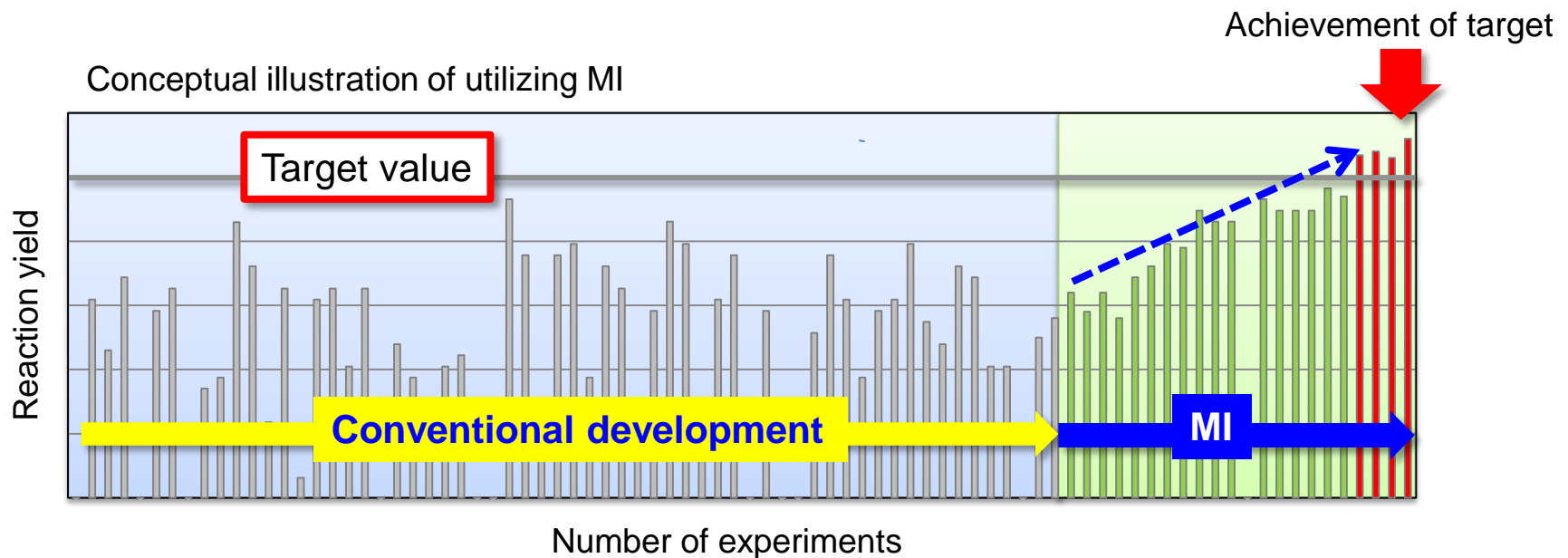
**Time to develop high-performance catalyst reduced to one-third by using MI**

Complex catalyst composition × Many synthesis conditions

Even experts depend on intuition; repeated trial and error is required



**Optimizing composition and synthesis conditions with MI**



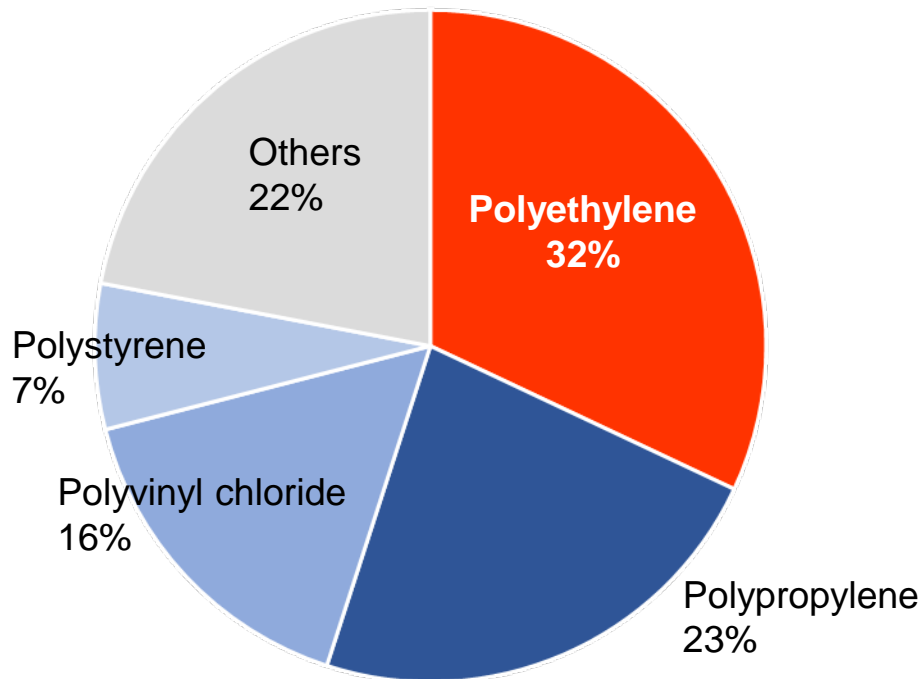
**Development period reduced to 1/3**

### 3. Contribution to solving plastic waste problem

# Plastic waste problem

**Focused on recycling of polyethylene and elucidating the mechanism of microplastic formation**

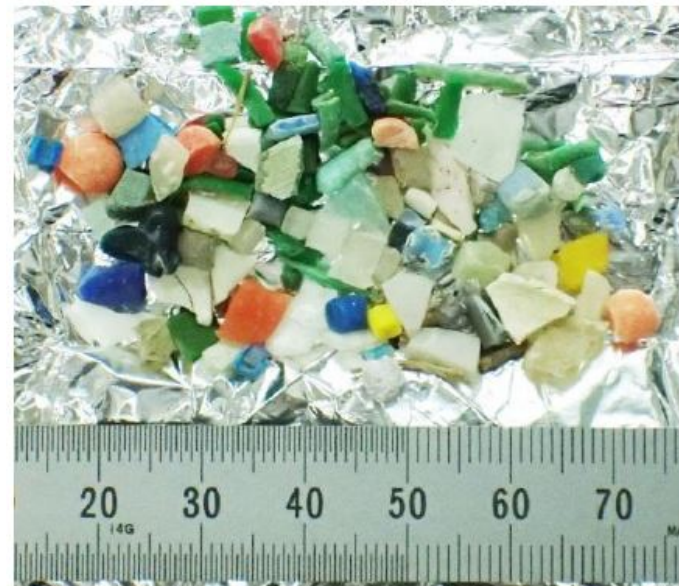
The most-produced plastic is polyethylene



World plastic production by polymer (2015)

Source: EuropePlastics (PEMRG)

The mechanism of microplastic formation is still unclear



Secondary microplastics

Source: Ministry of the Environment, Japan

# Polyethylene recycling

## Research on polyethylene recycling as part of a project led by NEDO<sup>1</sup>

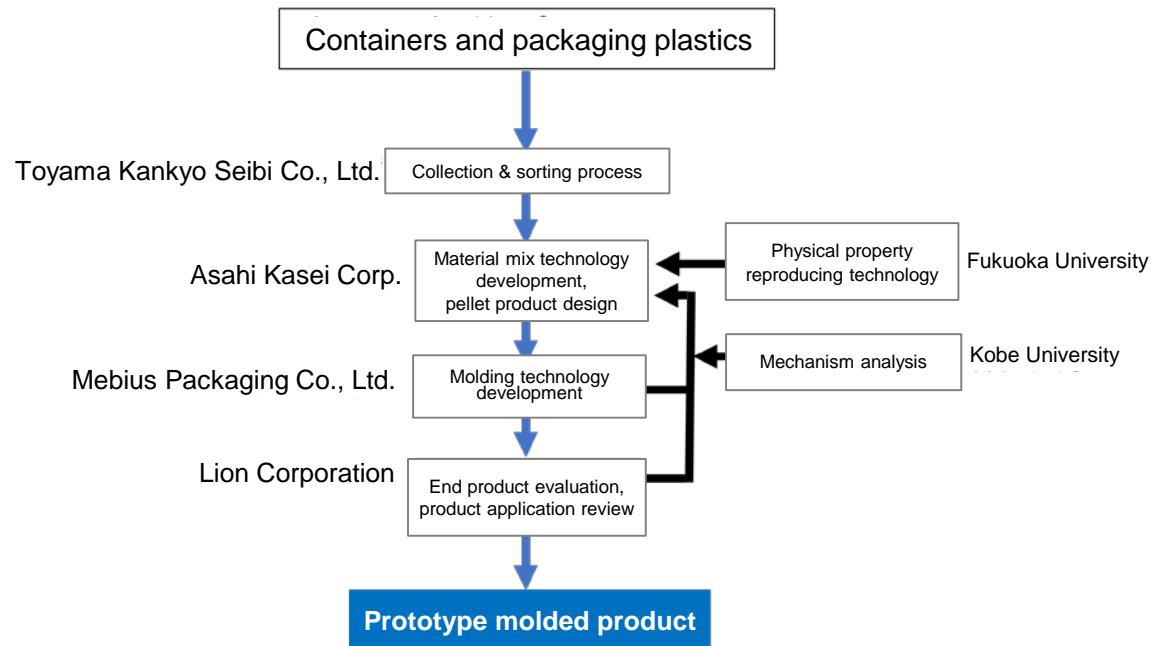
Studying implementation in society in terms of both technological development and the value chain



Participants range from recyclers to end product manufacturers

### NEDO research project: Implementation of polyethylene recycling in society

- Period:  
July 2019 to July 2020
- Participation:  
18 corporations, universities,  
and research institutions



<sup>1</sup> New Energy and Industrial Technology Development Organization

## Project to elucidate mechanism of microplastic formation

**Collaboration with Kyushu University to elucidate the mechanism of microplastic formation**

Launch of joint R&D project between Asahi Kasei and Kyushu University

### Asahi Kasei

- Experimental tests simulating the natural environment
- Status observation and chemical evaluation at time of microplastic formation

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### Isobe Laboratory, Kyushu University

- Numerical model of microplastics spreading in the ocean



**Objective:**

**Establish a model of global microplastic flow**

# 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.”

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