

Medium-Term Management Plan “PROUD2020”(FY2018–FY2020)

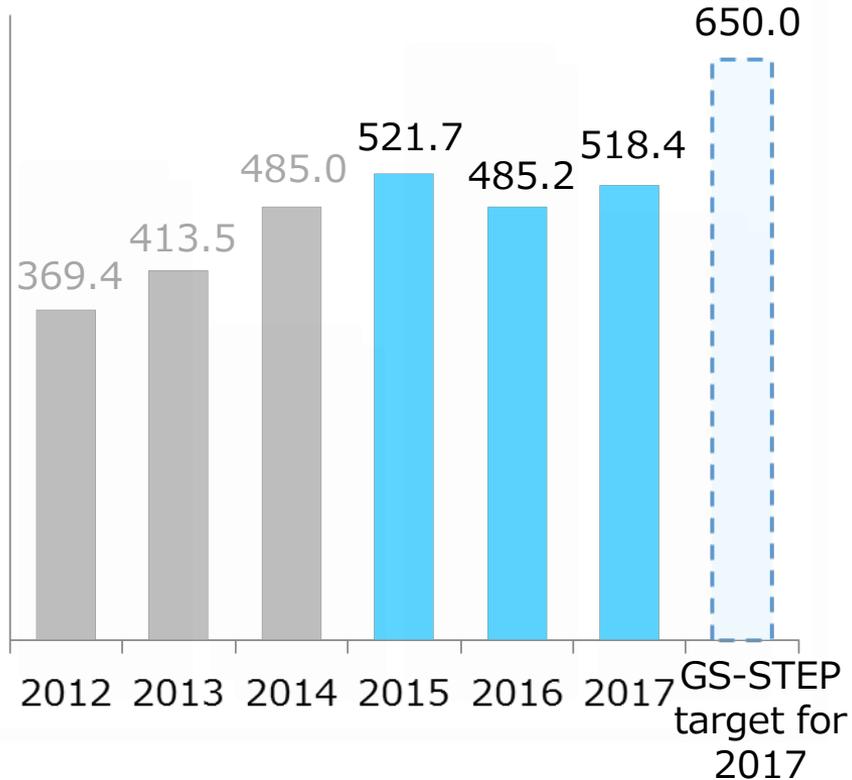
February 14, 2018

KURARAY CO., LTD.

“GS-STEP”: Net sales and Op. Income

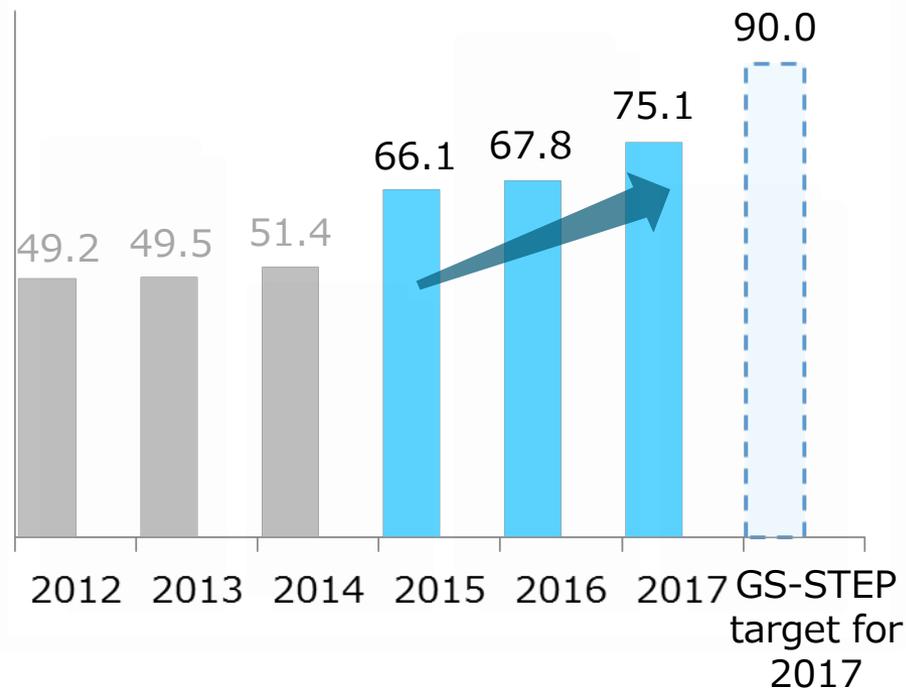
Although net sales and operating income did not meet targets, the latter marked a record high for the third consecutive year
The operating margin met the target value in “GS-STEP”

Net Sales (Billions of yen)



Op. Income (Billions of yen) / OP margin

	2014	2017	GS-STEP targets for 2017
OP margin	10.6%	14.4%	13.8%
EPS	¥78	¥153	¥163



“GS-STEP”: Main Initiatives (2015-2017)

Steadily executed various initiatives based on key management strategies

Deeping
of core
busi-
nesses

- ◆ 3-year cumulative total of capital expenditure: ¥153.1 billion
Proactively allocated to vinyl acetate-related business, etc.
- ◆ Established a PVA resin production facility in the United States, and boosted sales volume
- ◆ Developed new demand for *EVAL* in emerging countries
- ◆ Strengthened our sales structure for PVB film and *GENESTAR* for automotive use
- ◆ Conducted feasibility studies for plant construction in Thailand with an eye to producing isoprene, elastomers and *GENESTAR*

Major facility expansions

2015

- A new PVA resin plant in North America
+40,000 tons

2016

- A new PVA resin plant in North America
+40,000 tons
- *EVAL* facilities in Europe
+11,000 tons
- Water-soluble PVA film

2017

- Facilities for optical-use PVA film (Saijo)
+20 million m²

“GS-STEP”: Main Initiatives (2015-2017)

Steadily executed various initiatives based on key management strategies

Technological innovation

- ◆ Established technologies to produce *KURALON* filament
- ◆ Built a new process to enhance *VECTRAN* production efficiency
- ◆ Enhanced functionalities of films by modifying the raw material resin

Next-generation growth model

- ◆ Acquired Plantic Technologies Ltd., an Australian company that produces biomass-based gas-barrier materials
- ◆ Launched the Carbon Materials Division and decided to acquire Calgon Carbon Corporation, a major U.S.-based activated carbon manufacturer
- ◆ Launched new dental materials made using the combination of organic and inorganic technologies while expanding CAD/CAM businesses

Optimum allocation of management resources

- ◆ Introduced a global SAP system
- ◆ Brought a global human resource management system on line

Contribution to the environment

- ◆ Developed the market for biomaterial-based products (Plantic, LFR)
- ◆ Environmental businesses: Water and exhaust gas treatment system applications (related to aqua and carbon materials businesses)
- ◆ Contributed to reduction in food loss (*EVAL*)

**Medium-Term
Management Plan
“PROUD2020”**

"Kuraray Vision 2026" Long-Term Vision

Set long-term vision and targets for the centennial of Kuraray's founding

The Kuraray Group's Mission

We are committed to developing new fields of business using pioneering technology that improves the environment and enhances the quality of life throughout the world.
—For people and the planet—to achieve what no one else can—

Forecast of Our Business Environment in 2026

- Major changes to rules, laws, and regulations as well as the emergence of revolutionary technologies
- Continued advancement of digitization, such as data communication networks and artificial intelligence (AI)
- Increasing presence of emerging countries
- Growing environmental and social problems, such as water and food scarcity



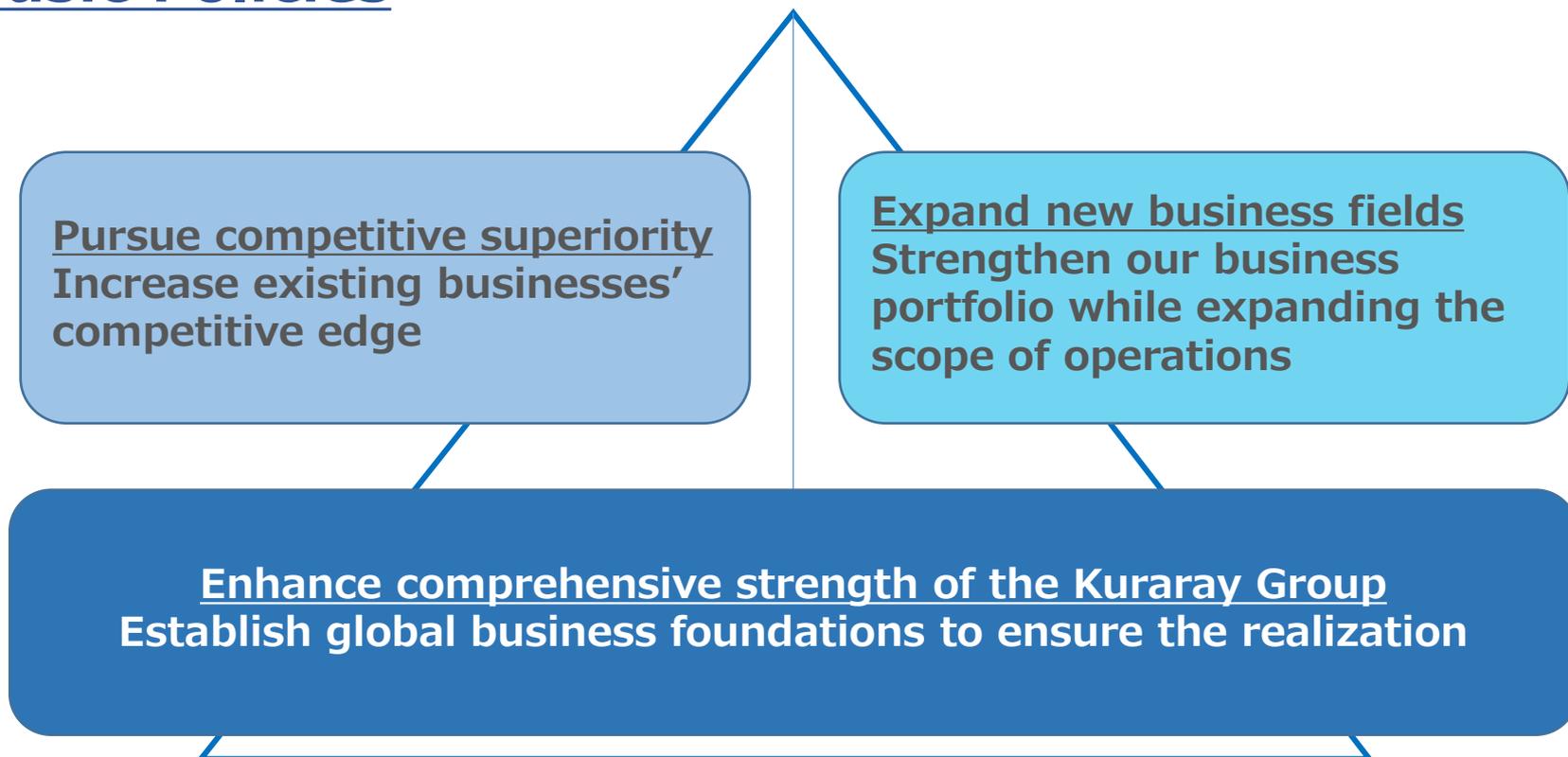
- Intensifying borderless competition as new companies enter the market
- More chances to solve problems with chemistry amid severe competition in those areas
- More chances to enhance competitiveness through digitization and IoT

"Kuraray Vision 2026" Long-Term Vision

Vision for Kuraray

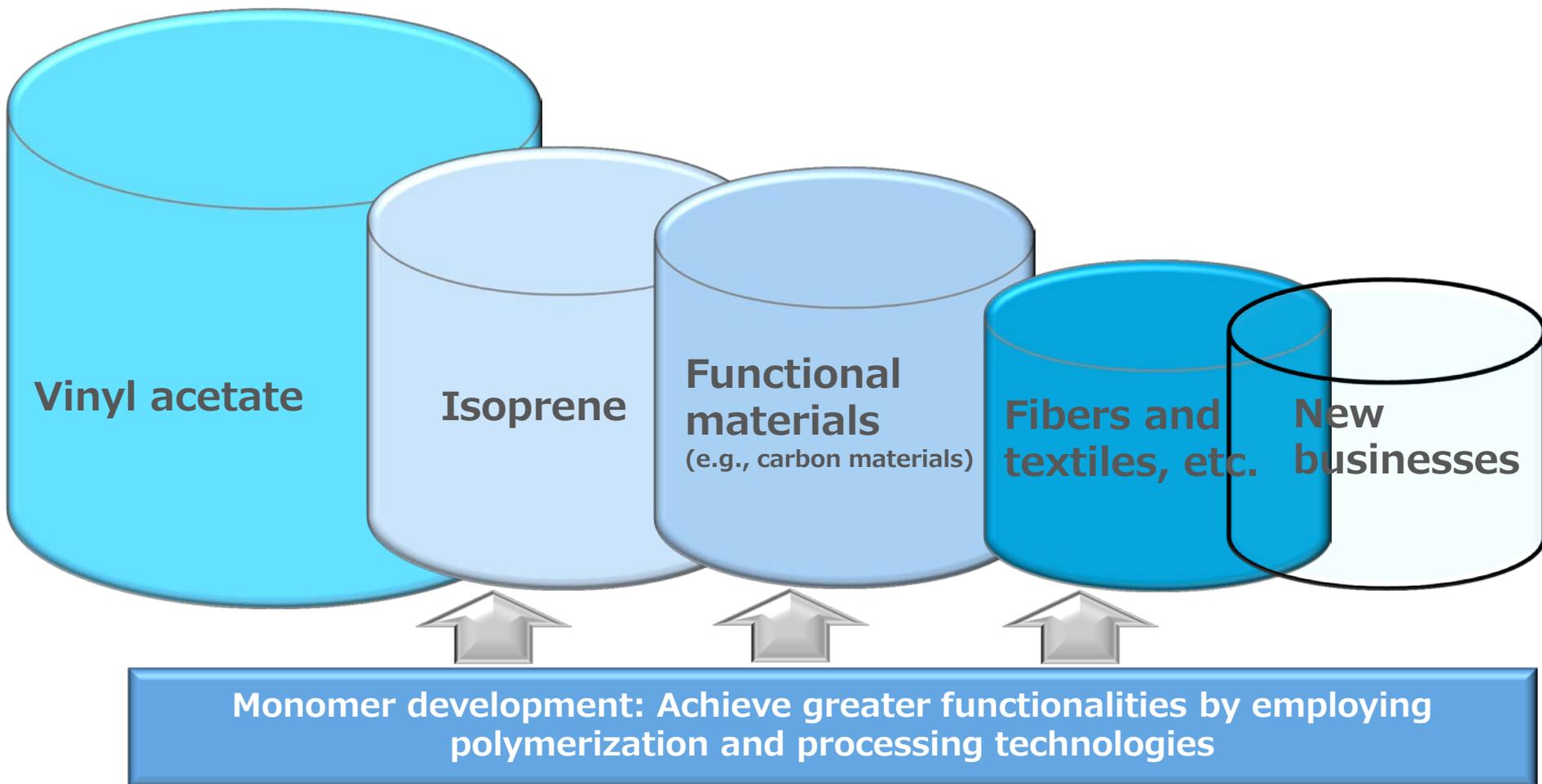
"Specialty Chemical Company growing sustainably by incorporating new foundational platforms into its own technologies"

Basic Policies



"Kuraray Vision 2026" Long-Term Vision

Building a Stable Business Portfolio
Developing the Next Business Pillar to Succeed Vinyl Acetate



"PROUD2020" New Medium-Term Management Plan Making Kuraray a Company That People Can Take Pride In

Society

- Create shared value with society as a good corporate citizen
- Gain trust through proper and open management
- Ensure thorough compliance

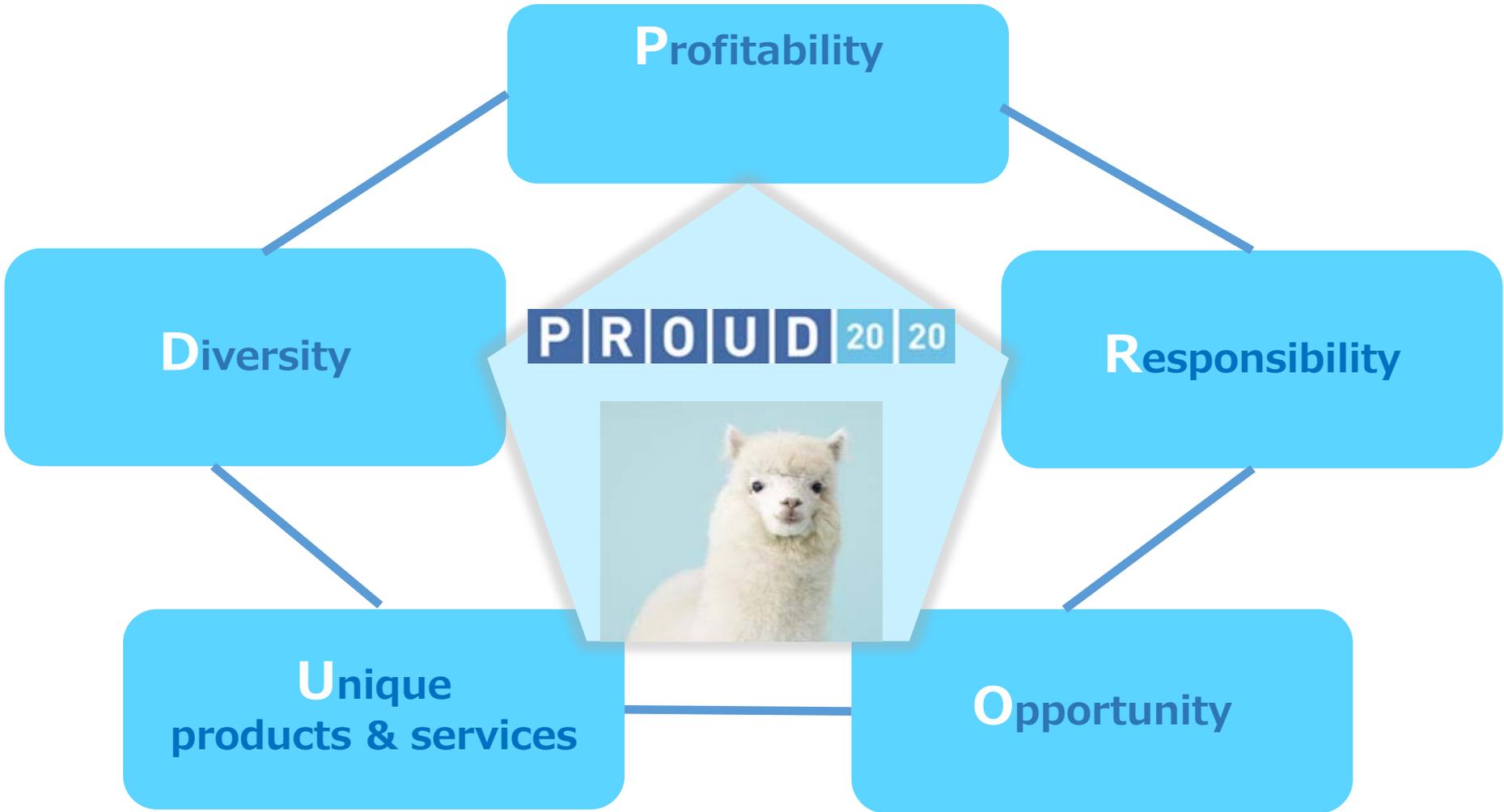
Environmental Safety

- Provide safe and high-quality products and services that can help protect the global environment
- Reduce environmental burden in business activities
- Realize workplaces where people can safely work at ease without accidents

Workplace

- Boost the morale and enthusiasm of employees
- Foster a fair and open workplace
- Promote diversity
- Strengthen initiatives to reform working styles

P R O U D 20 20 : Five Elements



“PROUD2020” Medium-Term Management Plan: Key Strategies

Pursue competitive superiority

P R O U D

- Develop high-value-added products and applications based on customer needs
- Create more demand in emerging countries
- Achieve innovation of production and operational processes through use of IoT

Expand new business fields

P R O U D

- Create new businesses by improving on Kuraray’s own technologies and incorporating external ones
- Capture new business areas by M&A and alliance
- Establish a new business model bundling technology and services

Enhance comprehensive strength of the Kuraray Group

P R O U D

- Establish global business foundations
- Create a workplace in which employees find their job rewarding
- Cultivate a strong culture of unity within the Kuraray Group

Contribute to the environment

P R O U D

- Provide products contributing to environmental protection
- Put in place production process with low environmental footprint
- Provide products that help enhance quality of life (QOL)

“PROUD2020” Medium-Term Management Plan: Numerical Targets

	FY2017 results	FY2018 forecasts	FY2020 targets
Net sales	¥518.4 billion	¥540.0 billion	¥650.0 billion
Op. income	¥75.1 billion	¥77.0 billion	¥90.0 billion
OP margin <small>“Rounded to the nearest whole number”</small>	14%	14%	14%
Net income	¥53.6 billion	¥49.0 billion	¥62.0 billion

Exchange rate: ¥112/US\$
¥127/euro

¥110/US\$
¥130/euro

¥110/US\$
¥130/euro

Raw fuel prices: ¥39,000/kl

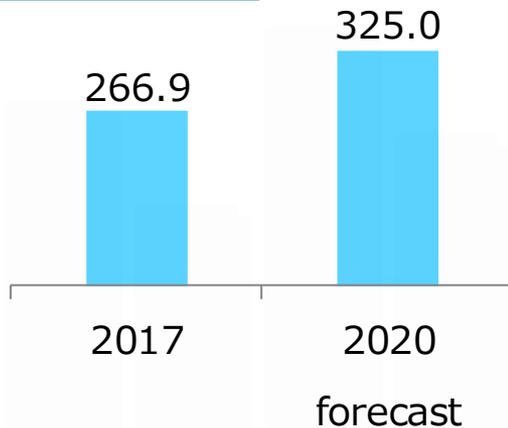
¥43,000/kl

¥43,000/kl

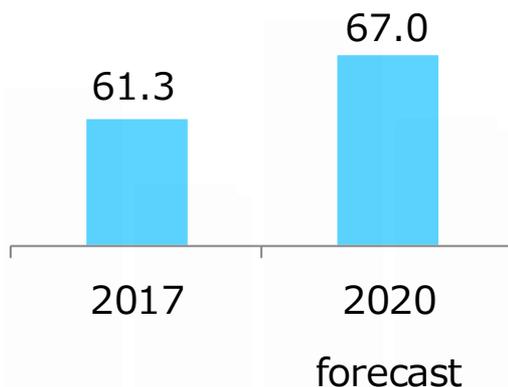
“PROUD2020” Medium-Term Management Plan: Vinyl Acetate

Secure a solid position in the market and sustainable growth by cultivating new markets and a shift to high-value added products

Net Sales (Billions of yen)



Op. Income (Billions of yen)



PVA resin

- Shift to high-value-added products
- Optimally manage global production operations

PVB film

- Bolster the development and sale of highly functional films for automotive use
- Expand sales of high-strength films for construction use

Optical-use PVA film

- Sales will rise with LCD demand while maintaining a solid market share
- Add new functions and enhance workability to satisfy the latest market and customer needs

Water-soluble PVA film

- Execute the timely expansion of production facilities in step with growth in operations
- Allocate development resources to new industrial applications

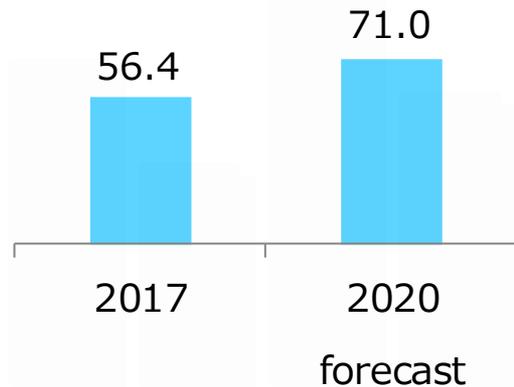
EVAL

- Create new demand in emerging countries and boost sales
- Expand *EVAL*-related operations to help reduce food loss

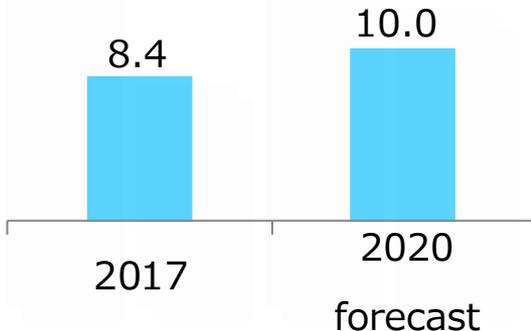
“PROUD2020” Medium-Term Management Plan: Isoprene

Create new markets and applications in anticipation of the launch of a new plant in Thailand

Net Sales (Billions of yen)



Op. Income (Billions of yen)



Isoprene chemicals

- Pursue the expansion of “only one” unique products
- Commercialize newly developed items, such as oil-gas chemicals

Elastomers

- Build a more sophisticated portfolio of products by enhancing their functionalities
- Expand sales of liquid rubber on a global basis

GENESTAR

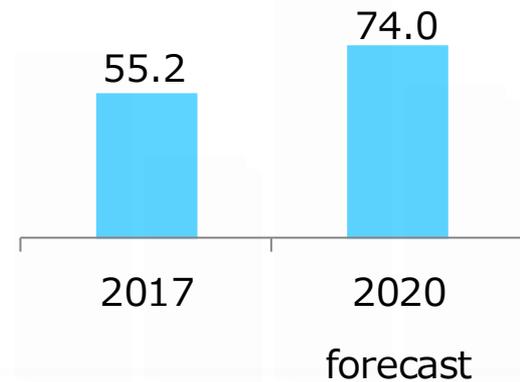
- Expand the range of products for automotive applications, such as those for use in car electronics components
- Develop new polymer

Planned overview of the new plant in Thailand

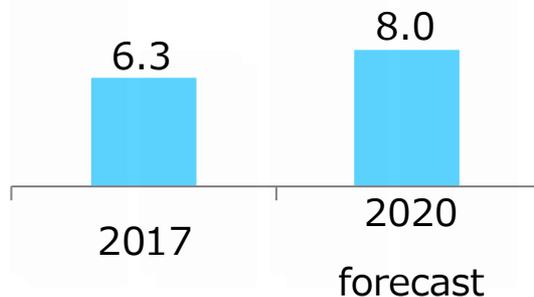
Operational kickoff:	2021 onward
Production capacity:	Elastomers: 16,000t/year GENESTAR: 13,000t/year

Roll out products embodying our technological strengths to provide new value to markets

Net Sales (Billions of yen)



Op. Income (Billions of yen)



Methacryl

- Expand the sales of newly developed products, such as soft resin and multi-layered substrates
- Bolster the marketing of highly functional grades of optical-use resin

Medical (dental materials)

- Expand sales of CAD/CAM products (e.g., zirconia block)
- Enhance to provide information for users

Carbon Materials

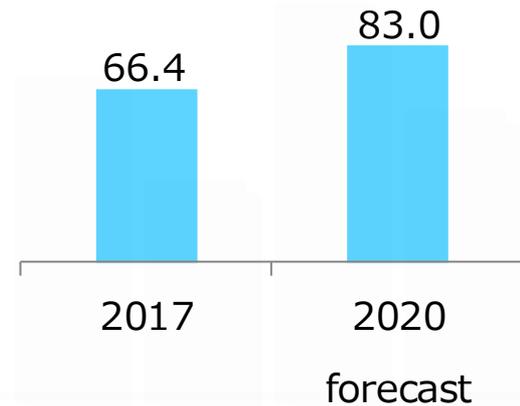
- Swiftly create synergies via collaboration with Calgon Carbon
- Expand the range of products for use in automotive canisters
- Expand the sales of products for battery applications (capacitors and LiB*)

*Lithium ion Battery

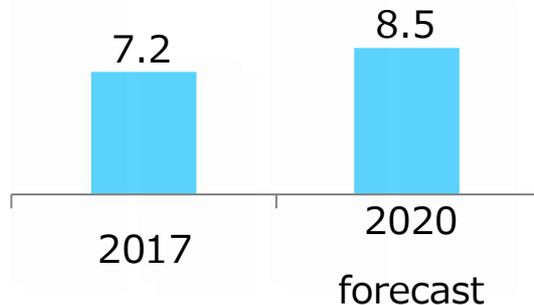
* The CLARINO business has been moved to the Fibers & Textiles segment from 2018. The 2017 figures presented above reflect the segment change.

Boost sales in existing applications while pursuing uniqueness of products

Net Sales (Billions of yen)



Op. Income (Billions of yen)



CLARINO

- Roll out products targeting luxury brands
- Achieve full-scale entry into the automotive interior market

Fiber and Industrial Materials

- Promote the VIP project for *KURALON*
- Expand *VECTRAN*-related operations

Consumer Goods and Materials

- Expand sales of new Melt Blown nonwoven fabrics
- Accelerate expansion into Southeast Asia

* The 2017 figures above include the *CLARINO* business.

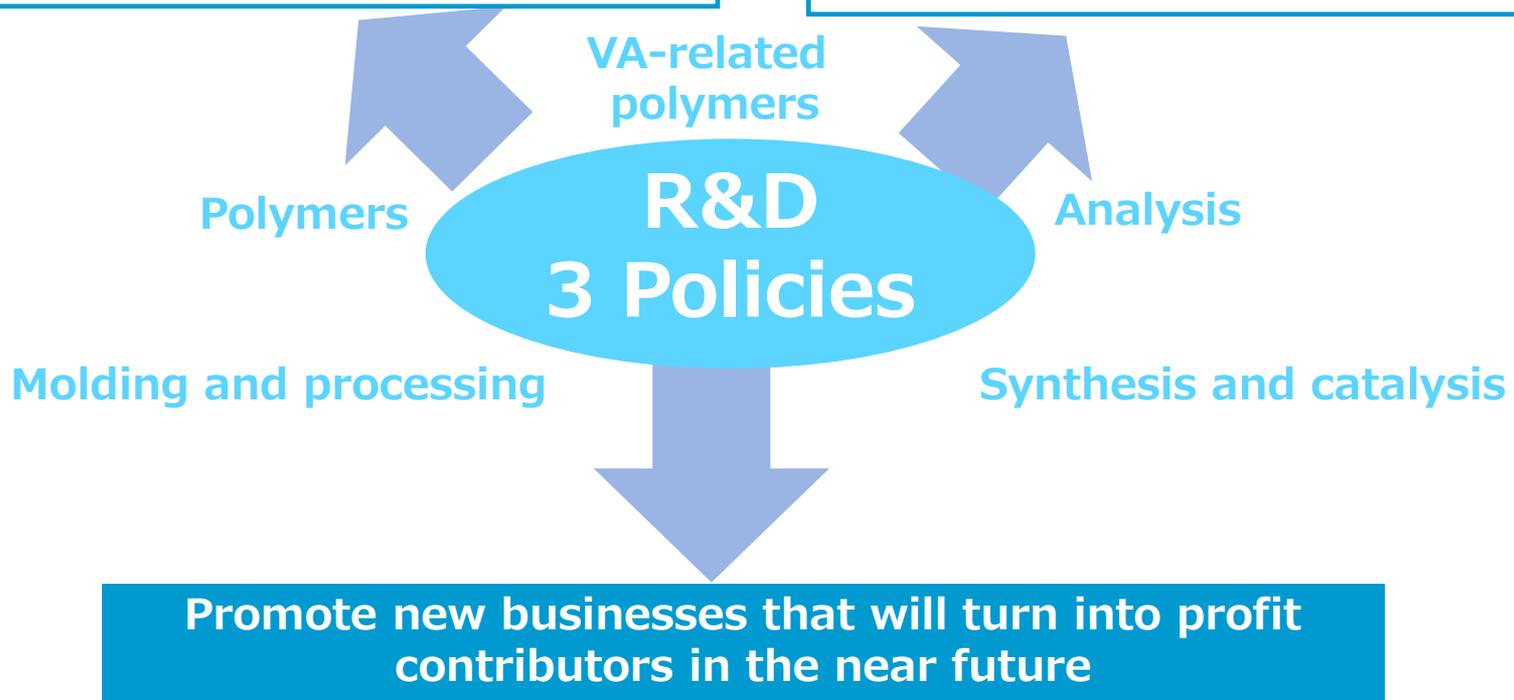
“PROUD2020” Medium-Term Management Plan: R&D/New Businesses (1)

Strengthen and expand existing businesses (further enhance product functionalities and meet customer needs)

- Support business functions on a global basis
Develop new products, enhance quality and performance, help achieve process innovation
- Strengthen IP strategies

Establish and deepen core technologies (enhance our technological competitiveness)

- Bolster R&D of catalysts
Design highly efficient catalysts and develop new processes (for vinyl acetate, new polymers, etc.)
- Bolster R&D of polymer materials



Promote new businesses that will turn into profit contributors in the near future

➤ **VECSTAR liquid crystalline polymer film**

Circuit substrate materials boasting low transmission loss for use in high-speed communication systems



Smartphone components
Vehicle-mount millimeter-wave radar

➤ **Polishing pads for semiconductors**

Enhance flattening capabilities while minimizing surface damage attributable to abrasion



Semiconductor industry

➤ **Micro-patterning films/sheets**

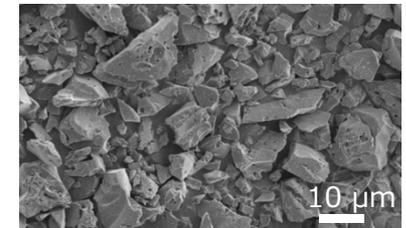
Imaging technologies backed by optical control solutions



Vehicle mount head-up displays
Virtual Reality (VR) devices

➤ **Bio Hard Carbon**

Plant-based materials boasting superior durability and charge-discharge properties



LiB anode materials

“PROUD2020” Medium-Term Management Plan: Targets by Segment

Sales and Operating Income by Segment

(Billions of yen)

Segment	FY17 results		FY18 forecasts		FY20 plan (final year)		Change (FY17 -FY20)	
	Net sales	Op. income	Net sales	Op. income	Net sales	Op. income	Net sales	Op. income
Vinyl acetate	266.9	61.3	282.0	58.5	325.0	67.0	58.1	5.7
Isoprene	56.4	8.4	59.0	9.0	71.0	10.0	14.6	1.6
Functional materials	55.2	6.3	59.0	6.5	74.0	8.0	18.8	1.7
Fibers & textiles	66.4	7.2	68.0	7.5	83.0	8.5	16.6	1.3
Trading	128.8	3.9	135.0	4.5	143.0	5.0	14.2	1.1
Other Business	54.2	3.3	51.0	3.5	71.0	4.5	16.8	1.2
Elimination & Corporate	(109.5)	(15.3)	(114.0)	(12.5)	(117.0)	(13.0)	(7.5)	2.3
Total	518.4	75.1	540.0	77.0	650.0	90.0	131.6	14.9

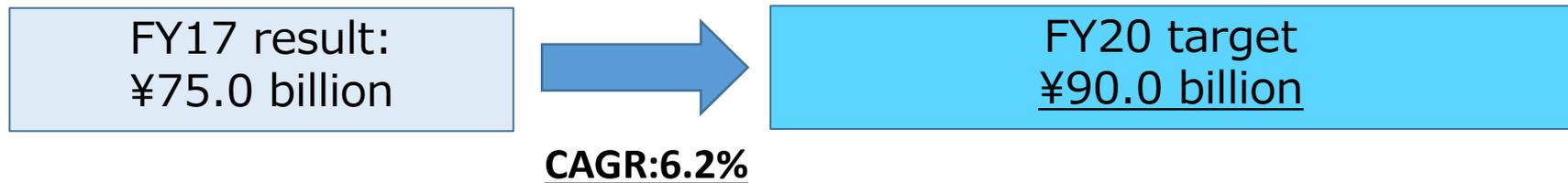
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“PROUD2020” Medium-Term Management Plan: Key Initiatives

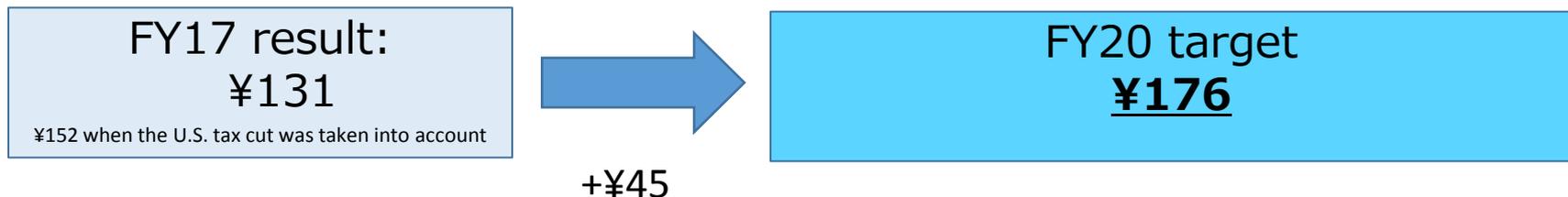
1. Build a stable business portfolio by executing key management strategies

- ① Conduct continuous capital expenditure for growth in core and new businesses
- ② Isoprene: Pursue business expansion via a project in Thailand
- ③ Carbon materials: Swiftly realize synergies with Calgon Carbon
- ④ Establish global business foundations

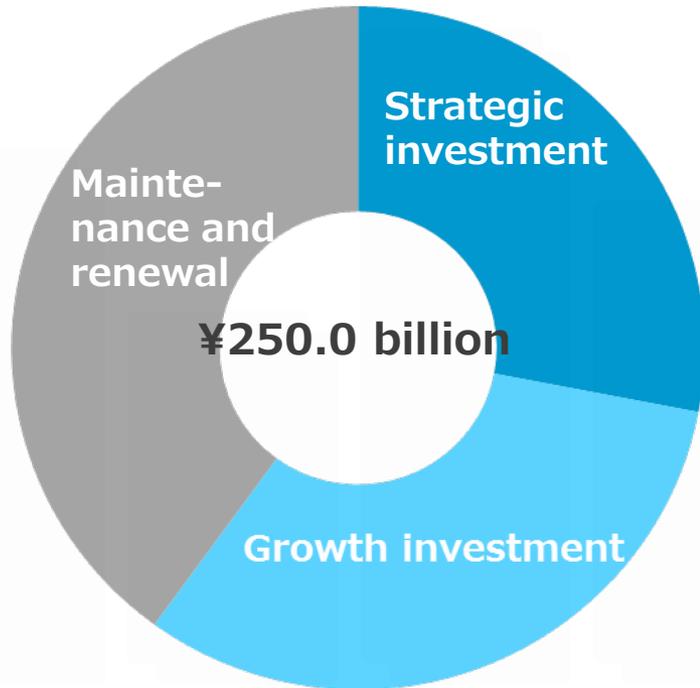
2. Achieve growth in operating income



3. Improve earnings per share (EPS)



Set aside a 3-year budget totaling ¥250.0 billion
Of this, around 60% is earmarked for strategic and growth investments



Strategic investment

- Construct a new plant for VAM
- Build a global SAP system



Growth investment

- Expand facilities for optical-use PVA film
- Expand facilities for water-soluble PVA film
- Expand facilities for PVB film
- Construct a new plant for EVAL
- Expand facilities for liquid rubber
- Expand facilities for dental materials

Note: The aforementioned figure excludes funds budgeted for the construction of a new Isoprene plant in Thailand and new businesses

Consider and carry out M&A by procuring funds from other sources

“PROUD2020” Medium-Term Management Plan: Financial Strategies

**Invest cash generated from business activities mainly into future growth
Set a minimum dividend and provide returns to shareholders in
accordance with business performance**

**FY2018 - FY2020
Operating Cash flow**

¥300.0 billion

Capital Expenditure

**Carry out proactive investment for
business growth
Set aside ¥250.0 billion for 3 years
(¥210.0 billion to be calculated as
payments are made)**

Shareholder Returns

**Total payout ratio: 35% or higher
Annual dividends per share: ¥40 or higher
Flexibly carry out share buybacks**

Reduce relative environmental footprint even with business expansion and the resulting growth in production volume

Global warming countermeasures

Japan

Reduce GHG emission intensity index at least 1% year on year



Global

Reduce energy intensity index at least 1% year on year



Water resources

Global

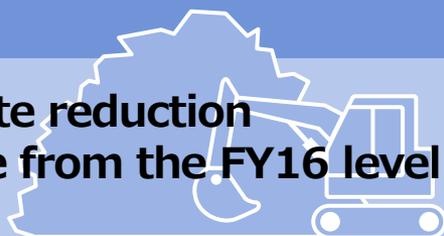
Reduce water intensity index at least 1% year on year



Waste reduction

Japan

**Pursue further waste reduction
Reduce 1% or more from the FY16 level**



Japan

Reduce final landfill volume to less than the FY16 level



Chemical substance emissions

Japan

Reduce emission volume of PRTR substances to less than the FY16 level



kuraray

All figures are rounded to the nearest hundred million yen.

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