

A young girl with long, wavy brown hair, wearing a light blue, short-sleeved dress, is running barefoot on a sandy beach. She is captured from behind, with her hair and dress flowing in the wind. The beach is bright and sandy, with several seagulls in flight against a clear blue sky. The ocean is visible in the distance. The overall scene is bright and cheerful, suggesting a sunny day at the beach.

# KANUKA

## New Medium-Term Management Plan

May 15, 2019



# Kaneka

## New Medium-Term Management Plan

May 15, 2019





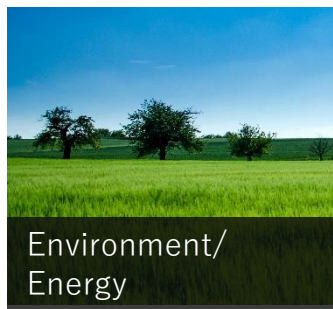
KANEKA thinks  
**Wellness First**

Kaneka brings the environment to its ideal state,  
Develops its business in a “wellness-first” direction, energies people,  
Adds vibrancy to business, and helps build a happier society.

To make the world wellness-first.  
Kaneka takes an innovative approach to science,  
and seeks to fulfill people’s dreams by offering a wide variety of solutions.



## Social issues



## KANEKA'S ESG

By providing valuable solutions globally, we will continue growing and building a reputation for contributing to the evolution of people's lives and the environment throughout the world.

Contribute to the advancement of life and the environment of people world wide through chemistry

### Earthology Chemical Solution

Aim to be an innovation leader for the global environment and lifestyles by drawing out the unlimited possibilities of chemical materials and supporting sustainable societies

Material SU

QoL SU

### Active Human Life Solution

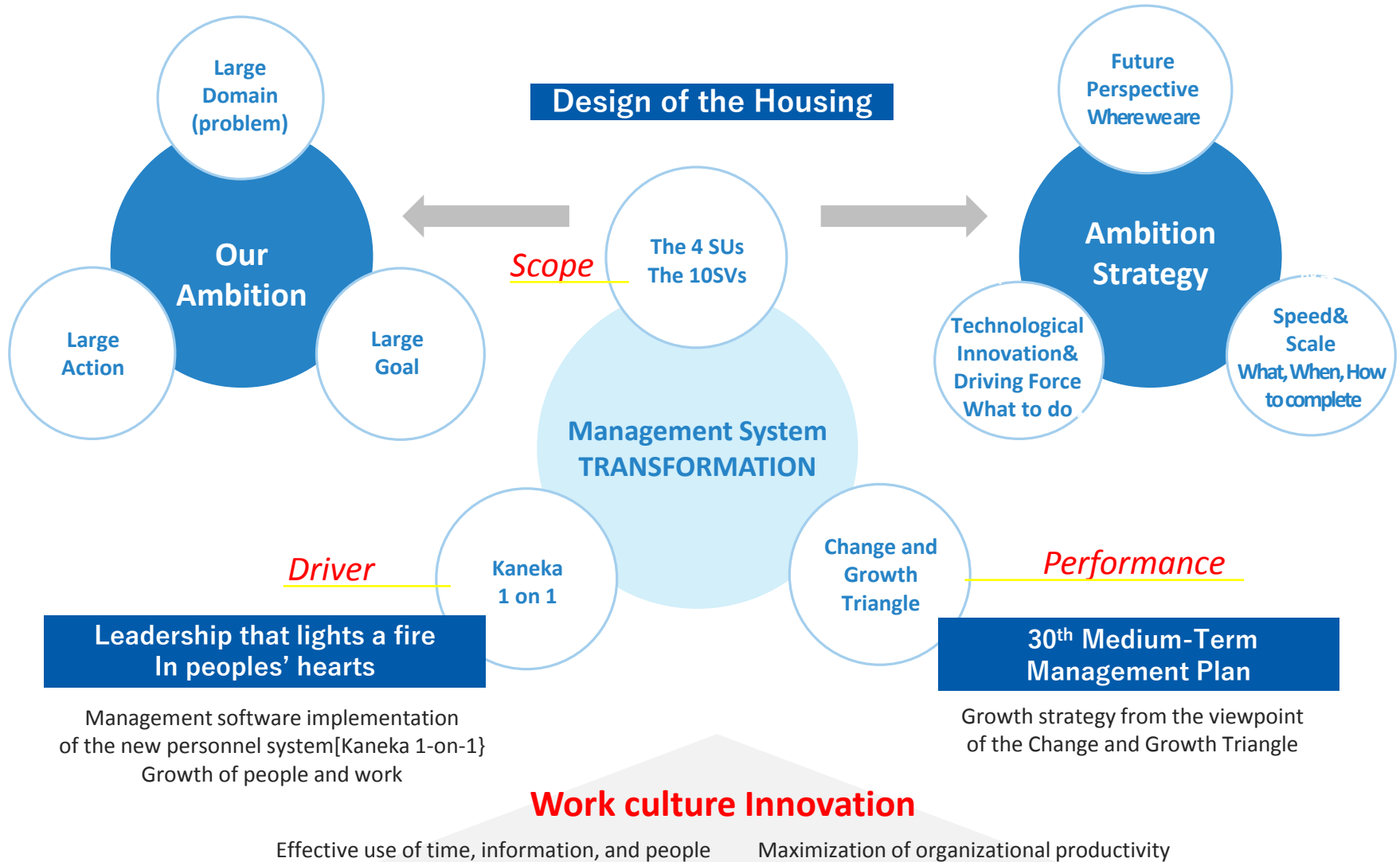
With a central focus on chemistry, treating food and medicine as one, aim to be an innovative solutions provider supporting healthy and active lives

Nutrition SU

Health Care SU

# The Triple Package as Management System Transformation

Further accelerate the transformation to a solution provider based on a new management system

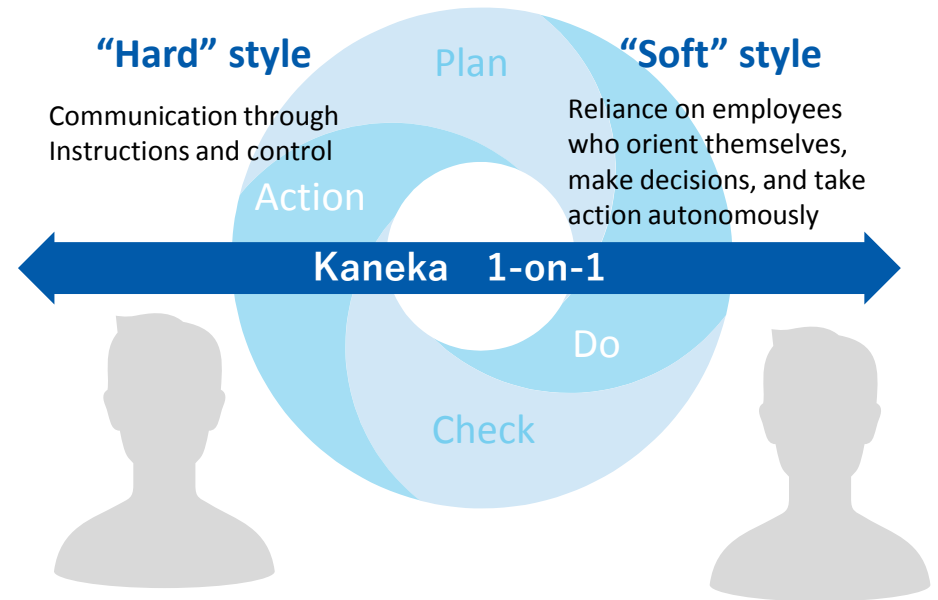


Leaders

who inspire employees



# Styles based on sharing dreams



- Make effective use time, information, and human resources to maximize the productivity of the organization
- Introduce a new personnel system (target management and evaluation system for promoting personal and professional growth)

Precious management resources:

**Time**

**Human Resource**

**Information**

**Info**

Knowledge→Wisdom  
Information that wins battles



**HR**

Bringing out differences in talent

**Time**

Recover the organization's time



Kaneka’s DNA (the importance of trying new things)

## Kaneka Tower Key basic structure of our management model (Kaneka’s DNA)

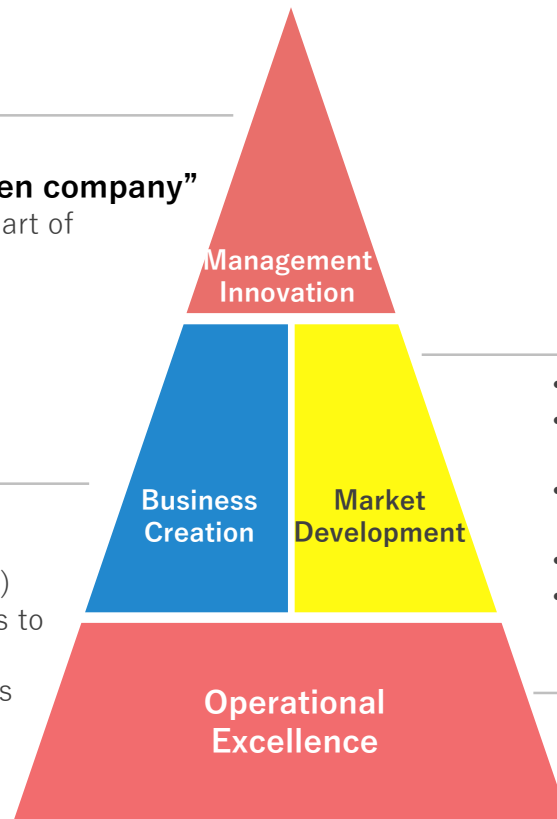
### Ability to grow tall

#### Kaneka as a “Trial & Error experiment driven company”

“Wellness-First Management” as part of ESG management

### Inner strengths

- Diversity (broad business domains, a diverse range of technologies, global corporate activities, diverse workforce)
- Shifting from things to ideas, materials to solutions
- Serve as an interface between markets and technology
- Start small and grow big
- Facilitate personal growth through employees’ job performance (“Kaneka 1-on-1”)



### Outward strengths

- Advance initiatives with a global perspective
- Do things that only Kaneka can do, uniqueness
- Structure customer needs; Ask “Are we playing a useful role?”
- A leader who will face challenges
- Open innovation

### Frontline execution

- Think by exercising all five senses on the frontlines, make decisions and create value
- Implement Value Communication to link the frontlines together

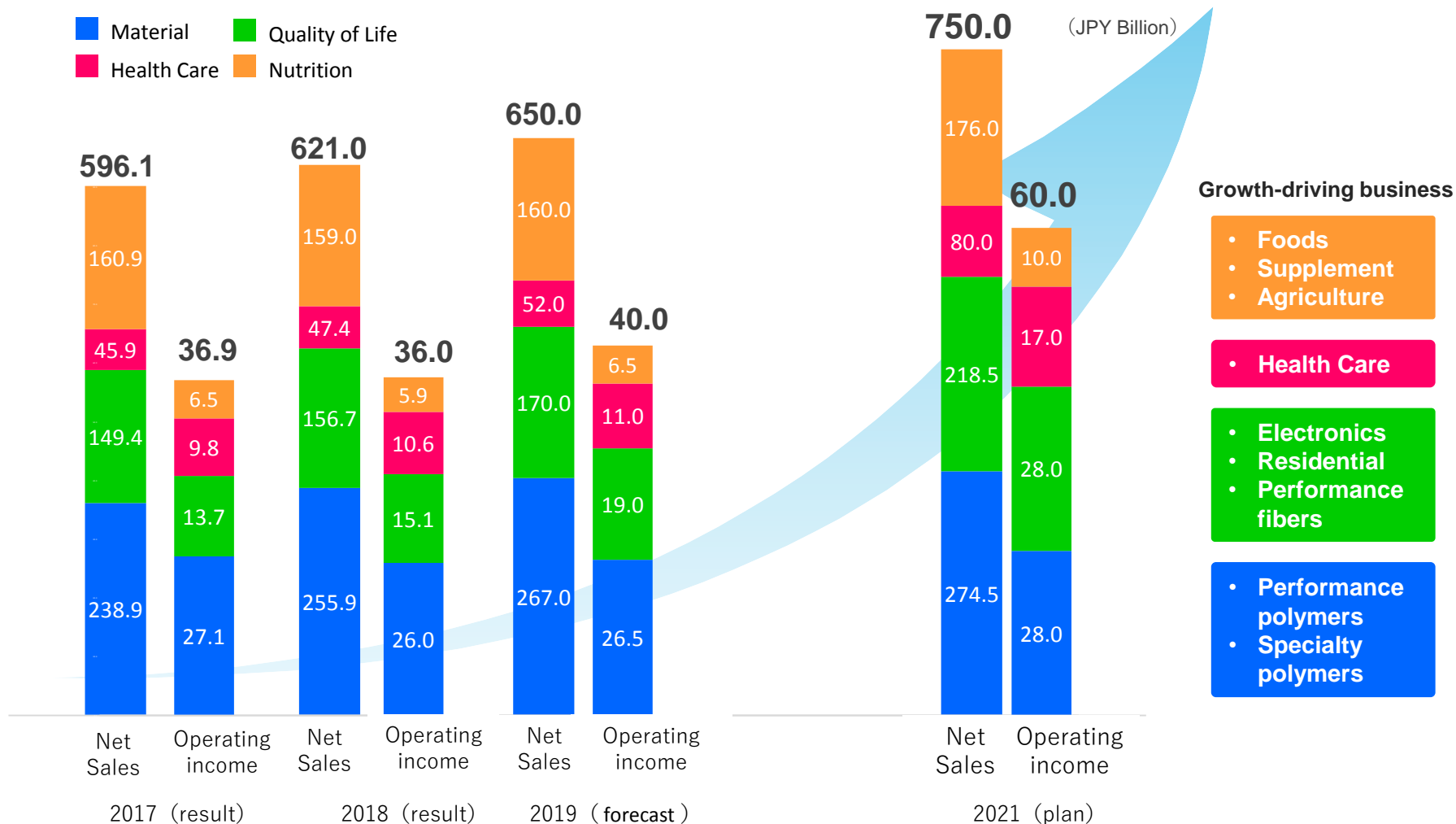


# Medium-Term major strategy

Growth strategy / R&B strategy /  
Global strategy / M&A strategy

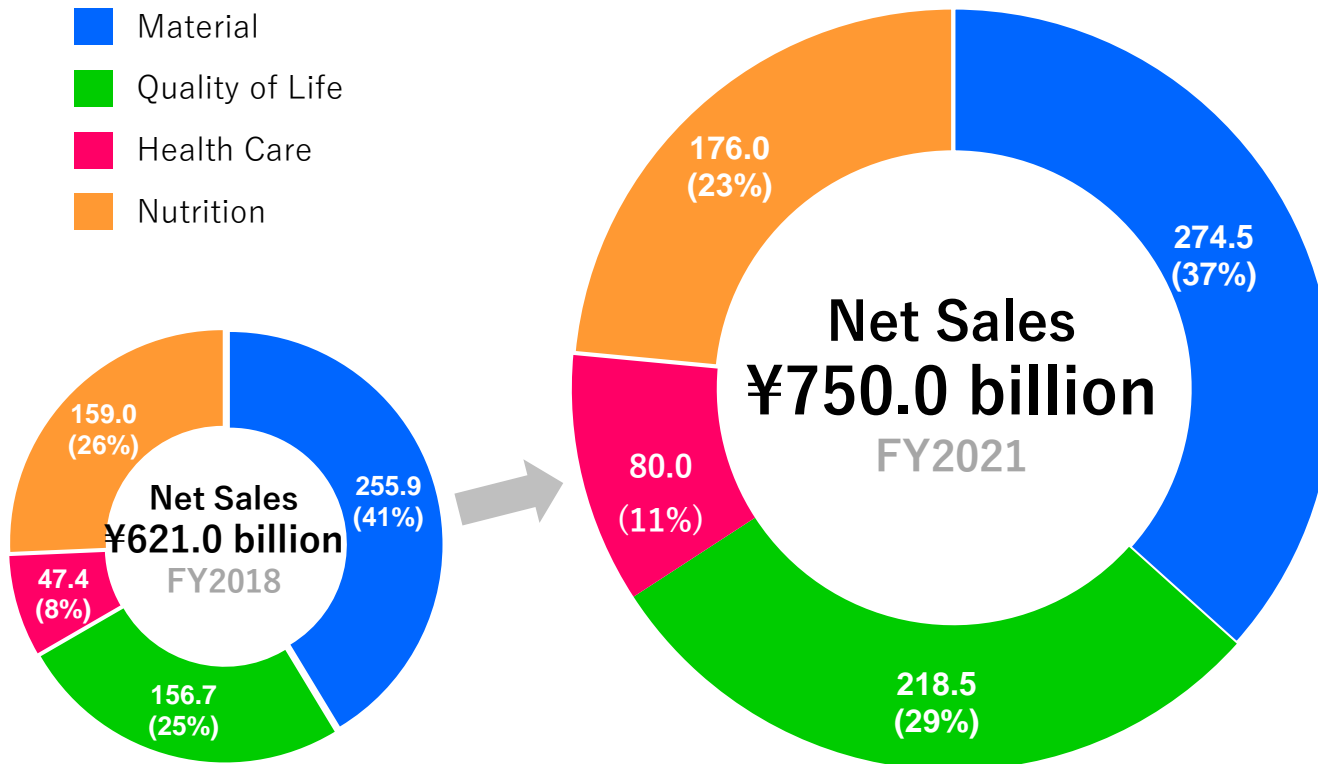
## Growth strategy (Performance Targets by Solutions Unit)

- The creation of new social value and transformation of business models based on technological innovation will present major business opportunities.
- The global economy is expected to decelerate due to trade friction between the U.S. and China and geopolitical risk. Against this backdrop, Kaneka has drawn up its new Medium-term Management Plan.



# Growth strategy (Transformation of Business Portfolio)

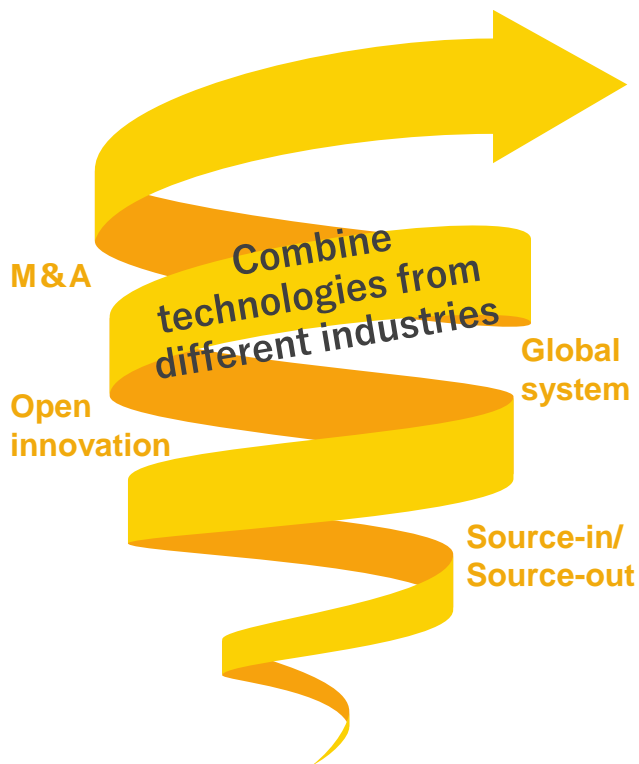
- Aggressively expand business of all four Solutions Units (SU)
- High-functionality products to drive growth in each SU  
⇒ Aim for major growth in sales of E & I, Pharma, Medical, and Supplement
- Focus on expanding Health Care and Quality of Life



## Growth-driving businesses

- Foods
  - Supplement
  - Agriculture
- Health Care
- Electronics
  - Residential
  - Performance fibers
- Performance polymers
  - Specialty polymers

Create added value



Leading-edge businesses

E & I Technology, Pharma, Medical Devices, Supplemental Nutrition, Agris, PV & Energy management

Foundation businesses

Vinyls and Chlor-Alkali, Performance Polymers, Foam & Residential Techs, Performance Fibers, Foods

New large-scale businesses

Organic EL Lighting, Biopolymers, Opto-Electrochemicals, Regenerative medicine and cell therapy, etc

(JPY Billion)

Multiple business

	FY 2018	FY 2021
Net Sales	103.0	225.0
Ratio	17%	30%

Strengthen Only One, Global No.1

	FY 2018	FY 2021
Net Sales	516.8	490.0
Ratio	83%	65%

Driving-force of business transformation

	FY 2018	FY 2021
Net Sales	1.2	35.0
Ratio	0%	5%

Diverse businesses, diverse technologies, “only-one” products, possession of world-leading technologies and products (Strengths)



# Growth strategy (Transformation of Business Portfolio)

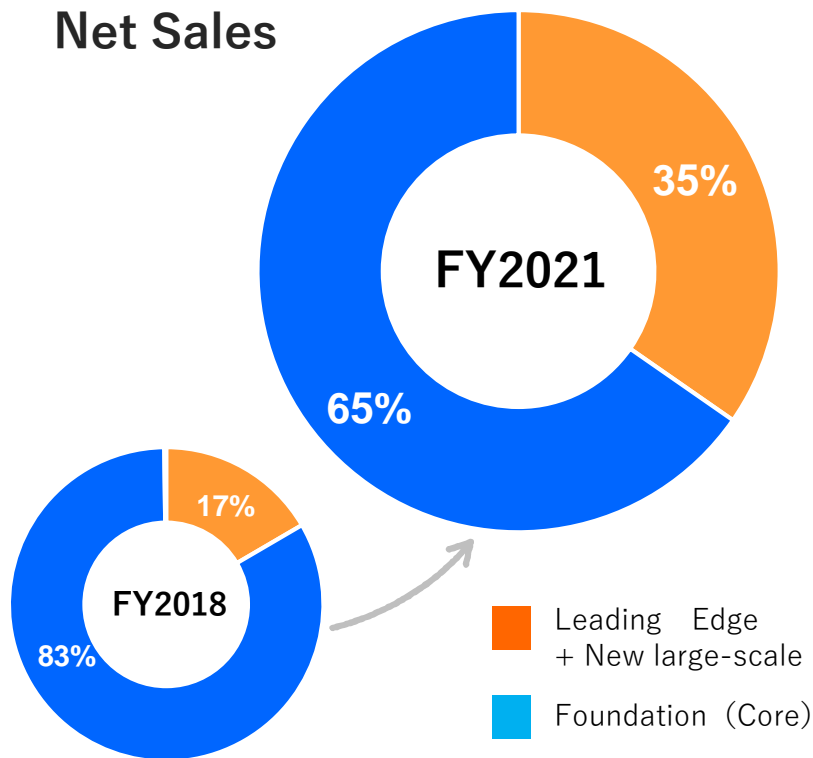
- **Leading-edge businesses' net sales composition ratio to expand from 17→30% operating income composition ratio from 26→50%**
- **Leading-edge businesses + New large-scale businesses to make up 35% of total net sales ⇒ Driving-force of growth**

Leading-edge businesses... E&I, PV, Medical, Pharma, Supplement

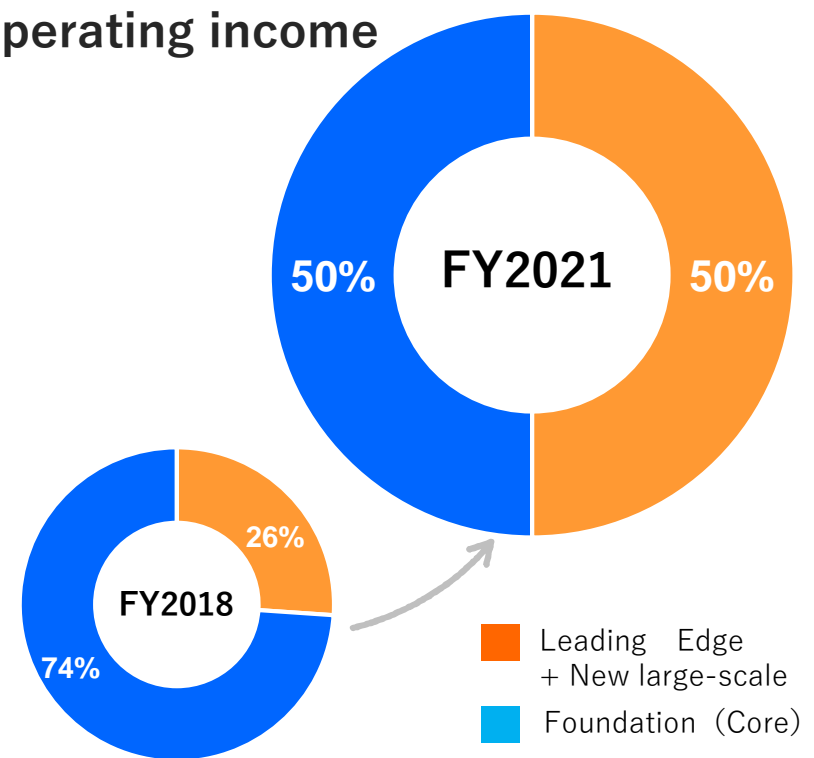
Foundation businesses (Cash Cow)... V&C, PP, F&R, PF, F&A

New large-scale businesses... Biodegradable polymers, Organic EL Lighting, Opto-Electrochemicals

## Net Sales



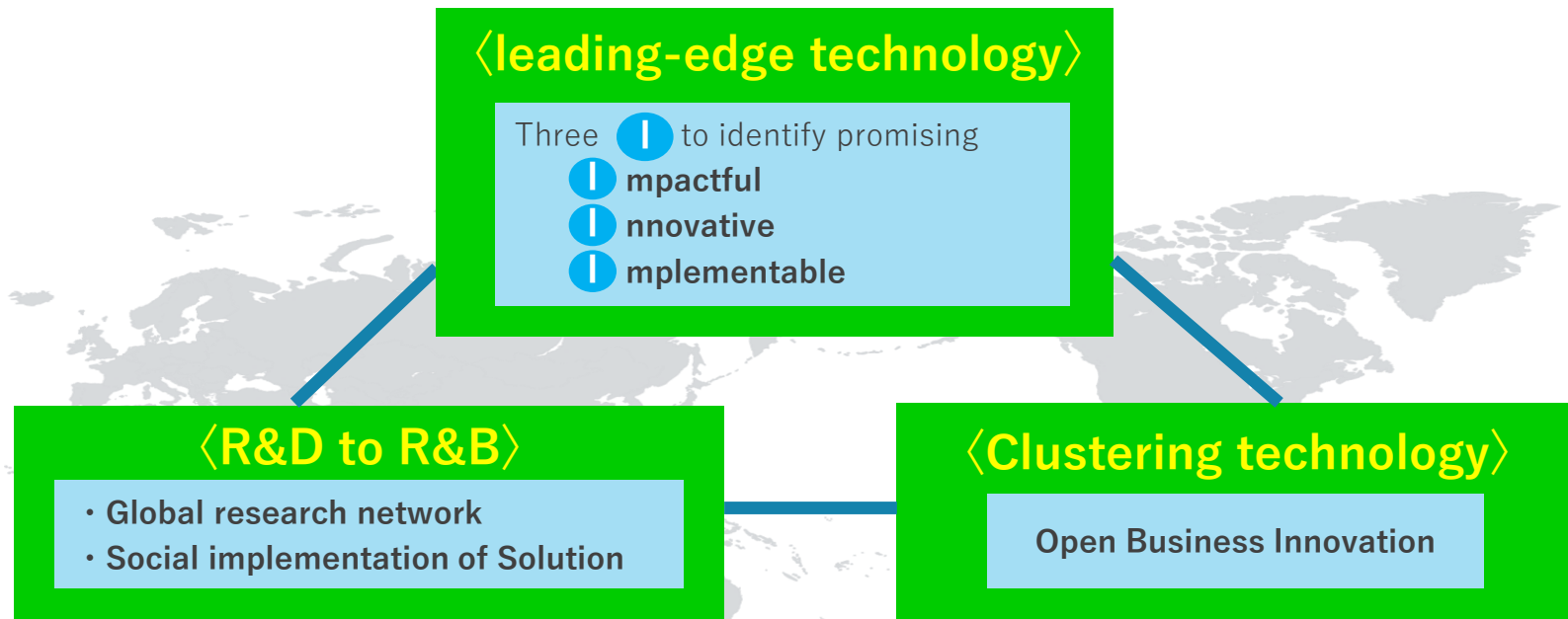
## Operating income



# Transition to an R&B structure in order to strengthen capabilities through a shift from R&D to commercialization

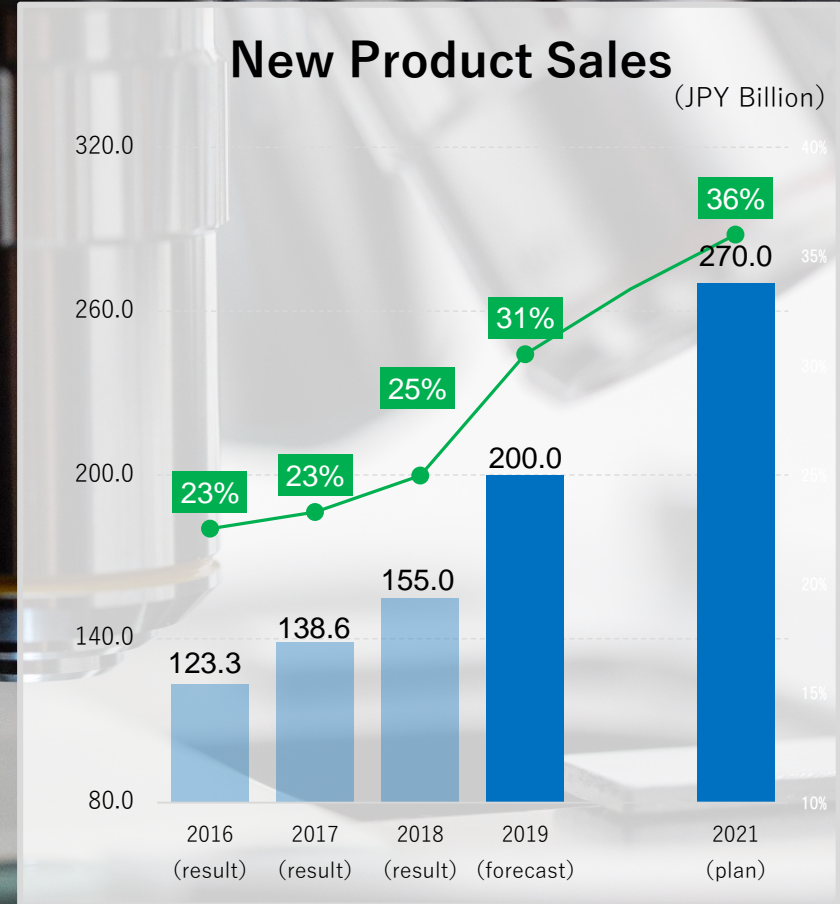
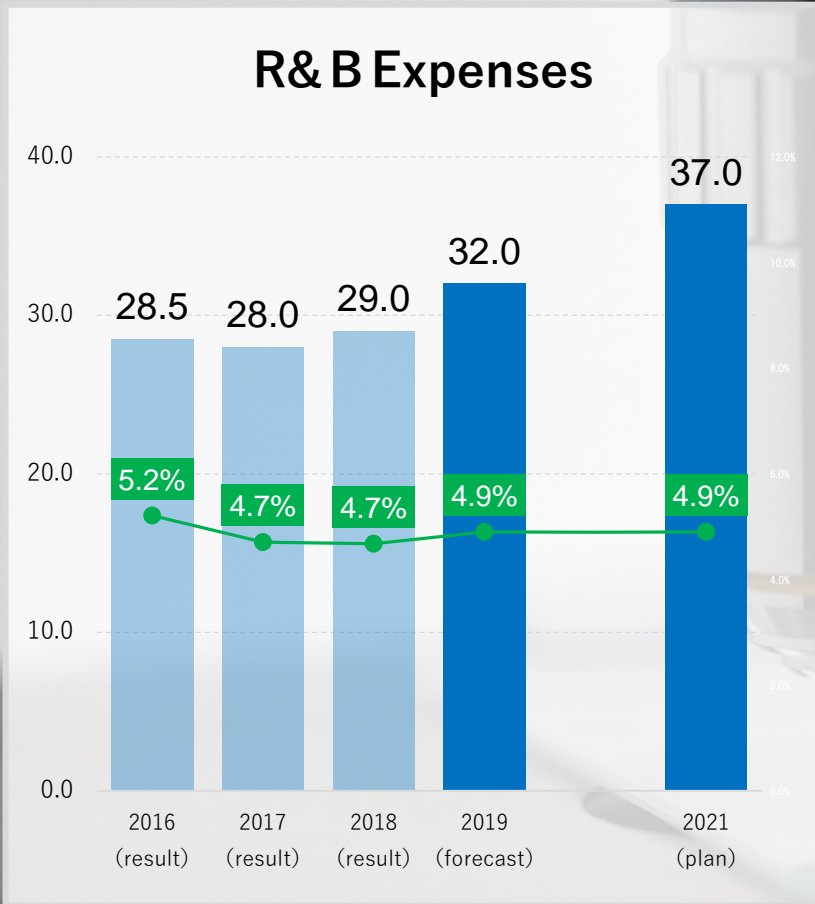
Kaneka's R&D activities will pursue value from the perspectives of markets and customers by proactively harnessing leading-edge technologies.

R&D will be redefined as R&B (Research & Business). The purpose of research will be to conduct activities to solve social issues at the earliest opportunity possible.



As a “Trial & Error experiment driven company,” Kaneka will enable researchers with curiosity and open-minded thinking to build an innovative research culture (platform).

- Aggressively incorporate advanced technologies while strengthening allocation of resources in the life science and electronics fields in pursuit of themes with speed and scale.
- Realize high growth in new product sales.



## Global strategy

- Speedily advance regional growth strategies from a “Glocal” (global and local) perspective
- Create new businesses centered on the life sciences and electronics fields and promote open innovation through M&A and other means
- A Global Big Niche Company that achieves borderless business expansion

**KANEKA**

Three regional headquarters

⇒ De-centralize our corporate functions

## Americas

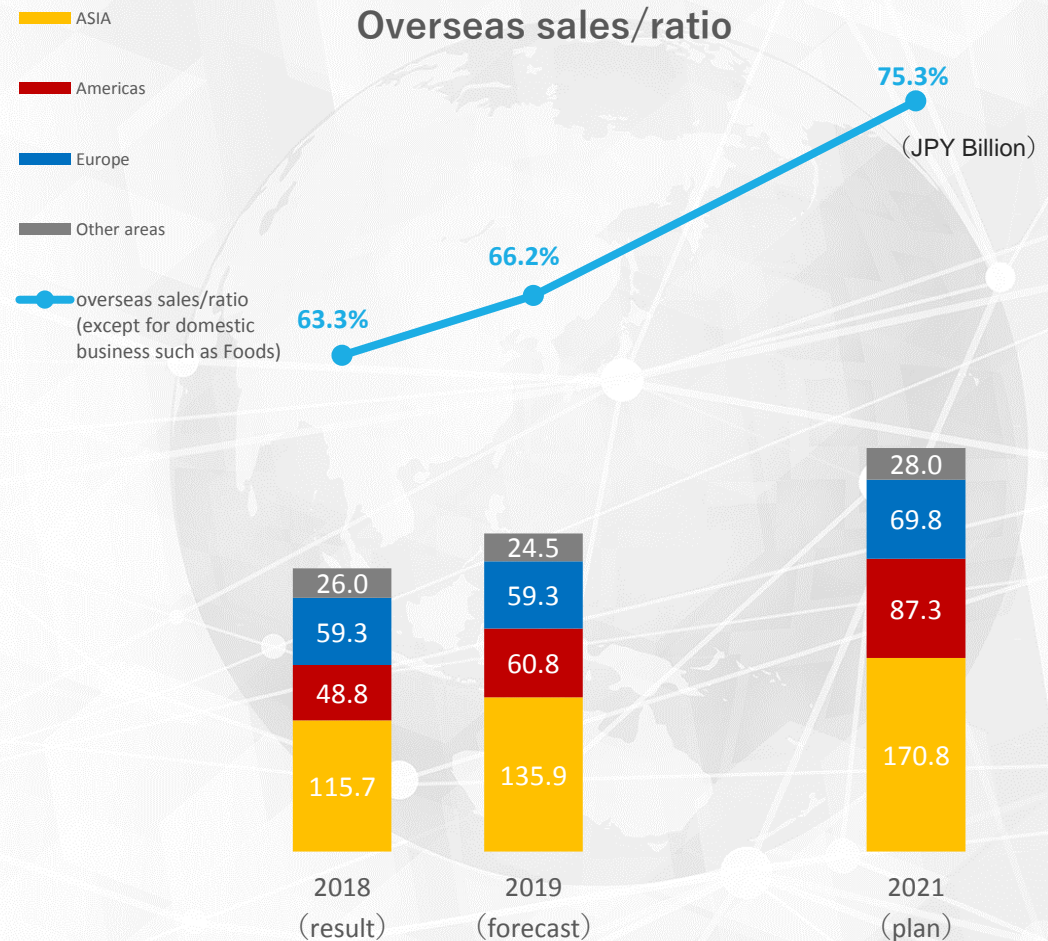
- Create and expand new businesses in the Health Care field, Nutrition field(Lactic-acid bacteria), and the aerospace field
- Aggressively conduct M&As and open innovations
- Strategically utilize the Kaneka US Innovation Center
- Further strengthen production and sales foundations in existing businesses

## Europe

- Expand production capacity in growth fields and conduct M&As (Health Care, Material, QoL)
- Actively expand solutions business into new businesses and fields

## Asia

- Maximize returns on large-scale capital expenditure
- Aggressively expand sales in China, ASEAN, and India markets
- Expand business in the Health care and E&I fields





## [ Major planned projects ]

	2016-2018 (result)	2019-2021 (plan)
Capital expenditure	<b>123</b>	<b>200</b>

### Europe

#### Health Care

- Expand biopharmaceuticals capacity
- Expand bead-method polyolefin foam capacity

### Asia

#### Material

- Expand modified silicone polymers capacity

#### Quality of Life

- Expand PI and GS capacity
- Build additional optical film facilities
- Molded bead-method polyolefin foam product factory
- Expand performance fibers capacity

#### Health Care

- Build additional blood purification system facilities
- Expand medical device capacity
- Expand API capacity (Japan)

#### Nutrition

- Expand margarine-filling capacity (Indonesia)
- Construct new dairy product plant

### Americas

#### Material

- Aerospace field/Composite production facility
- New epoxy masterbatch facility

#### Nutrition

- Healthy foods field/Supplement production facility

### To be decided

#### Material

- Mass-production facility for biopolymers

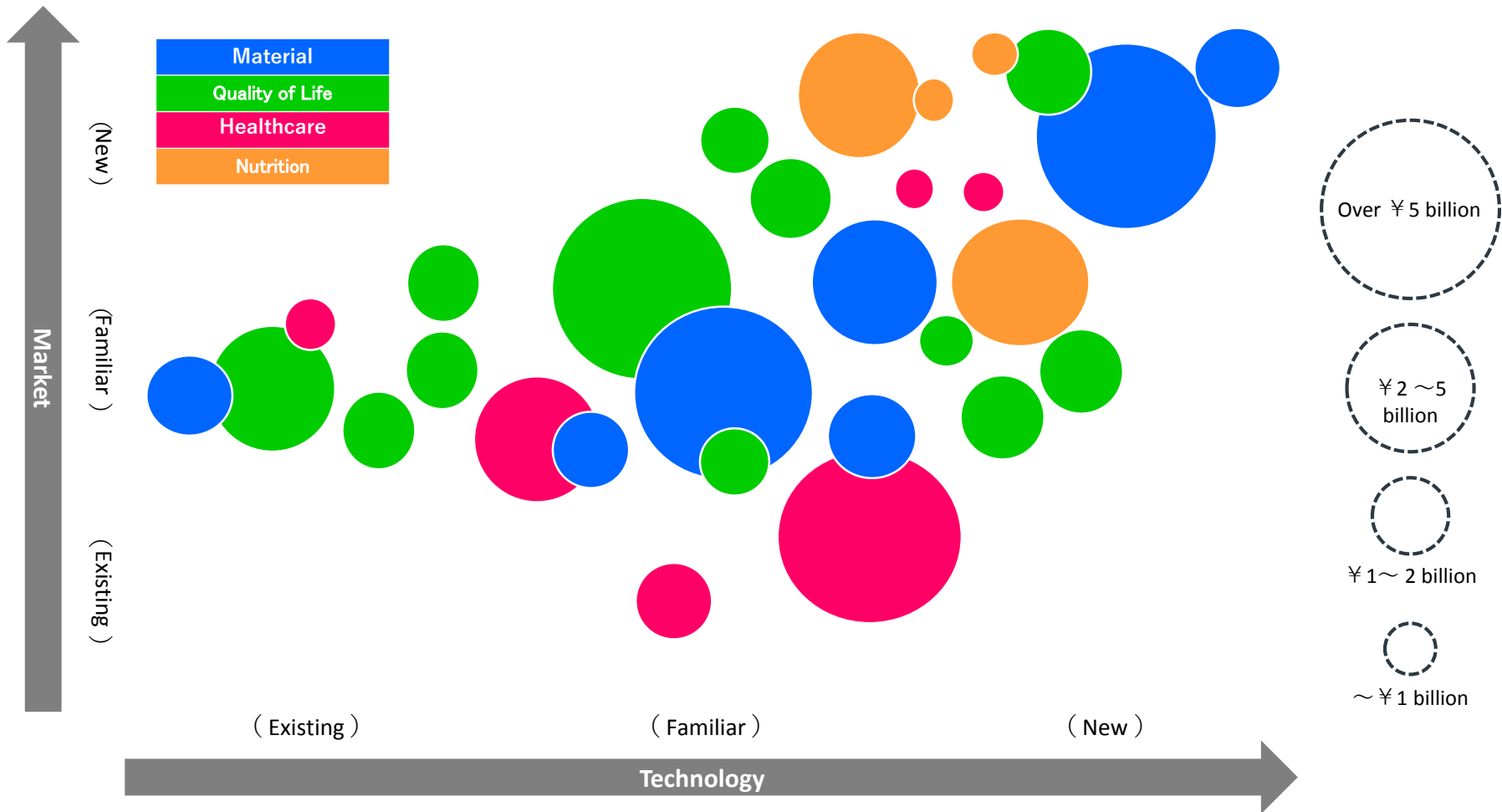
#### Others

- Digital transformation investment

Plan aggressive forward-moving investments such as acquisition of new business commercialization facilities, in addition to bolstering capacity.

# Portfolio of investment plan (Capital investment)

- Emphasize peripheral technologies and peripheral markets in Material and Quality of Life.
- As an additional priority, allocate resources to expand the production base and strengthen the competitiveness of existing businesses.



FY2018  
execution project



FFR Wire



Investing a company focusing on lactic and bacterial (introduction of technology)

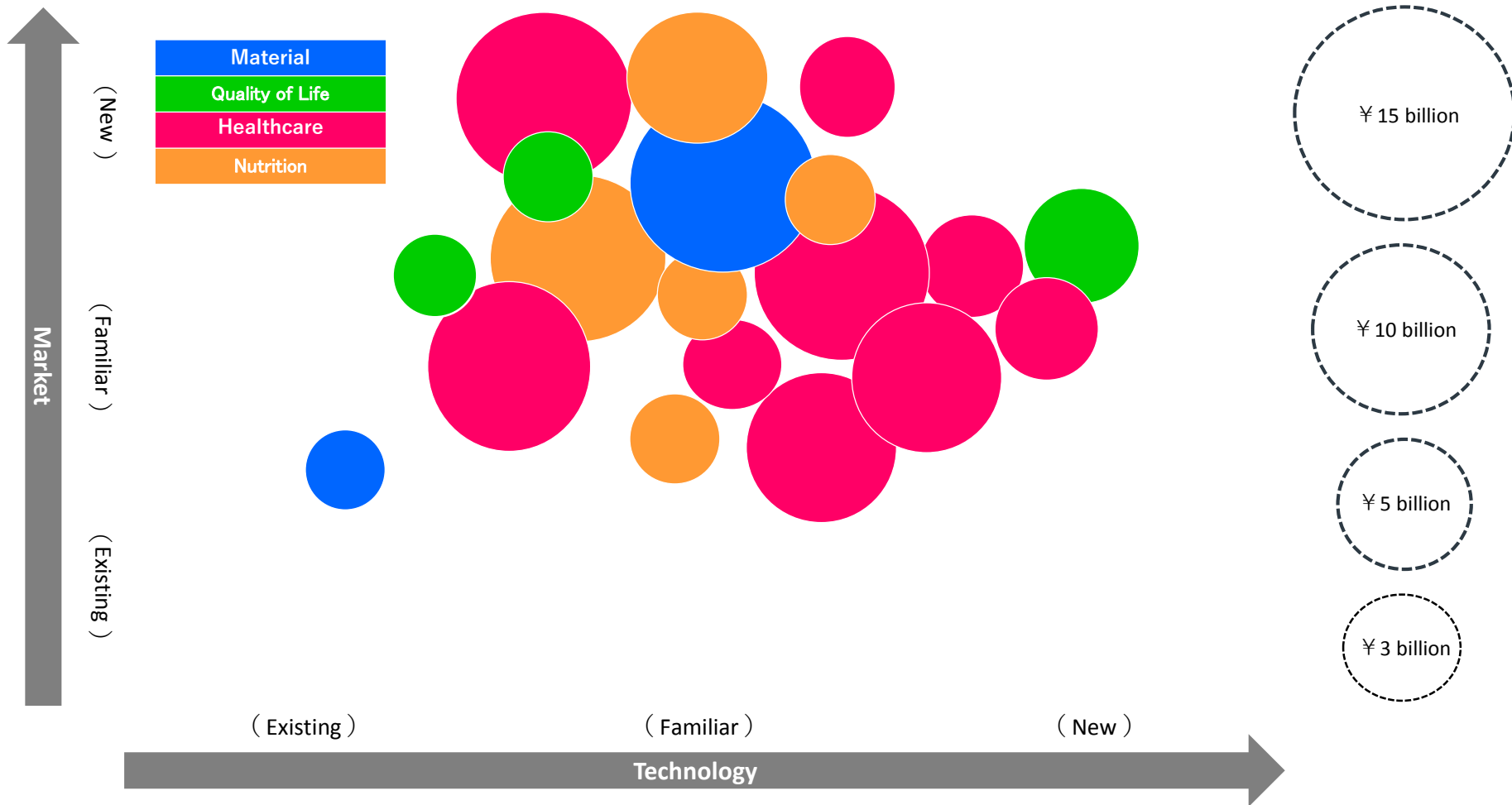
New  
Medium-Term  
Management  
Plan

- Agressively conduct M&As aiming to acquire advanced technologies, primarily overseas
- Based on the West Coast of U.S.
- **Focusing on Health Care SU, Nutrition SU, Performance Polymers SV**

We have M&A candidates and narrow down those candidates. Because we are in stage of consultation with partners target companies, We have not factored in any increases in sales or earnings from M&As into the new Medium-Term Management Plan.

# Portfolio of investment plan (M&A)

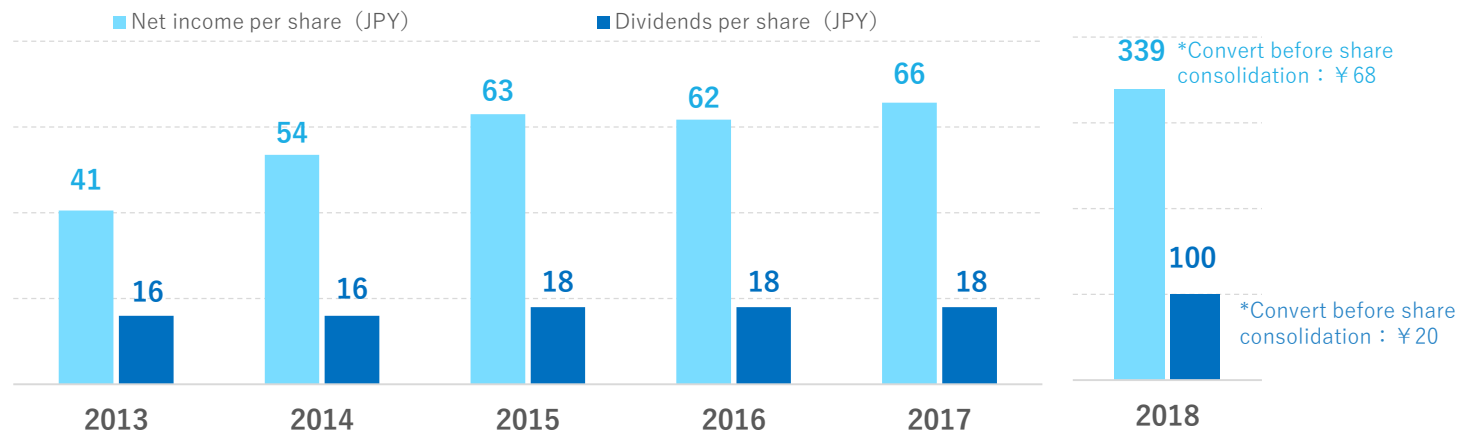
- Intensively implement M&As in peripheral technologies and markets in peripheral to new areas in Health Care and Nutrition
- Consider a major M&A deal in Medical Devices





## 《 Basic policy 》

**Targeted payout ratio is 30%.  
Stably continue paying dividends and purchasing treasury stock.**



	2013	2014	2015	2016	2017	2018	2019 (forecast)
Dividends per share(JPY)	16	16	18	18	18	100	100
Purchased treasury stock (thousands of shares)	—	2,000	1,964	2,000	3,000	400	Undecided
Payout ratio	39.5%	29.9%	28.6%	29.2%	27.4%	29.5%	28.2%
Total return ratio	39.5%	38.7%	37.2%	38.0%	39.3%	37.3%	Undecided

※ The Company conducted a consolidation of shares of common stock at the ratio of five shares to one share on October 1, 2018.

### Results for the Fiscal Year Ended March 31, 2019

- Dividend increase : a bonus dividend of ¥10 to commemorate the 70th anniversary of the merger into the Kaneka Group. (Annual ¥90 → Annual ¥100)
- Acquisition of Treasury Shares : 400,000 shares(¥1,741 million)
- Cancellation of Treasury Shares : 2,000,000 shares( The end of March 2019)

# Business strategy by Solutions Unit

## Vinyls and Chlor-Alkali

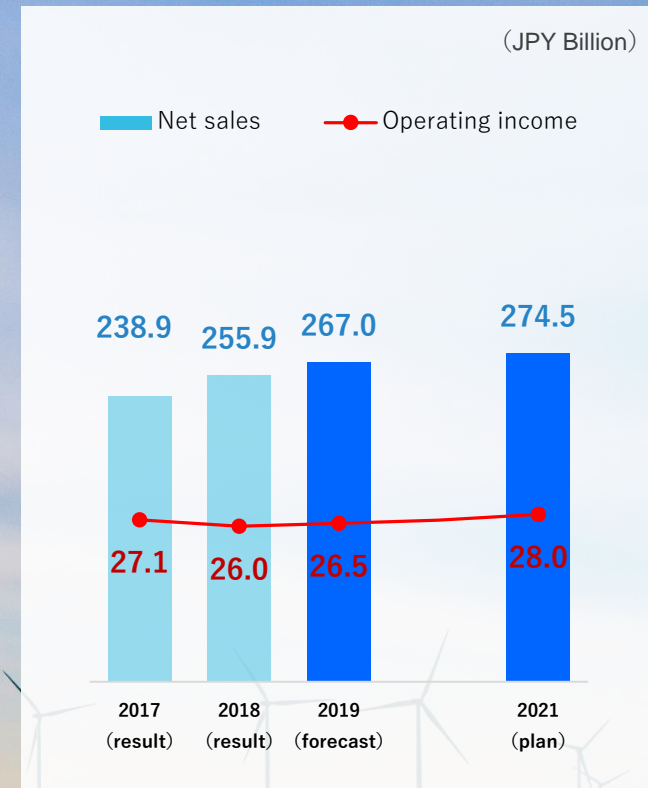
- ▶ Strengthen competitiveness by building an optimal production system in the chlor-alkali business
- ▶ Expand markets for chlorinated PVC and paste PVC as a global specialty polymer business
- ▶ Work as a unified Group to strengthen downstream areas, etc.

## Performance Polymers(MOD)

- ▶ Accelerate the development of and further expand the global market for new products and applications such as non-PVC applications for modifiers
- ▶ Expand the market for epoxy masterbatch in the automotive composite materials, electronics and other sectors
- ▶ Establish a production base and expand the market for biodegradable polymers
- ▶ Expand the market for high-functionality composite materials for the aerospace industry, etc.

## Performance Polymers(MS)

- ▶ Cultivate new demand in and expand the Asian market
- ▶ Expand the global market further by increasing production capacity in Belgium and the U.S.
- ▶ Drive the global business expansion of CEMEDINE Co., Ltd.





## E & I Technology

- ▶ Upgrade and expand the lineup of polyimide products (for OLED displays, 5G smartphones, etc.) where we have differentiated capabilities to support the IoT and AI society, and strengthen the production system
- ▶ Expand optical film and opto-electronics materials for display sensor applications, etc.

## Foam & Residential Techs

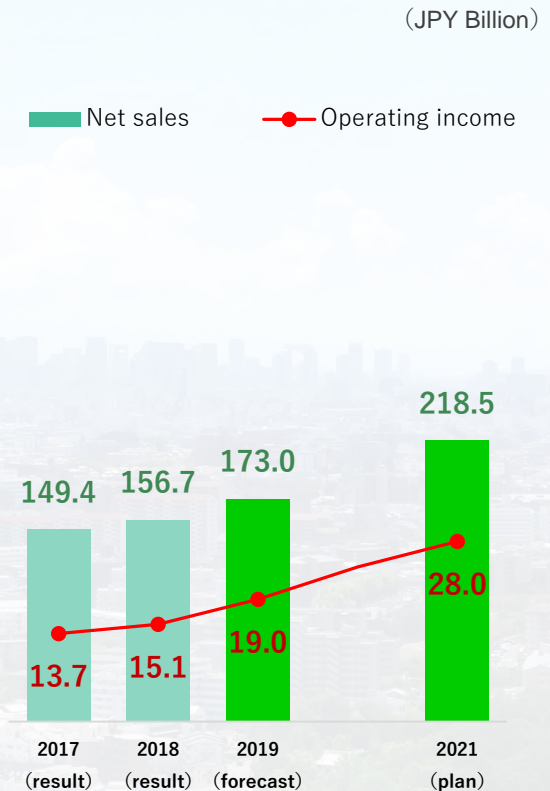
- ▶ Provide new lightweight, heat-insulating expandable plastics solutions that contribute to the global environment, energy conservation, health and food.
- ▶ Enhance competitiveness by starting operations at a new bead-method polyolefin foam plant in Thailand and strengthen production capacity in Belgium.
- ▶ Develop housing solutions, etc., centered on “Kaneka-no-Ouchi.”

## PV & Energy management

- ▶ Provide high-efficiency photovoltaics according to growing needs for net zero energy management systems for houses and buildings, and original energy solutions that combine solar cells, storage batteries and installation methods, etc.

## Performance Fibers

- ▶ Expand demand further in the African market and develop new markets
- ▶ Develop and expand the market for new functional fibers, etc.

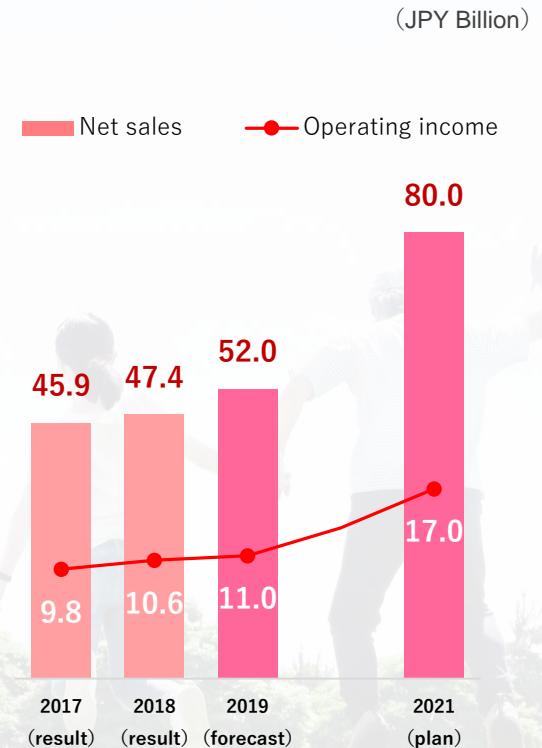


## Medical Devices

- ▶ Develop new high-value-added products that lead to advanced medical means such as drug-coated balloon catheters, digestive system catheters and blood flow measurement devices, and expand the market for such products, through open innovation.
- ▶ Strengthen global development through such means as expanding sales in Europe and the U.S., expanding applications and therapeutic fields, and developing the market in Asia.
- ▶ Expand business in new fields such as the digestive system and electrophysiology, regenerative and cellular medicine, and testing and diagnostics, etc.

## Pharma

- ▶ Expand global business through the use of continuous manufacturing technology in the low-molecular pharmaceuticals and API field.
- ▶ Expand business by increasing production capacity in the biopharmaceuticals field and enter the cutting-edge biopharmaceuticals field.
- ▶ Incorporate advanced medical technologies by strengthening the R&B structure and through open innovation and M&As, etc.



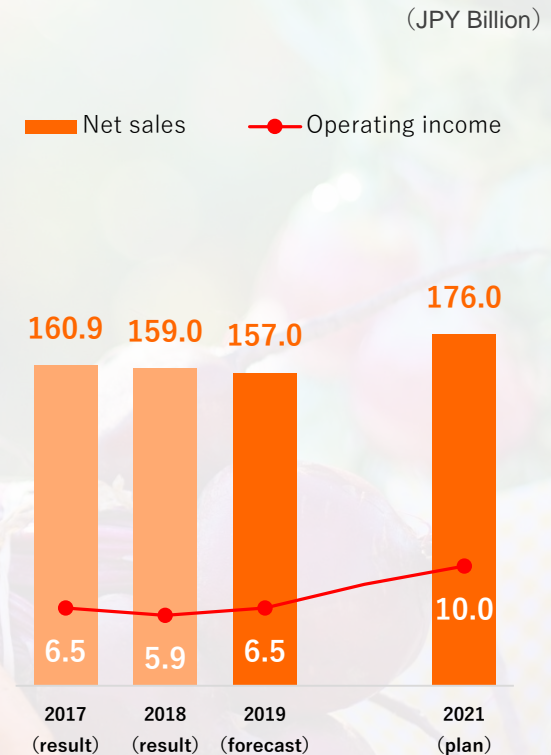


## Supplemental Nutrition

- ▶ Accelerate business expansion by upgrading and expanding the product lineup through the development of new supplement materials and offering total health care solutions that add health care services to the product lineup
- ▶ Expand global sales of reduced coenzyme Q10
- ▶ Mobilize the lactic acid business and expand the global business, etc.

## Foods & Agris

- ▶ Establish an innovative business model that integrates operations from dairy farming to distribution in the dairy products business and speedily expand the market.
- ▶ Provide functional materials solutions such as functional fertilizers and antifreeze materials to enhance the quality of agricultural, livestock and fishery products.
- ▶ Accelerate global expansion initiatives in the processed oils and fats field.
- ▶ Transform the value chain leveraging digital technologies and establish a competitive business foundation, etc.



# Fermentation technology of Kaneka

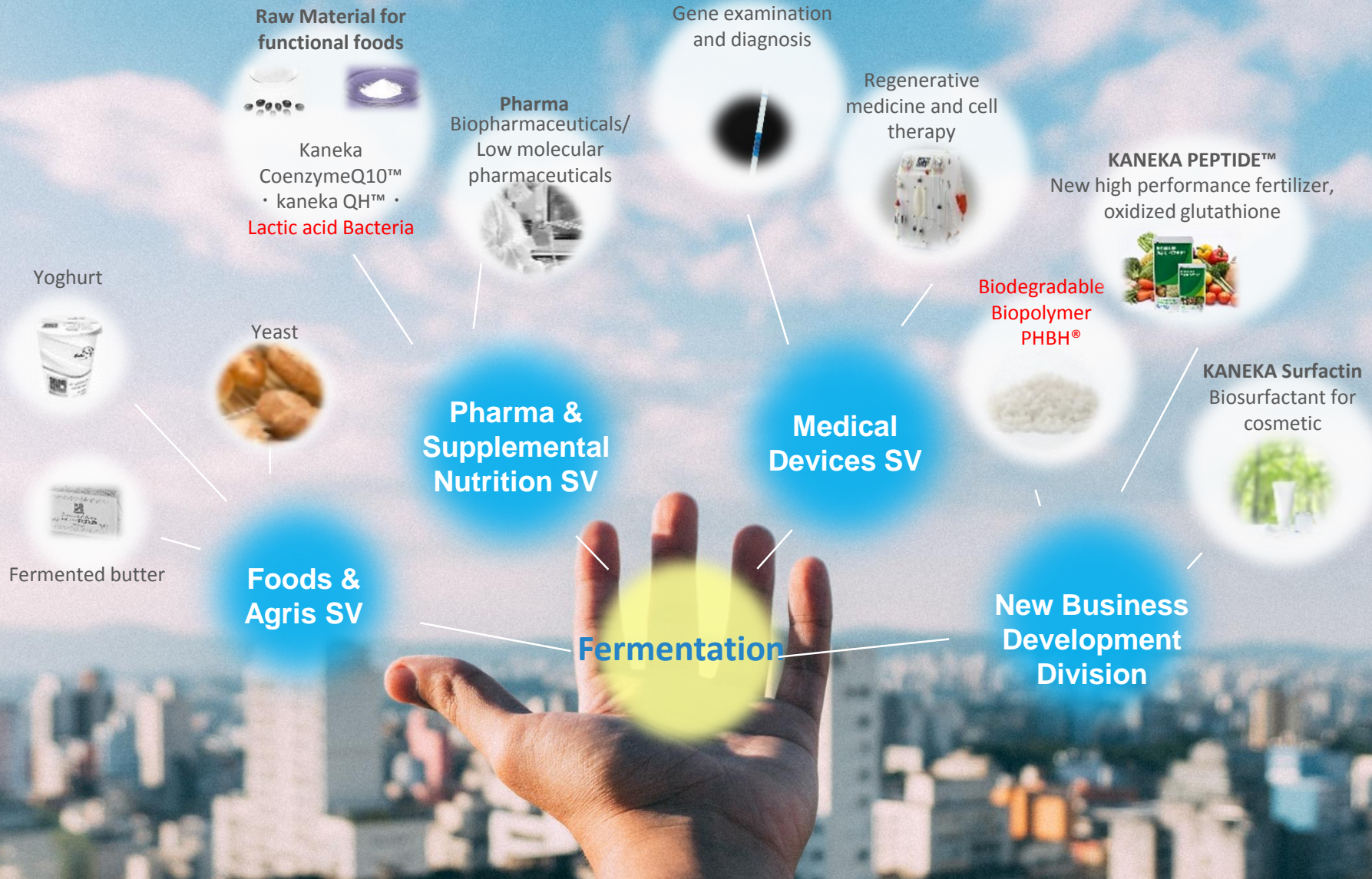
## Achieving sustainable growth by expanding and evolving a technology base through the introduction and fusion of advanced technologies

We will enhance global sourcing and open innovation of technology as a solution provider to develop materials with overwhelming competitiveness. We will also strengthen resource allocation in the fields of life science and electronics to realize unique technologies with great impact, pursuing themes with speed and scale.

Fusion of self-developed technologies with introduced technologies

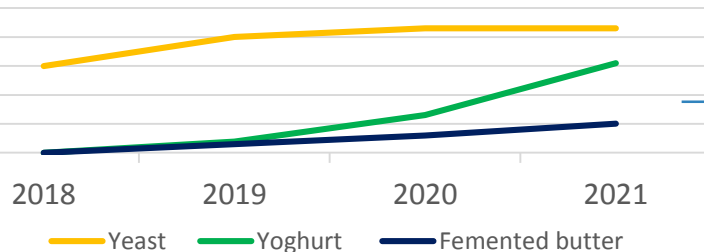






# Fermented products in the life science business (including part of the Nutrition SU)

Net sales in Fermentation Products



Net sales in the life science business

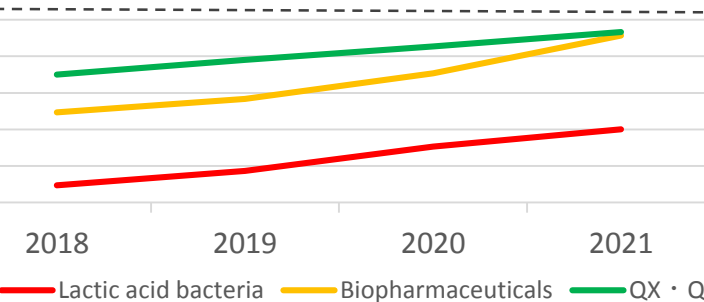
Net sales in the Fermentation Products



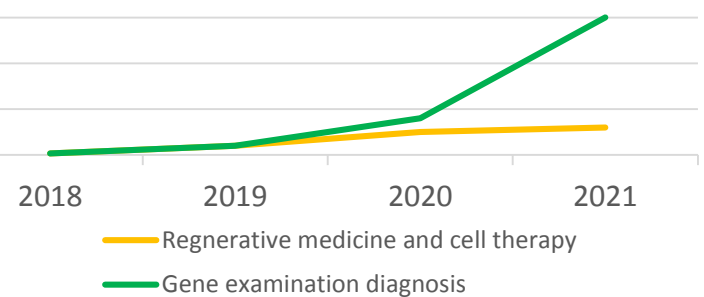
Foods & Agris SV



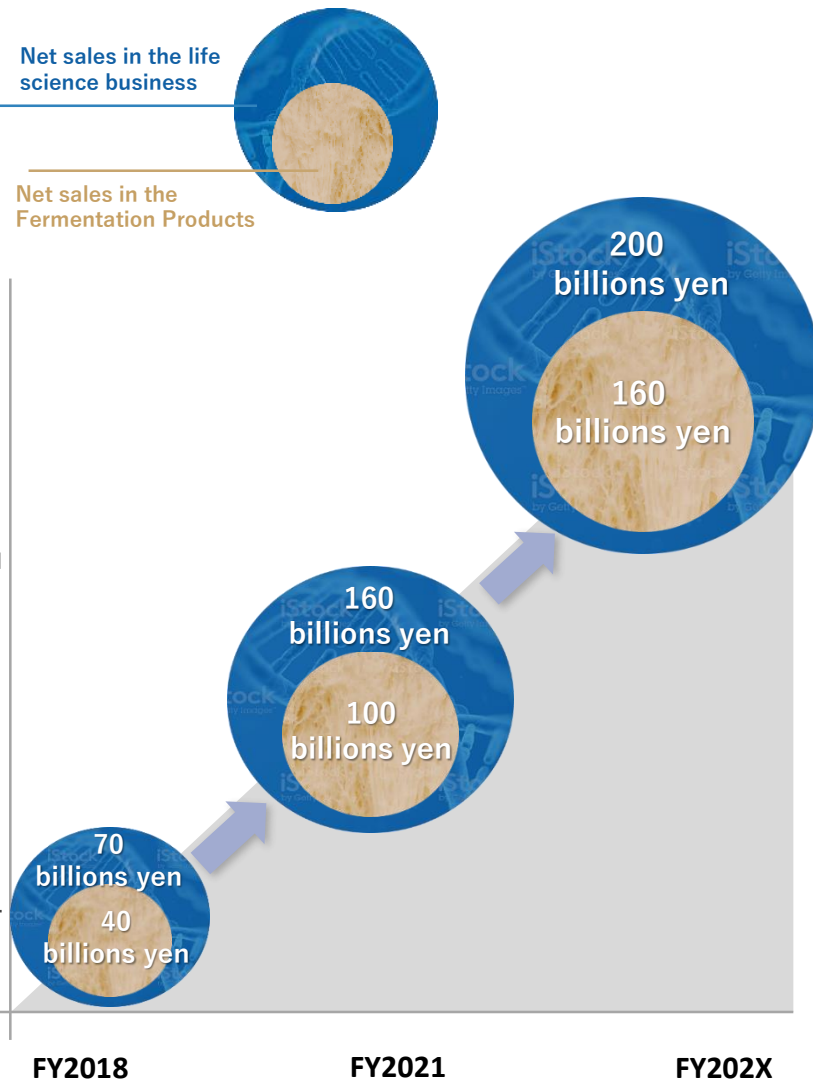
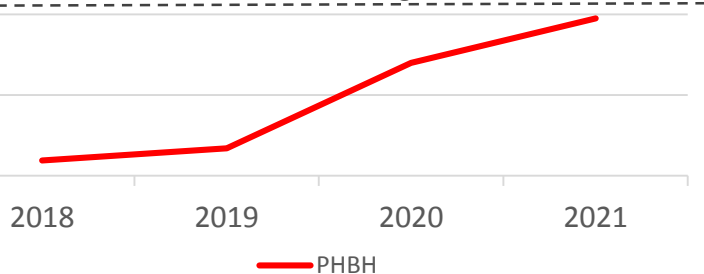
Pharma & Supplemental Nutrition SV



Medical Devices SV



New Business Development Division





# ① Biodegradable Biopolymer PHBH

## Discarded plastic causes

- Land pollution
- Marine pollution (microplastic problem)



Tighter regulation of plastics in Europe and other regions








## Characteristics of PHBH

- 100% plant-based
- Producing by fermentation
- Biodegradable

PHBH is a biodegradable polymer that is produced by microbial fermentation from plant oils.

		Biodegradability	
		Biodegradable	Non-Biodegradable
Raw material	Bio-based	PHBH PLA(Polylactic acid) Starch etc.	Bio-PE Bio-PA Bio-PC etc.
	Fossil-based	PBS PBSA PBAT	PE PA PC ABS

## Approval

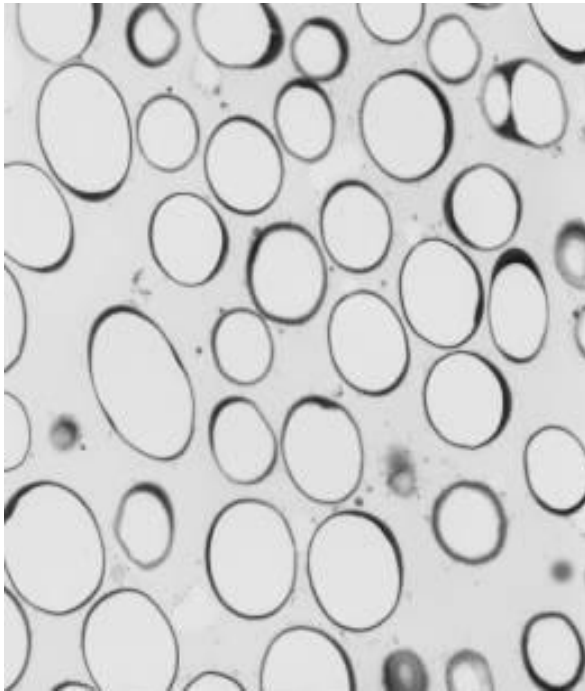
Bio-based	○ (Europe/Japan)	 
<b>Biodegradable</b>		
Compost (Industrial)	○ (Europe/U.S./Japan)	 
Compost (Home)	○ (Europe)	
Marine	○ (Europe)	
Soil	○ (Europe)	

※Europe: TÜV AUSTRIA BELGIUM、 U.S.: Biodegradable Products Institute,  
Japan:JBPA: Japan BioPlastics Association

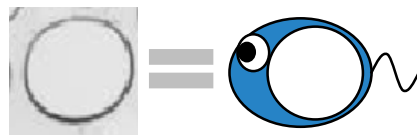
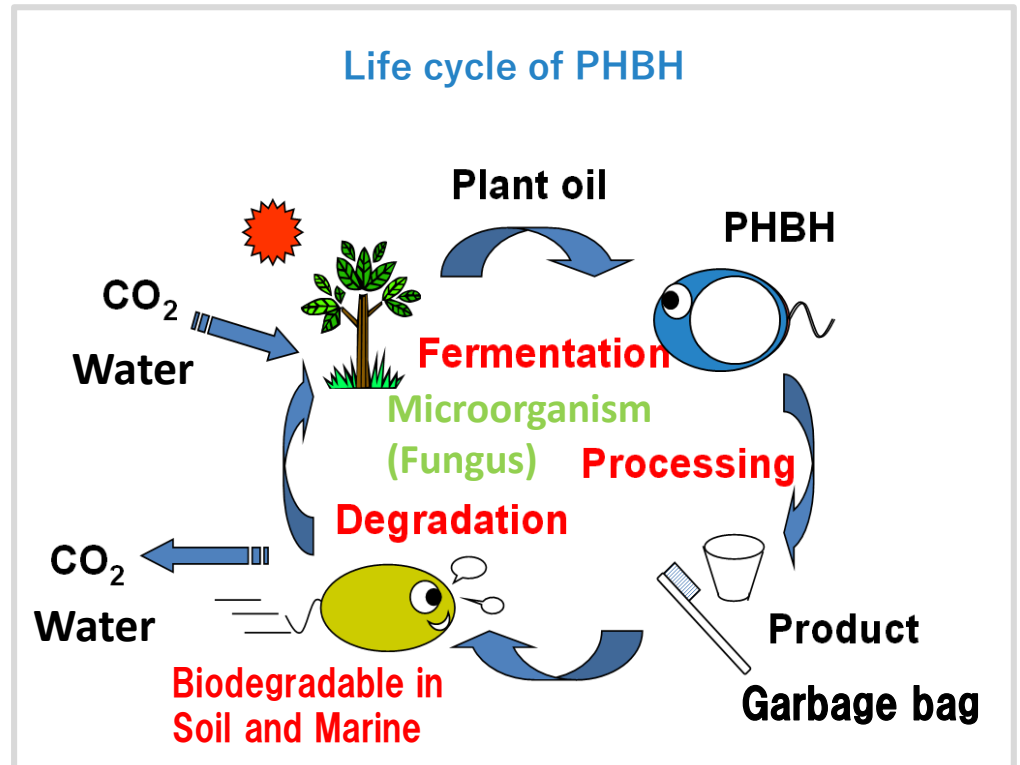
## Food contact

U.S.	○ (FDA)
Europe (EU)	○ (Completed the review by DG-SANTE in all food contact applications It will be approved for use towards all food types in EU by autumn this year)
Japan	○ (Approved as additives (less than 50% Contains) )

PHBH produced by microbial fermentation from plant oils.



PHBH accumulated in microorganisms (Electron micrograph)



# Roadmap for the development, introduction and widespread adoption of biodegradable biopolymer PHBH and scheme for increasing production capacity



Biodegradable biopolymer PHBH was born through a creative fusion of fermentation and macromolecular technologies (blending and molding processing technologies). Going forward, we will accelerate the development of applications of biodegradable biopolymer PHBH.

The range of PHBH-based products will increase dramatically in the near future.

**By 2030**

**By 2025**

**By 2020**

- Checkout bags
- Beverage labels
- Straws, cutlery
- Trays
- Food packaging, general packaging
- Plastic bottles
- Paper composite materials
- Injection molded cases
- Mulching film

- Textiles, nonwoven fabrics
- Injection blown bottles as a PET alternative
- Foam molded products



100,000~200,000 tons per year

20,000~50,000 tons per year

Commercial production facilities

5,000 tons per year

Operations scheduled to begin in December 2019  
(investment decision already made)

1,000 tons per year

Current (operations began in May 2011)

Production capacity will be successively increased as demand grows.

**Joint development of products using PHBH and related initiatives are now under way in earnest**



**New straws for "SEVEN CAFÉ" run by Seven-Eleven Japan Co., Ltd. and other group companies will be introduced to the market by the autumn of 2019.**  
(news release issued on April 15, 2019)

**Advance joint development of cosmetics containers with Shiseido Company, Limited**  
(news release issued on April 24, 2019)



**Advance project to promote widespread use of Biodegradable Polymer shopping bags in the Republic of Kenya**  
(news release issued on September 10, 2018)

**Other than the above, we have received and are currently addressing inquiries and requests for joint development from around the world.**



## ② Lactic acid bacteria

# Conversion AB-Biotics, S.A. into a subsidiary and expansion of lactic acid bacteria initiatives

We have invested in a Spanish company specializing in lactic acid bacteria and converted it into a consolidated subsidiary. We will bring to market products that integrate AB-Biotics' lactic acid bacteria products and Kaneka's functional food materials and dairy products.

**AB-Biotics' lactic acid bacteria**

**Possesses more than 550 original bacteria strains**

- ▶ Probiotics from healthy human intestinal samples

**Clinically documented probiotics products that have clear effects**

- ▶ Supply products that decrease the risk of cardiovascular, periodontal and infectious diseases and improve the intestinal environment, to health foods and pharmaceutical companies

Effect	Product name	Product features
Cardiovascular	AB LIFE	Reduces LDL cholesterol by 24%
Immunological	AB IMMUNO	Reduces influenza infections
IBS	I3.1	Comprehensively alleviates symptoms of IBS (irritable bowel syndrome), in addition to alleviating IBS-related pain.
Oral	AB DENTALAC	Efficiently reduces periodontal disease bacteria
Children	AB KOLICARE	Reduces crying in 68% of infants with baby colic
Women	AB INTIMUS	Reduces the recurrence rate of infectious diseases

## Development of the Japanese and U.S. markets

### U.S.

- ▶ Our highest priority target, as the world's largest lactic acid bacteria market. Sales commenced in January, 2019.
- ▶ Clinical development aimed at acquiring health claims that lead to stronger competitiveness.
- ▶ Develop the market at the earliest opportunity by bolstering sales divisions, along with upgrading and expanding technical support to enhance proposal-based sales capabilities to customers.

### Japan

- ▶ Push ahead with the development of the yoghurt market, which has a high weighting, in parallel with the development of the supplement market.
- ▶ Conduct clinical trials to address notifications of foods with function claims, develop yoghurt products with function claims that deliver both good taste and health benefits.

Conversion into a subsidiary

Technical tie-up

### AB-Biotics, S.A.

Sales and development of lactic acid bacteria that has differentiated clinical evidence.

Collaboration

### Pur Natur Invest BVBA

Marketing in European countries of organic dairy products such as flavorful milk, butter, yoghurt and fresh cheese using excellent processing technologies

Successfully formed a collaboration between Pur Natur, with which Kaneka has a technical tie-up in the dairy products business, and AB-Biotics



Product name

## Pur Natur Bio Activ

Sales commenced in April 2019 in Belgium  
(at Carrefour and other major retailers))

Product  
features

- ▶ Improves the intestinal environment (intestinal flora)
- ▶ Bolsters immunity to viruses
- ▶ Prevents diarrhea

