2019-2021 New Medium-term Business Plan

“The TOP 2021”

—We “Act” to touch the heart and make society better—

December 11, 2018

SHOWA DENKO K.K.

Kohei Morikawa, President & CEO

*See notes on page 44

Contents

1 Review of current medium-term business plan “Project 2020+” and the essence of new medium-term business plan “The TOP 2021”

2 New medium-term business plan “The TOP 2021”

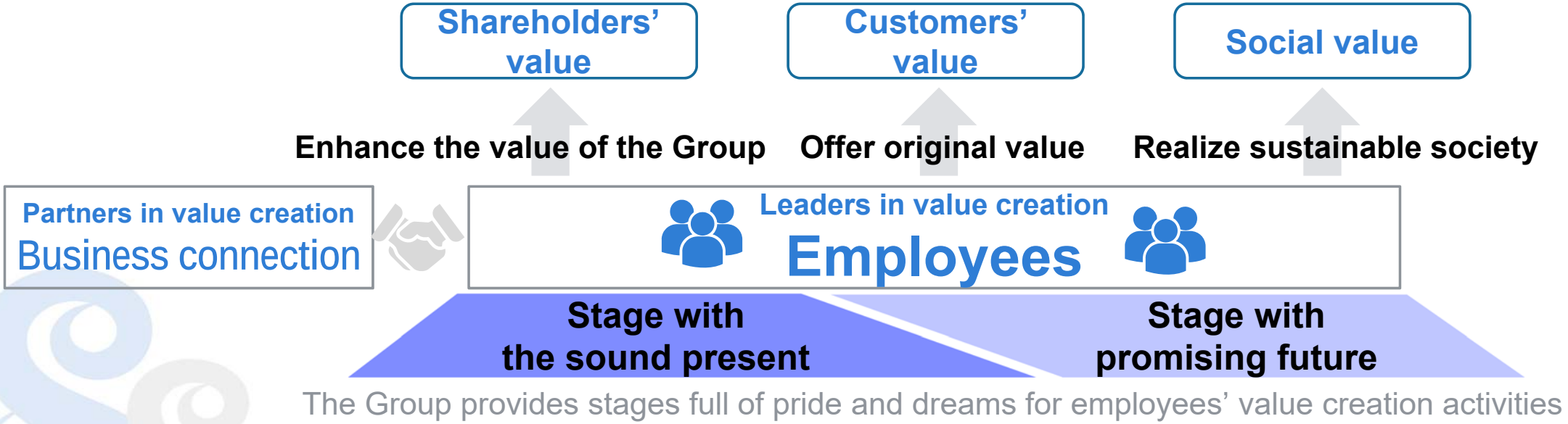
3 Appendix:
Strategy and measures for each business

Copyright © SHOWA DENKO K.K. All Rights Reserved.

Showa Denko Group’s business philosophy (= Mission)

We will satisfy all stakeholders

We at the Showa Denko Group will provide products and services that are useful and safe and exceed our customers’ expectations, thereby enhancing the value of the Group, giving satisfaction to our shareholders, and contributing to the sound growth of international society as a responsible corporate citizen.

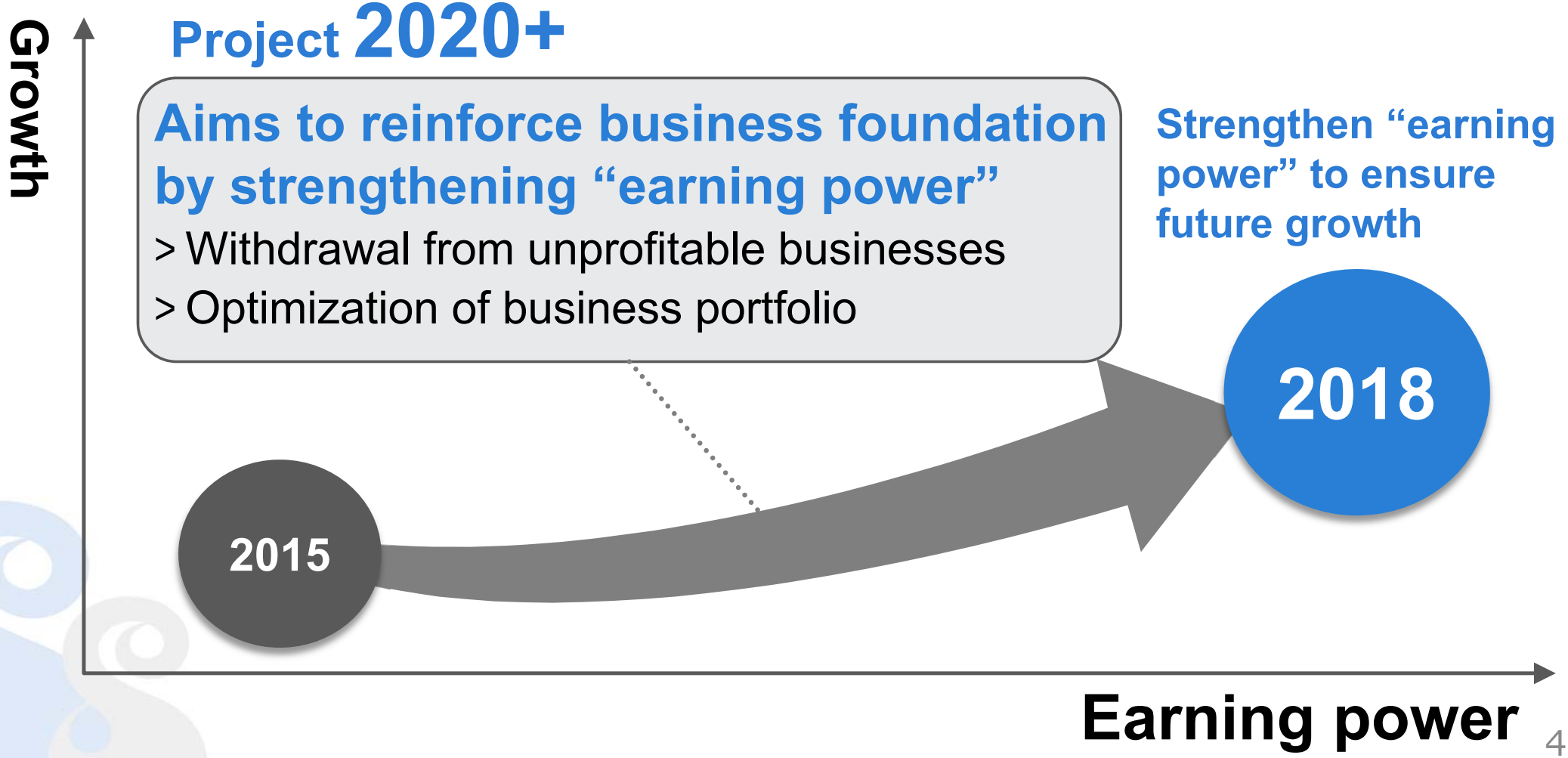


The Group provides stages full of pride and dreams for employees’ value creation activities

Showa Denko that has the sound present and promising future

Copyright © SHOWA DENKO K.K. All Rights Reserved.

“Project 2020+” aims to strengthen “earning power” of the Group by structural reform and ensuring revenue base.



Copyright © SHOWA DENKO K.K. All Rights Reserved.

Review of “Project 2020+”: Results for 2016- 2018 (3 year total)

[¥ billion]	PEGASUS (2013 - 2015)		Project 2020+ (2016 - 2018)
Net sales	2,496.3	x0.98	2,436.5
Operating income (Operating margin)	80.0 (3.2%)	x3.6	289.8 (11.9%)
Net income	12.9	x12.8	164.7
ROA (3-year simple average, O.I. base)	2.7%	+6.8pt	9.5%
ROE (3-year simple average)	1.5%	+13.1pt	14.6%

Above numbers include retroactively changed numbers for 2017 and forecasted numbers for 2018 announced on August 8, 2018.

Copyright © SHOWA DENKO K.K. All Rights Reserved.

Measures taken in each business, 2016-2018

Advantage-establishing

Accelerated commercialization

LIB materials	Expanded sales of VGCF™/ Developed new grades of anode materials
SiC epi-wafer for power devices	Increased capacity to produce High-Grade Epi

Growth-accelerating

Steady increase in sales CAGR 6%

High-purity gases for electronics	Application to 3D-NAND Expanded productivity
Functional chemicals	Started operation of 2nd BMC plant in China
Aluminum cans	Plant expansion in Vietnam & Thailand

Rebuilding

Ceramics	Withdrawal from general-purpose alumina
Rare earths	Progress in business alliance
Aluminum specialty components	Withdrawal from unprofitable products

All businesses turned into black

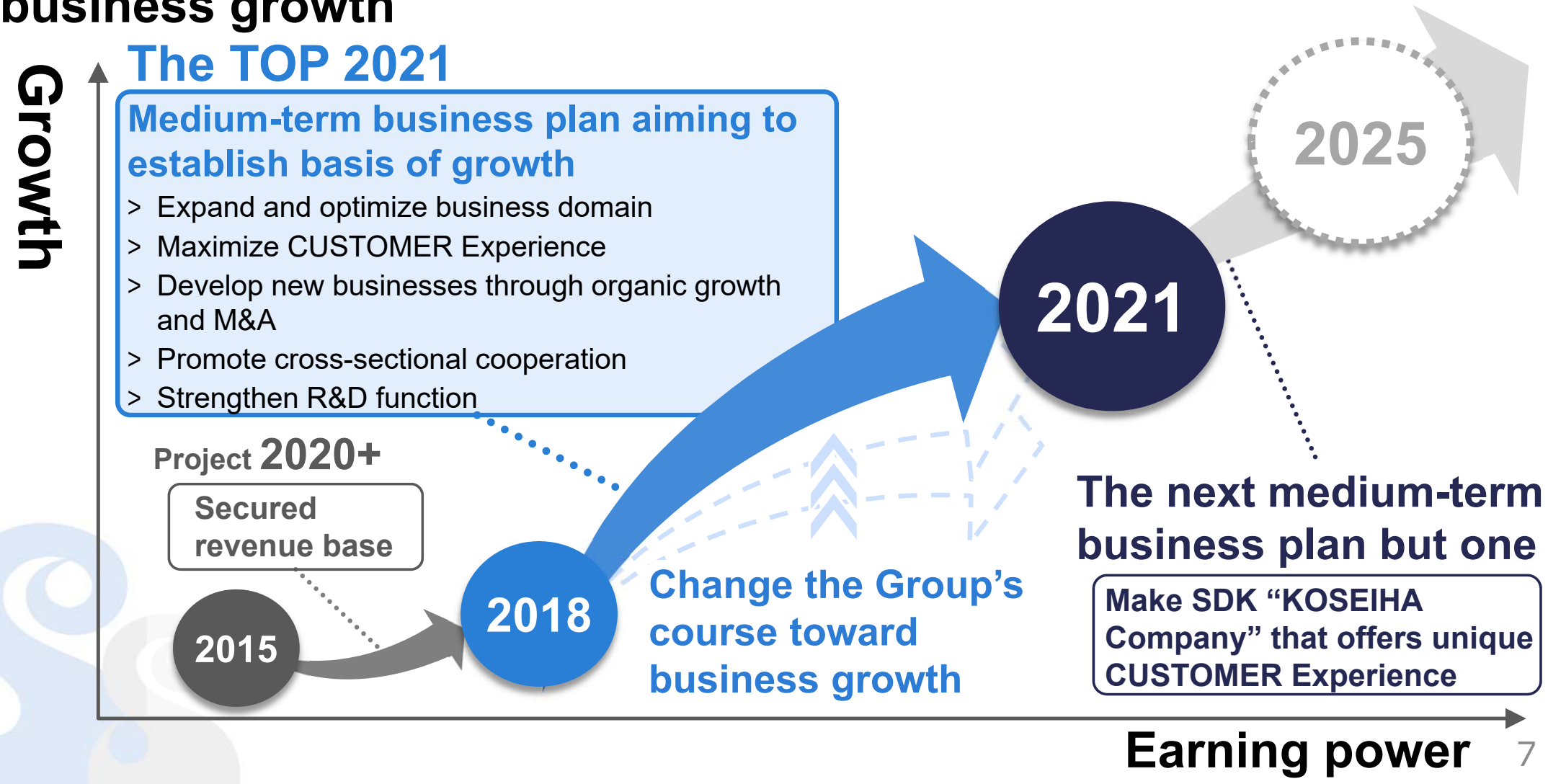
Base-shaping

Graphite electrodes	Integrated SGL GE
Basic chemicals /Industrial gases	Normalized prices
Shotic™	Integrated foreign bases
HD media	Streamlined production capacity
Petrochemicals	Consolidated SunAllomer
High-purity aluminum foil	Promoted new grade

Operating margin exceeded 10%

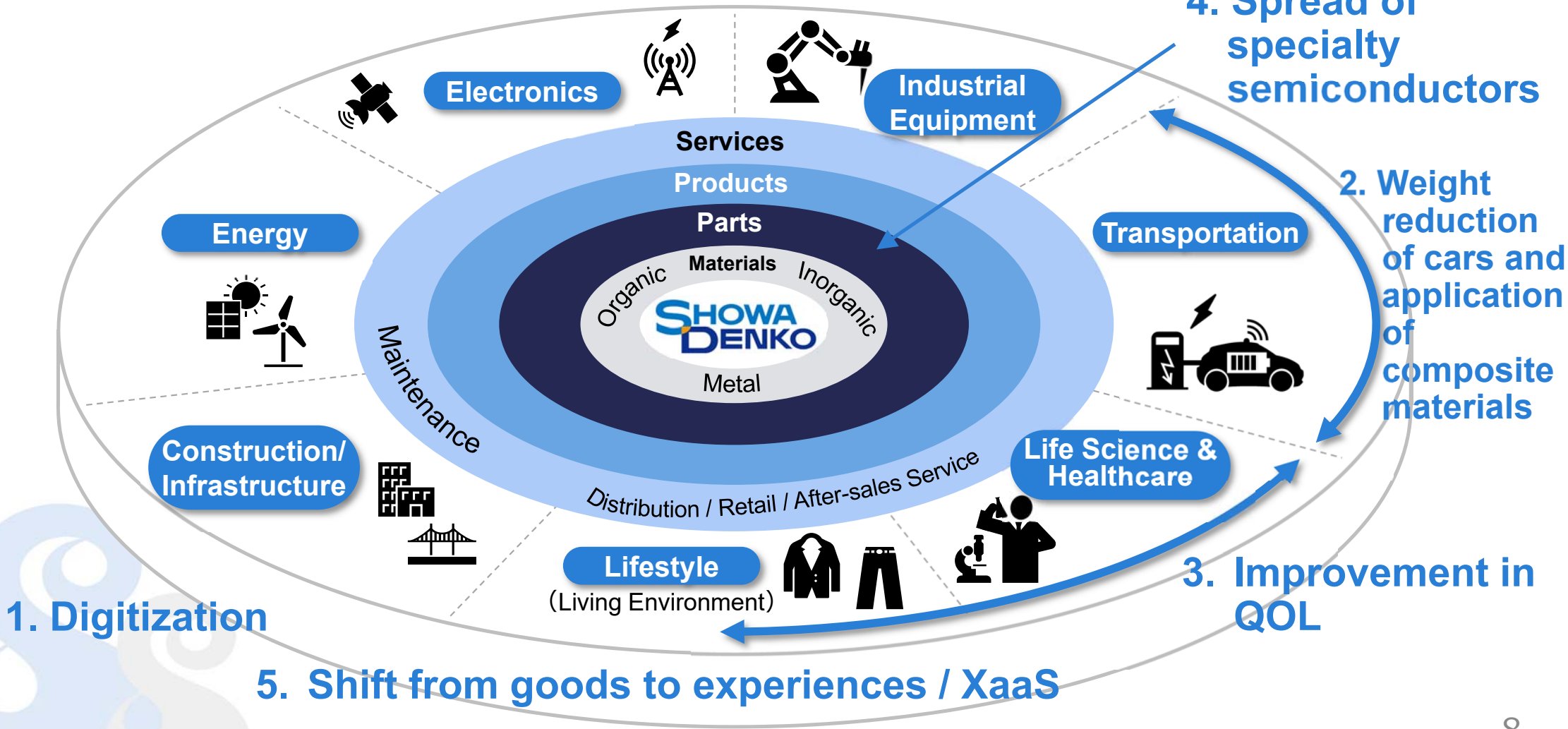
Copyright © SHOWA DENKO K.K. All Rights Reserved.

On the basis of “earning power” strengthened by “Project 2020+,” “The TOP 2021” will change the Group’s course toward long-term business growth



Copyright © SHOWA DENKO K.K. All Rights Reserved.

We focus on 5 growth drivers in 7 business domains as presupposition of the new medium-term business plan



Note) In Project 2020+ we focused on 5 business domains: Living environment , Mobility, Infrastructure, Energy, and Electronics.

Copyright © SHOWA DENKO K.K. All Rights Reserved.

“KOSEIHA Company” is “an aggregate of KOSEIHA Businesses that can maintain high levels of profitability and stability.”

“KOSEIHA Business” is a business in which SDK has a top market share in the market of appropriate scale (tens of billions of yen～hundreds of billions of yen)

By 2025, make half or more “KOSEIHA Businesses”

Our global No.1 businesses	Market size (SDK’s share)
HD media	¥400 billion (25%)
High-purity gases for electronics	¥150 billion (25%)
Graphite electrodes (UHP)	¥300 billion~ (Over 30%)

(Reference) Features of KOSEIHA Businesses

Operating margin
10% or more

Operating income
Billions of yen or more

Stable profitability tolerant to environmental change

Copyright © SHOWA DENKO K.K. All Rights Reserved.

Maximization of CUSTOMER Experience
⇒Change our business model and offer solutions beyond manufacturer’s limits



Examples of solutions that maximize CUSTOMER Experience

1. Front-loading type service
Offer services that promote sales, in addition to simple sales of goods

2. Maintenance type service
Contribute to reduction of down time through monitoring of post-sales use

3. Pay-for-use type service
Variable fee system depending on the amount of product used, assuming linear utility function

4. Ecosystem type service
In addition to sale of goods, offer platform to improve convenience

Copyright © SHOWA DENKO K.K. All Rights Reserved.

We redefine Vision and Value, and will realize them through execution of Group strategy based on strengthened business foundation

Our goal (Vision)

Means to realize Vision (Value)

Pillars of Group strategy

Strengthen business foundation

Corporate social responsibility

KOSEIHA Company

"Maximization of CUSTOMER Experience"

4. Create — Creation of new businesses through organic measures/M&A

1. Enhance — Provide higher value

2. Grow — Accelerate growth of business

3. Change — Change business model

Rapid progress in existing businesses/ Creation of new businesses

Interdivisional cooperation — Creation of cross border businesses through combination of existing technologies & businesses

R&D | **Marketing function** | **AI/IoT** | **Firm production system**

Contribution to SDGs

Copyright © SHOWA DENKO K.K. All Rights Reserved.

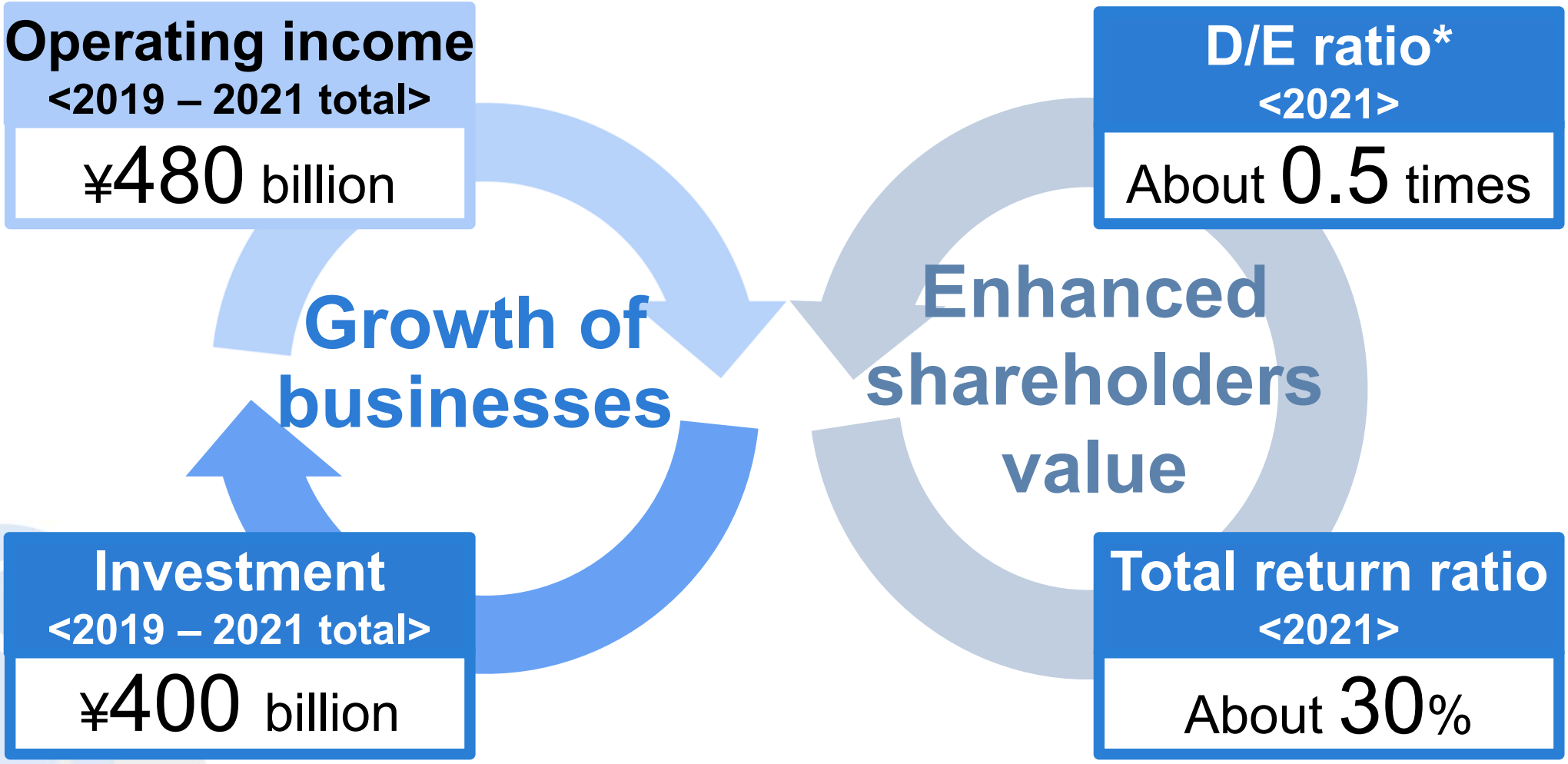
Financial strategy: Targets (3 year total)

[¥ billion]

	Project 2020+ (2016 - 2018)		The TOP 2021 (2019 - 2021)
Net sales	2,436.5	x1.40	3,400.0
Operating income (Operating margin)	289.8 (11.9%)	x1.66	480.0 (14.1%)
Net income	164.7	x2.0	330.0
ROA (3-year simple average, O.I. base)	9.5%	+3.1pt	12.6%
ROE (3-year simple average)	14.6%	+4.9pt	19.5%

Copyright © SHOWA DENKO K.K. All Rights Reserved.

Set targets for D/E ratio, total return ratio and total investment, and utilize earned cash for enhancing corporate value



*Gross D/E ratio

Copyright © SHOWA DENKO K.K. All Rights Reserved.

Increase investment in facility improvement, organic growth and M&A.

	Project 2020+ (2016 – 2018)	The TOP 2021 (2019 – 2021)	(Aims of investment)
Investment in facility improvement	¥61 billion	¥120 billion	✓To strengthen competitiveness ✓Renewal ✓To strengthen BCP
Investment in organic growth	¥64 billion	¥130 billion	✓To increase production capacity ✓To improve productivity
Investment in M&A	¥25 billion	¥150 billion	✓To promote M&A, business tie-up and equity investment

Copyright © SHOWA DENKO K.K. All Rights Reserved.

2 New medium-term business plan “The TOP 2021”

Copyright ⓒ SHOWA DENKO K.K. All Rights Reserved.

To realize our Vision and Value, we will execute Group strategy and strengthen business foundation

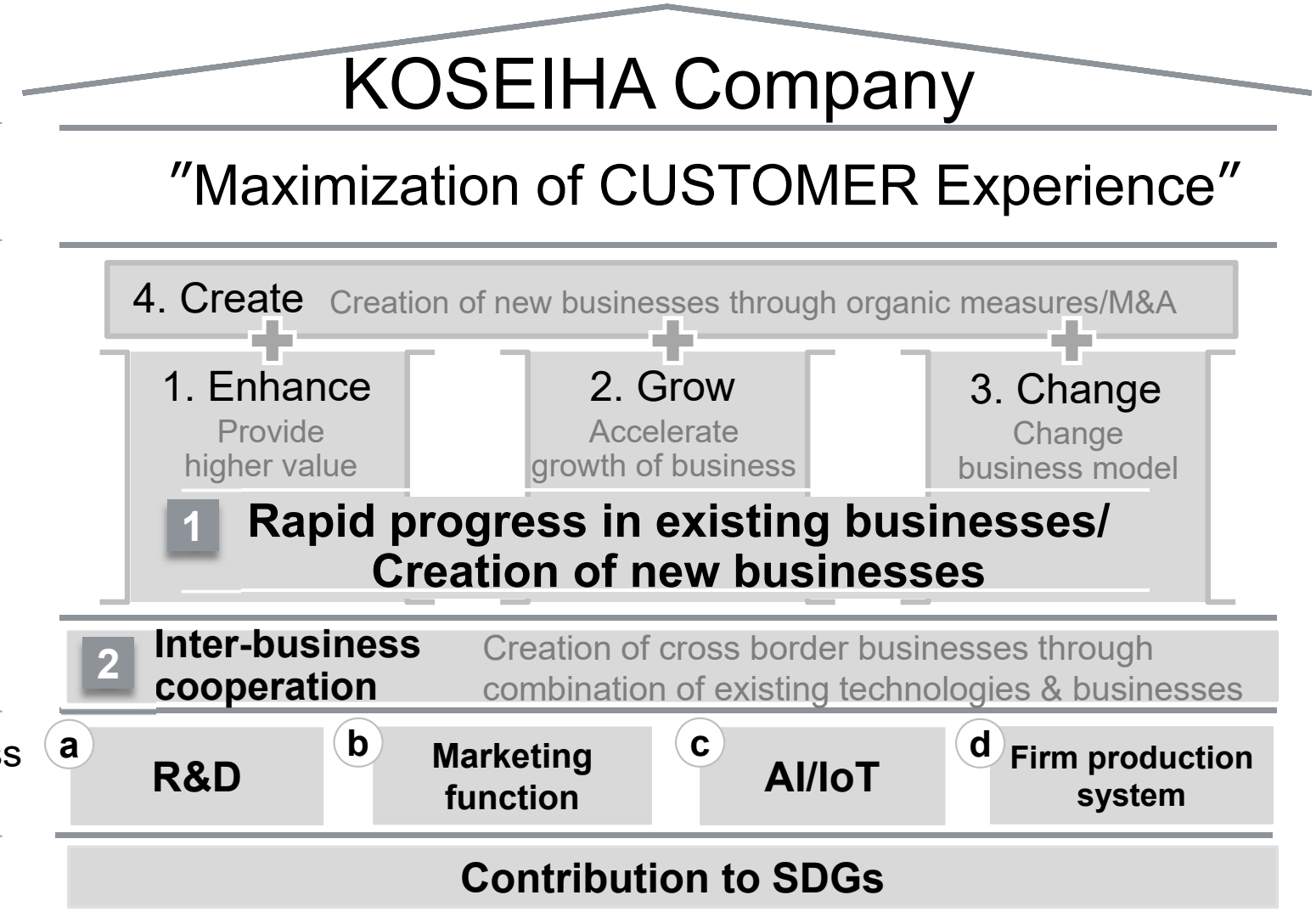
Our goal (Vision)

Means to realize Vision (Value)

Pillars of Group strategy

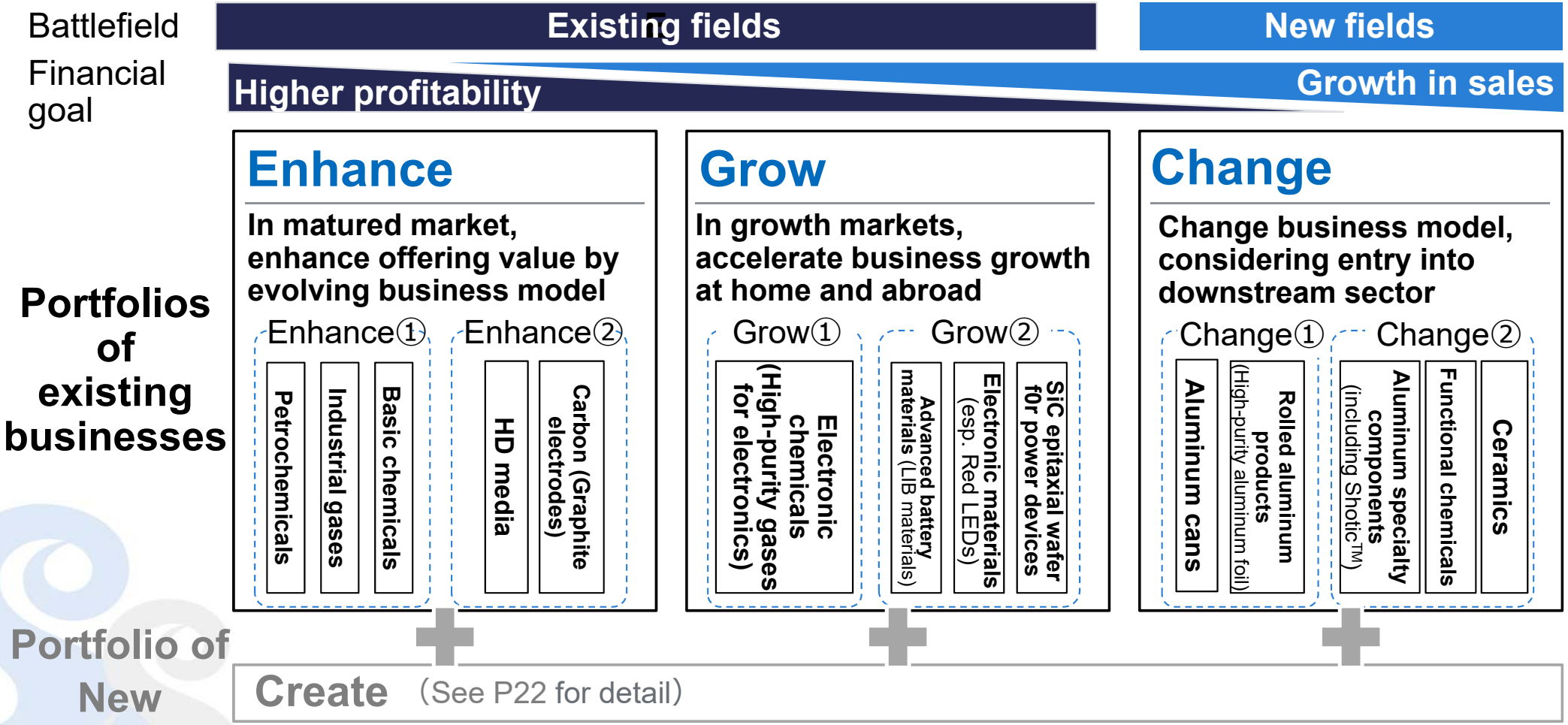
3 Strengthen business foundation

4 Corporate social responsibility



Copyright © SHOWA DENKO K.K. All Rights Reserved.

Redefine course of action for each business in accordance with its battlefield and financial goal



Copyright © SHOWA DENKO K.K. All Rights Reserved.

1 Pillars of Group strategy: Rapid progress in existing businesses (3 year total)

[¥ billion]

	Net sales			Operating income (Operating margin)		
	2016 - 2018 Project 2020+	2019 - 2021 The TOP 2021		2016 - 2018 Project 2020+	2019 - 2021 The TOP 2021	
Enhance	1,502.3	2,260.0		262.9 (17%)	435.0 (19%)	+65%
Grow	194.2	290.0	+49%	19.2 (10%)	37.0 (13%)	
Change	494.5	560.0	+13%	28.4 (6%)	34.0 (6%)	+20%

Copyright © SHOWA DENKO K.K. All Rights Reserved.

Enhance: Businesses competing in mature markets
⇒Enhance offering value by evolving business models

Enhance ①

Businesses focusing on domestic production and sale

Petro-chemicals | **Industrial gases** | **Basic chemicals**

Target

No.1 in specific region/field

Strategy

Change the art od selling / Optimize operation

> Devise the art of selling with new service
  - Extend value chain to down stream
  - Strengthen business base to reduce volatility
> Improve business efficiency and profitability

Enhance ②

Businesses having production/sales bases at home and abroad

Carbon (Graphite electrodes) | **HD media**

Target

Best In Class / Global No.1

Strategy

Cultivate customers abroad / Enhance tolerance to business risks

> Take advantage of global footprint and get customers abroad
> Reduce income fluctuation through business growth and dispersion of risks

Copyright © SHOWA DENKO K.K. All Rights Reserved.

Grow: Businesses competing in growth markets
⇒Accelerate business growth in the global market

Grow ①

Business having large share in growth market

Electronic chemicals
(High-purity gases for electronics)

Target

Realize large share, high growth rate and high profitability / Global No.1

Strategy

Grasp demand and strengthen global supply system

> Grasp trends of semiconductor/display market, expand capacity and gain market share
> Strengthen sales and distribution system in China. Consider sale in the US, Europe, etc.

Grow ②

New businesses with promising future

Electronics materials
(esp. red LED)

Advanced battery materials
(LIB materials)

SiC epitaxial wafer for power devices

Target

Establish leading presence in target markets (Establish bases for rapid growth and high profitability)

Strategy

Increase scale of business to turn into black and improve profitability

> Find segments where SDK can have advantage
> Develop best-in-class products/technology to meet customers' needs.

Copyright © SHOWA DENKO K.K. All Rights Reserved.

Change: Businesses competing in down-stream markets including parts and derivatives ⇒ Change business models, considering area/downstream expansion

Change ①

Matured businesses taking advantage of growth of overseas markets

Aluminum rolled products (High-purity aluminum foil)

Aluminum cans

Target

Realize area expansion and business growth

Strategy

Enter into overseas markets

> Enter into overseas markets aggressively

> Localize business models including quality, technology and services to compete in overseas markets

Change ②

Businesses having flexibility in use of products and business strategy

Functional chemicals

Ceramics

Aluminum specialty components (including Shotic™)

Target

Add high value to improve profitability (Shift to solution-based business)

Strategy

Establish core of business through use/geographical expansion

> Develop cross-business use of materials and processing technologies.

> Develop new functional materials and specialty components.

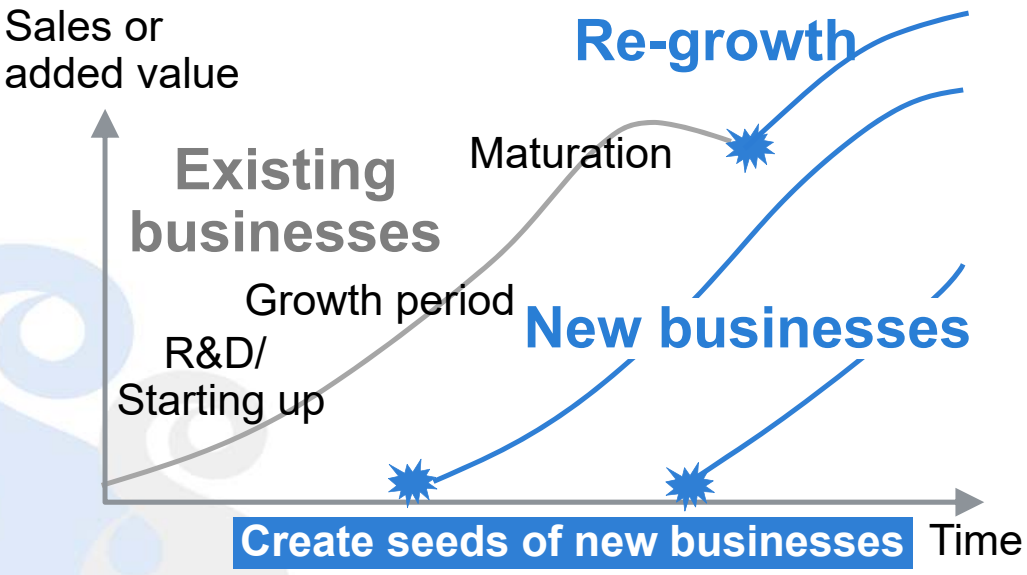
Copyright © SHOWA DENKO K.K. All Rights Reserved.

To realize continuous growth, we aim to strengthen and create KOSEIHA Businesses through R&D and M&A

Meaning of "Create" in portfolios

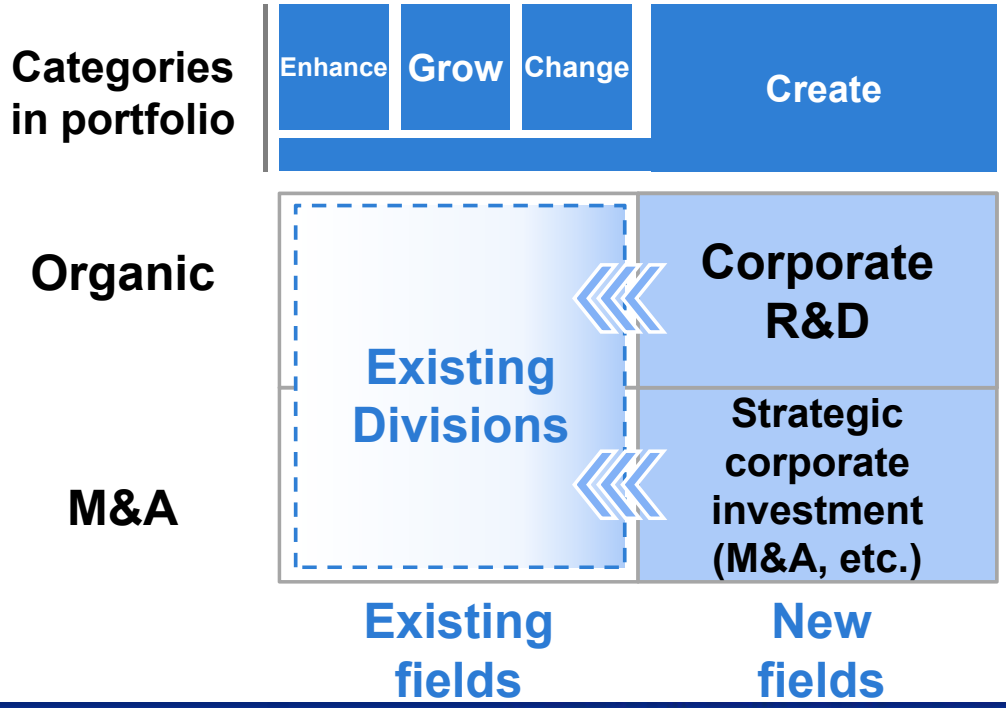
Continuous corporate growth requires entry into new fields and creation of new businesses

Life cycle of businesses



Means to realize "Create"

In addition to R&D, prepare discontinuous measures including M&A



Copyright © SHOWA DENKO K.K. All Rights Reserved.

As the first case of inter-business cooperation, we will start a project to create new composite materials for cars utilizing aluminum as key material

By counting backwards from the future of automobile industry, we anticipate changes in the industry's needs for materials

- Light weight/ rigidity
- Heat radiation/ Heat storage
- Electrical insulation
- Adhesion between different materials

Composite-material solution utilizing our original materials/technologies

Wide-ranging portfolio of materials / Progress in technologies to produce materials

Aluminum

- Designs for alloys
- Plastic working
- Surface/interface reforming

Organics

- Designs for high polymers
- Forecast of properties

Inorganics & Electronics

- Nano-carbon materials
- Crystallization/particles
- Analysis of properties
- SiC epitaxial wafer for power devices
- Optical semiconductors
- Materials for capacitors

Process design / Evaluation technologies

- Parts structure analysis / simulation
- Heat radiation analysis / simulation
- Development of technologies to bond materials

Copyright © SHOWA DENKO K.K. All Rights Reserved.

Focus resources on 10 technical fields corresponding to priority domains
Accelerate creation of value-adding pipelines

Priority domains

7 business domains

- Transportation
- Energy
- Lifestyle
- Electronics
- Construction / Infrastructure
- Industrial Equipment
- Life Science & Healthcare

×

5 growth drivers

- Weight reduction of cars and application of composite materials
- Digitization
- Spread of specialty semiconductors
- Improvement in QOL
- Shift from goods to experiences / XaaS

R&D 10 notable technical fields

Surrounding fields (inter-business cooperation)　New fields

- Next-generation electricity storage device
- xEV
- Multi-material / Adhesion between different materials
- Heat management
- Process to produce next-generation semiconductor
- Next-generation wide bandgap semiconductor
- Energy conservation / Renewable energy
- Sensors / IoT
- Smart testing/diagnostic techniques
- Maintenance of infrastructure

To achieve these, we will increase R&D personnel for about 10% and R&D investment for about 30%

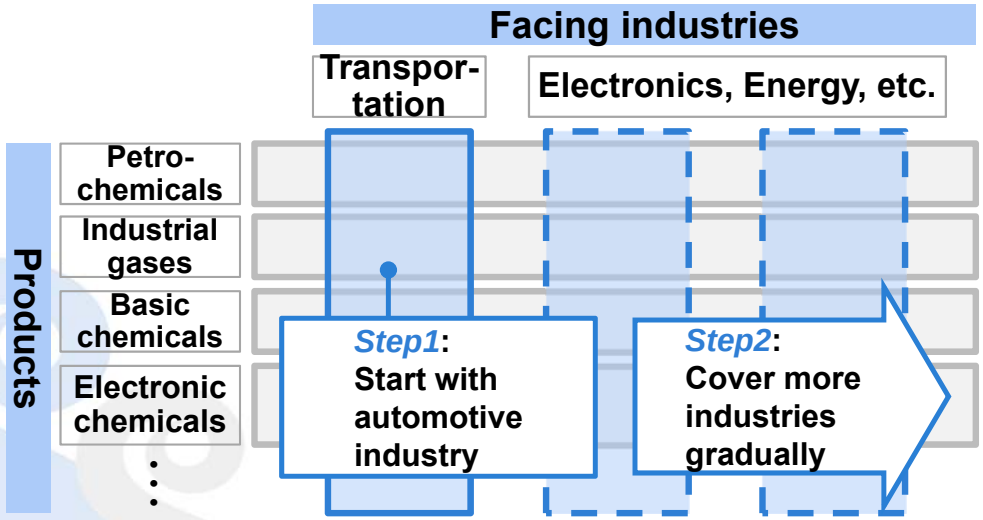
Copyright © SHOWA DENKO K.K. All Rights Reserved.

Establish organization to conduct cross-sectional marketing activities facing with each customer industry, aiming to accurately grasp customers'/market needs. We start this reform with focus on automotive industry as the first case

Put marketing functions together

Put marketing functions together cross-sectionally, in order to strengthen tolerance for environmental changes

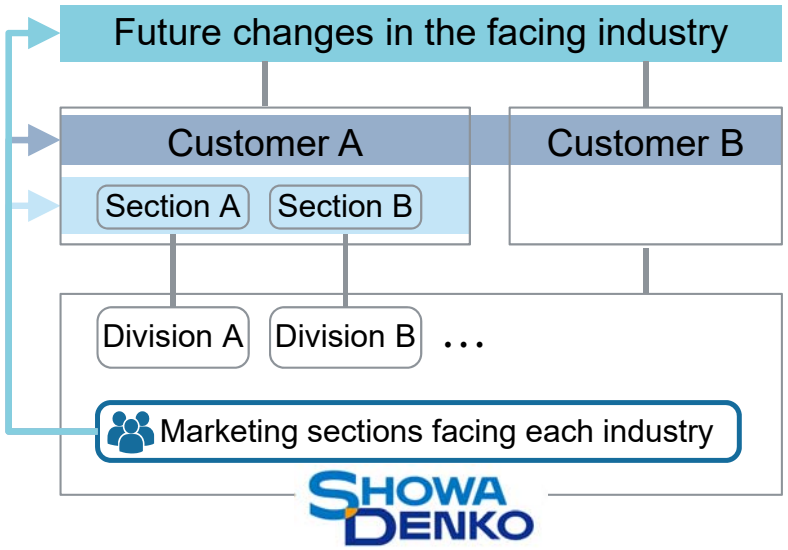
- Marketing function so far
- Marketing function to be newly established



Expected effects

Grasp customers' needs and trends in facing industries

- Grasp customer's cross-business needs
- Grasp multi-customer needs and read future trends
- Read future changes in the facing industry



Copyright © SHOWA DENKO K.K. All Rights Reserved.

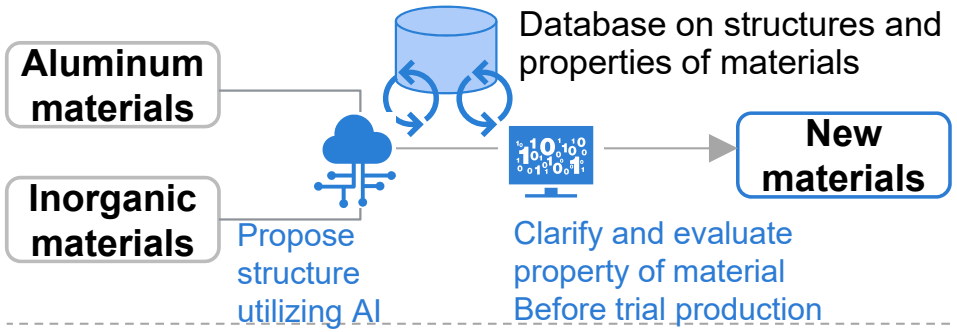
Utilize AI/IoT, visualize and explicate cultivated know-how and processes, and digitize them

Product design

Materials informatics*

Expected results

Make AI learn relations between material structures and required properties, and simulate evaluation of properties to accelerate development od new materials



Resources

Accumulated in-house data	Abundant and comprehensive data accumulated by inorganics and aluminum related businesses
Computational Science and Technology Information Center	Experts and know-how in computational science and simulation,

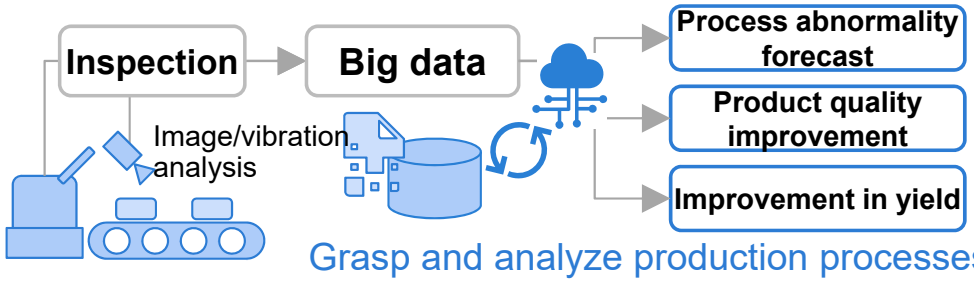
More than 10 members of Computational Science and Technology Information Center focus on materials informatics mentioned above

Production

Sensing technologies / Process AI

Expected results

Use leading-edge sensing technology to strengthen our process to watch properties of substances, and utilize accumulated big data



Grasp and analyze production processes through AI and Deep Learning

Resources

Accumulated in-house data	Big data accumulated through automated processes utilizing sensing technology
Manufacturing know-how	Explicit knowledge necessary for utilization of technologies will be accumulated

Process Solution Center of Production Technology Department and AI Promotion Project have already started production process improvement mentioned above

*Innovative way to develop materials through integrated use of material science and computational science

Copyright © SHOWA DENKO K.K. All Rights Reserved.

Connect SDGs and Our Code of Conduct, and promote integrated Group management

- Contribute to social and economic development
- Communication



- Products/technologies contributing to environmental protection (e.g., Graphite electrodes, ECOANN™)
- Reducing environmental burden (e.g., Recycling of aluminum cans)

Respond to expectations of local communities

Protect and improve the global environment

Act as a global corporate citizen

Our Code of Conduct

Provide customers with satisfaction and peace of mind

Let all Group employees go all out

- Compliance
- Respect human rights
- Responsible Care
- Fair and free trade
- Corruption prevention



- Providing products that contribute to development of global society
- Cooperation with business partners



- Respect individuality
- Safety first
- Work Style Reform / Corporate healthcare



Copyright © SHOWA DENKO K.K. All Rights Reserved.

Make group-wide contribution to SDGs through development of products and technologies

Case①: Chemical recycling of plastics

Basic chemicals

Chemical recycling of used plastics

Receive from local government

Used plastics

Hydrogen plant



CO_2

Use CO_2 as products

CO_2 products

Liquefied CO_2

Dry ice

Use hydrogen energy

H_2

Ammonia plant



Supply to hydrogen station/ commercial facility

Use of Ammonia

De-NOx

Fertilizer

Synthetic fiber

Adhesives Resins

Eco-friendly ammonia absorbs NOx emitted from thermal power plants

We achieve zero-emission through recycling of used plastics

Contributes to SDGs



Case②: Graphite electrodes

Carbon

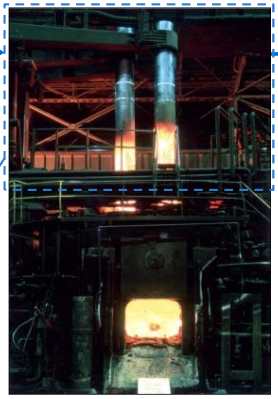
We produce graphite electrodes to melt steel in electric furnaces

Steel scrap

Graphite electrodes



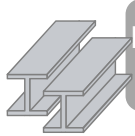
Electric furnace



Reduces cost of steelmaking

Steel-making

Process /Reuse



H-section steel

Electric furnace emits less CO_2 and consumes less energy compared to conventional blast furnace

Graphite electrodes contribute to recycling of steel

Contributes to SDGs



We contribute to SDGs through products above, aluminum can recycling, etc. to fulfill Responsibility of user/maker for all products

Copyright © SHOWA DENKO K.K. All Rights Reserved.

We will built a new complex, “Stage for Fusion,” to accelerate collaboration among parties inside and outside the company

Outline

We will establish a complex, “Stage for Fusion,” which will support collaborative activities to create value

Stage for Fusion: Opens in the spring of 2022



Conceptional drawing

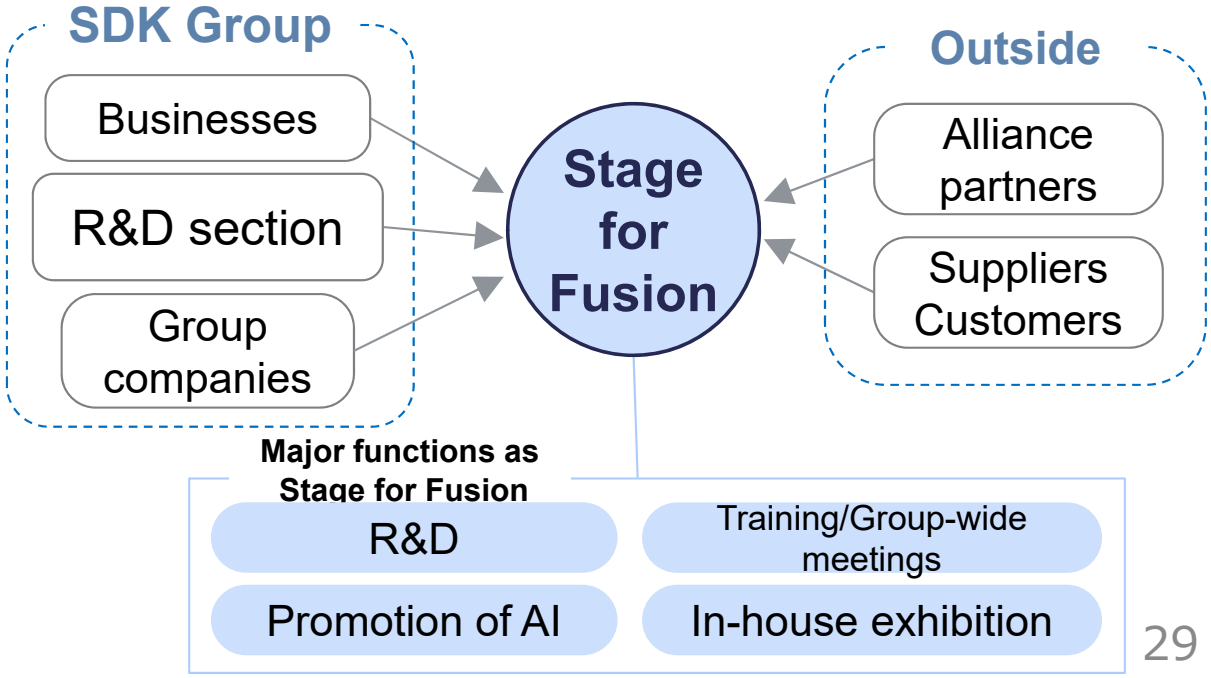
Site	Access		
Moriya-Ebisu area, Kanagawa Ward, Yokohama City (adjacent to Yokohama Plant)	Shin-Koyasu Station (JR, Keikyu)	Shinagawa	21 min.
		Tokyo	31 min.
		Haneda AP Intnl/Domestic	23 min. 26 min.
		Narita AP	85 min.
	10 minutes on foot		

Conforming to “Shin-Koyasu Gate-Island Plan (tentative)” under “Master Plan to Redevelop Keihin Coastal Area” hosted by Yokohama City

Aims and features

Move R&D function from Chiba to the new complex, establish training institute and conference halls adjacently, and collaborate with Production Technology section of Yokohama Plant

Taking advantage of good domestic and international access, it will function as global center where experts gather from inside and outside the company, and accelerate fusion and collaborative



Copyright © SHOWA DENKO K.K. All Rights Reserved.

New corporate message from the Showa Denko Group



We shall
listen more to customers and
further hone our technologies,
and shall thereby

Act to create products and
services that touch “the heart”
and

Act to offer solutions that
make “society” better

Copyright © SHOWA DENKO K.K. All Rights Reserved.

3 Appendix: Strategy and measures for each business

Copyright © SHOWA DENKO K.K. All Rights Reserved.

(Reference) Prior conditions for “The TOP 2021”

		2019	2020 and 2021
Exchange rates	(¥/US$)	105	100
	(¥/€)	126	125
Domestic Naphtha	(¥/KL)	51,600	49,200
Aluminum (LME)	(US$/t)	2,150	2,150

Copyright © SHOWA DENKO K.K. All Rights Reserved.

(Reference) Target sales by segment (3 year total)

[¥ billion]

	PEGASUS 2013 - 2015	Project 2020+ 2016 - 2018	The TOP 2021 2019 - 2021
	Results	Results/Forecast	Plan
Petrochemicals	799.4	694.9	890.0
Chemicals	411.4	442.3	528.0
Electronics	406.6	357.5	379.0 *
Inorganics	197.0	379.3	950.0
Aluminum	289.1	317.0	363.0
Group total	2,496.3	2,436.5	3,400.0

:*Including SiC epitaxial-wafer for power devices

Copyright © SHOWA DENKO K.K. All Rights Reserved.

(Reference) Target operating income by segment (3 year total)

[¥ billion]

	PEGASUS 2013 - 2015	Project 2020+ 2016 - 2018	The TOP 2021 2019 - 2021
	Results	**Results/Forecast**	**Plan**
Petrochemicals	10.0	74.0	60.0
Chemicals	18.7	48.3	50.0
Electronics	65.2	51.9	53.0 *
Inorganics	−2.4	119.2	325.0
Aluminum	11.4	17.1	18.0
Group total	80.0	289.8	480.0

:*Including SiC epitaxial-wafer for power devices

Copyright © SHOWA DENKO K.K. All Rights Reserved.

(Reference) Our recognition of business environment as prior condition for “The Top 2021”

Reading future market conditions to be drastically changed by five growth drivers

Growth drivers			Examples of our business opportunities
1. Digitization	> Explosive increase of data > High-speed data communication	Generated data:’16⇒’25 10 times more Data speed: 1Gbps (4G)⇒10Gbps (5G)	Growth of HD/electronics businesses Increase in application of heat solution
2. Weight reduction of cars and application of composite materials	> Environmental regulation Improve fuel economy > xEV requires large LIB and heat management	Global share of xEVs: Over 30% in 2030	Composite materials/weight reduction solutions utilizing various technologies Growth of advanced battery materials business
3. Improvement in QOL	> Needs for medical and nursing care increases > Evolution of diagnosis/ medical technologies and devices	Percentage of old people in the world 8% (2015)⇒About 16% (2050)	Business opportunities in the field of life science engineering
4. Spread of specialty semiconductors	> Increase in needs for energy conservation > Increase in needs for sensing devices	Spread of xEVs and automatic driving increases needs for power devices and optical semiconductor devices	Increase in demand for products of SiC and optical semiconductor businesses
5. Shift from goods to experiences/ XaaS	> More and more value is added by experiences than by goods Progress in shift to services		Maximization of added value through combined effect of technical innovation and business model innovation

On the basis of this future market reading, we formulate our necessary strategies through backward counting

Copyright © SHOWA DENKO K.K. All Rights Reserved.

(Reference) Market trend and strategies for major businesses①

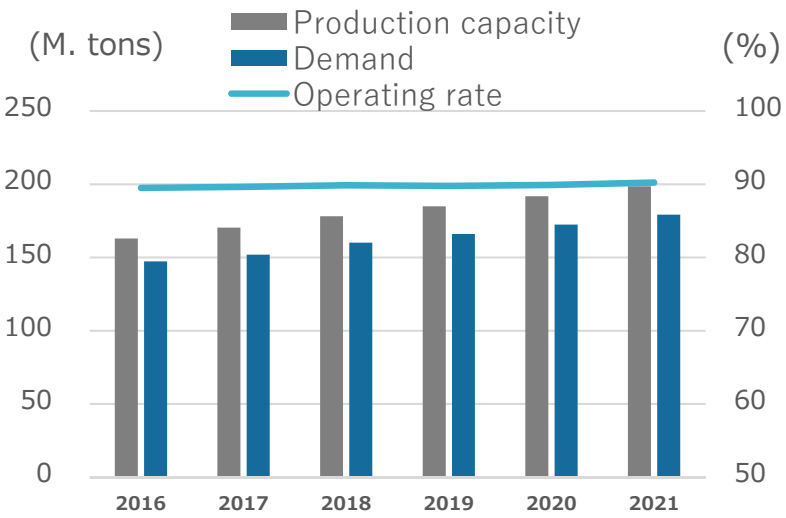
Petrochemicals Division
Petrochemicals



【Vision】

Ethylene center with strong presence in East Asia

Global supply/demand for ethylene



Source: IHS Markit

【Market forecast 】CAGR about 3%

Increase in supply from North America and the Middle East. Increase in self sufficiency in China and India. However, excess of demand in Asia continues. Tight supply/demand situation will continue until 2021.

【Target】 ROS 5% or more

- Realize stable operating income
- Maintain high operating rate of cracker

【Strategy】 Improve tolerance to environmental change

- Establish business base tolerant to market fluctuation
- Improve operation efficiency to gain competitiveness
- Extend value chain to downstream through development of derivatives, etc.

Copyright © SHOWA DENKO K.K. All Rights Reserved.

(Reference) Market trend and strategies for major businesses②

Carbon Division

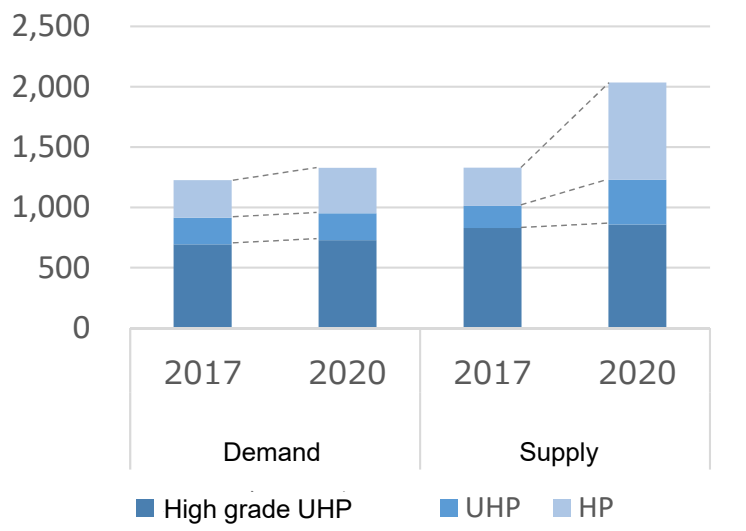
Graphite electrodes



【Vision】

Top manufacturer of UHP realizing Value In Use in global scale

Global supply/demand balance of graphite electrodes (thousand tons)



Research by SDK

【Market forecast 】 CAGR about 3%

Strict environmental regulation in China.
Production of electric steel gradually increases due to the increase in supply of steel scrap. There will be no major change in supply/demand situation until 2020.

【Target】 Global No.1

- Global No.1 UHP supplier
- Improve tolerance to environmental change

【Strategy】 Value In Use

- No.1 in cost performance
- Optimize global sourcing and realize high operating rate
- Make the optimized production line as the benchmark, improve product quality and cost competitiveness

Copyright © SHOWA DENKO K.K. All Rights Reserved.

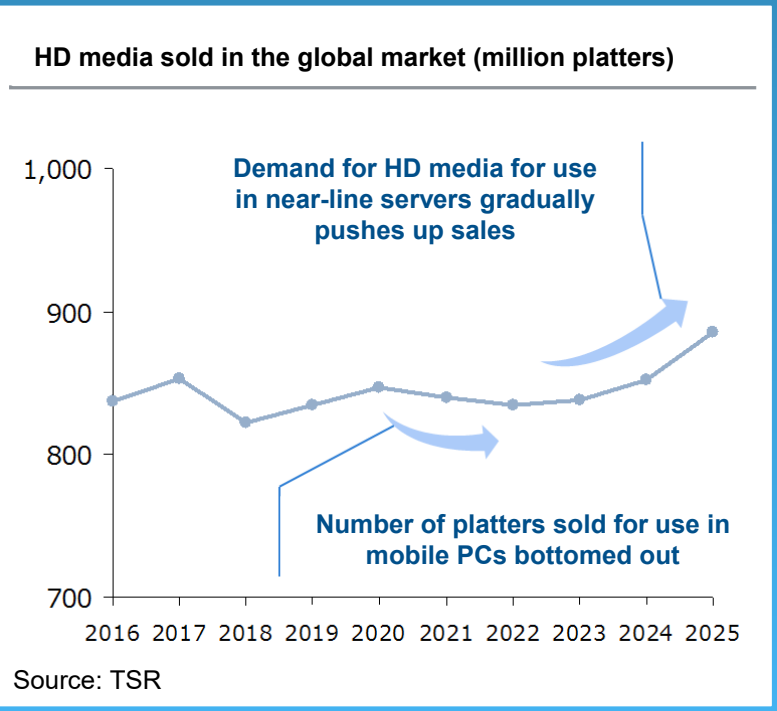
(Reference) Market trend and strategies for major businesses③

Device Solutions Division
HD media



【Vision】

Top independent HD media maker offering Best In Class products



【Market forecast】 CAGR about 0.5%

Though shipment volumes of HDDs have been decreasing, average number of platters used per unit of HDD is increasing. Therefore, total numbers of HD media shipped is expected to remain on the same level.

【Target】 No.1 independent supplier

- No.1 independent maker (25% market share)
- High profitability supported by efficient operation

【Strategy】 Best In Class

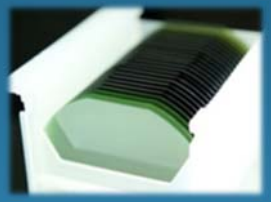
- Maintain technical advantages in manufacturing of HD media for near-line storage devices.
- Develop technologies for manufacturing of newest media (MAMR/HAMR)
- Improve product performance and quality, and strengthen cost competitiveness by maximizing proportion of internally produced aluminum platters

Copyright © SHOWA DENKO K.K. All Rights Reserved.

(Reference) Market trend and strategies for major businesses④

Device Solutions Division

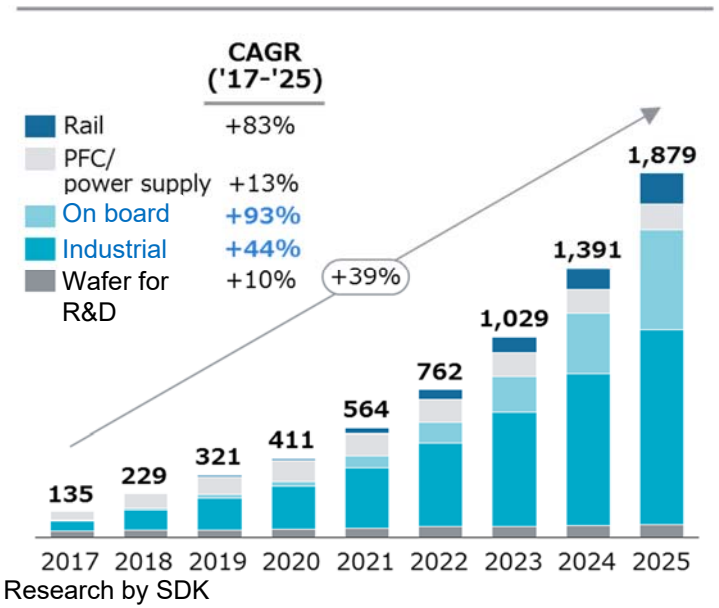
SiC epi-wafer



【Vision】

By making most of our strong point, i.e. the leading-edge epitaxial technology, keep unshakable No.1 position as independent SiC epi-wafer maker

Forecast of global demand for SiC epitaxial wafers (thousand pieces)



Research by SDK

【Market forecast】 CAGR 30% or more

Around 2017, 6-inch SiC epitaxial wafer became the mainstream, resulting in cost reduction. Then the market for SiC epitaxial wafer expanded rapidly, centering on automotive use and industrial use

【Target】 No.1 independent supplier

- Establish strong presence in the market as the top independent SiC epi-wafer maker
  (2025 global market share 30% or more)
- Achieve two-digit growth rate and billions of yen of operating income to become the mainstay business

【Strategy】 Best In Class

- Gain No.1 position, taking advantage of our leading-edge epitaxial technology as the strong point
- Develop high-performance epitaxial wafer
- Invest aggressively to respond to the rapid expansion of the market

Copyright © SHOWA DENKO K.K. All Rights Reserved.

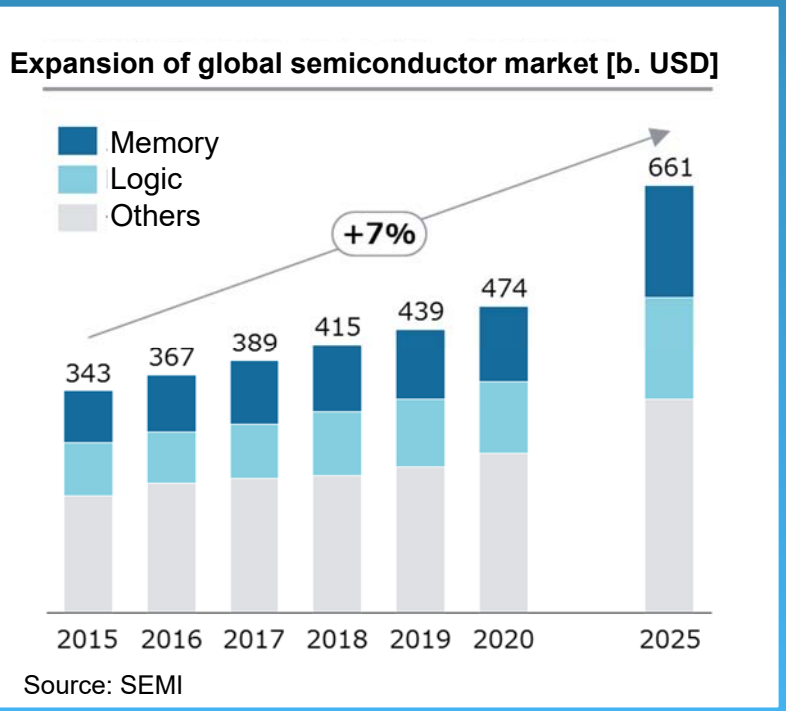
(Reference) Market trend and strategies for major businesses⑤

Electronic Chemicals Division

High-purity gases for electronics



【Vision】
Global No.1 as manufacturer of high-purity gases for electronics



【Market forecast】 CAGR 10% or more

Rapid increase in the amount of generated data in the world is leading to expansion of semiconductor market. The increase in numbers of layers in 3D-NAND flash is also pushing up the demand for high-purity gases

【Target】 Global No.1

- No.1 as manufacturer of high-purity gases for electronics
- Achieve two-digit growth rate and billions of operating income to become our company's mainstay business

【Strategy】 Strengthen global supply system

- Invest aggressively to respond to the expansion of the market
- Strengthen sales and distribution system in China
- Increase sales in the US and Europe

Copyright © SHOWA DENKO K.K. All Rights Reserved.

(Reference) Strategy for each business
Summary of each business portfolio

Portfolio	Business	Strategy
Enhance	Petrochemicals	Stable operation, development of derivatives, etc. (→p. 36)
	Industrial gases	Start-up of CO_2 plant in Oita. Strengthen existing CO_2 plants (Debottlenecking)
	Basic chemicals	Stable operation
	Carbon	Optimization of global sourcing, etc. (→p. 37)
	HD media	Strengthen technical advantage in mass storage media (→p. 38)
Grow	Electronic chemicals	Expand production capacity. Increase overseas sales, etc. (→p. 40)
	Electronics materials (Optical semiconductors)	Increase sales for use in high-speed couplers, cars and industrial equipment
	Advanced battery materials	Develop new anode materials and promote them
	SiC epi-wafer for power devices	Develop highly reliable epi-wafer. Increase production capacity (→p. 39)
Change	Aluminum rolled products	Increase sales of foil for high-voltage/large-capacitance devices
	Aluminum cans	Strengthen overseas bases. Improve profitability at home
	Functional chemicals	Increase sales of high polymers in China. Improve profitability at home
	Ceramics	Increase sales of products for electronics
	Aluminum specialty components	Respond to needs for xEVs and weight reduction

Copyright © SHOWA DENKO K.K. All Rights Reserved.

Aim to extend footprints aggressively in Europe and other promising areas

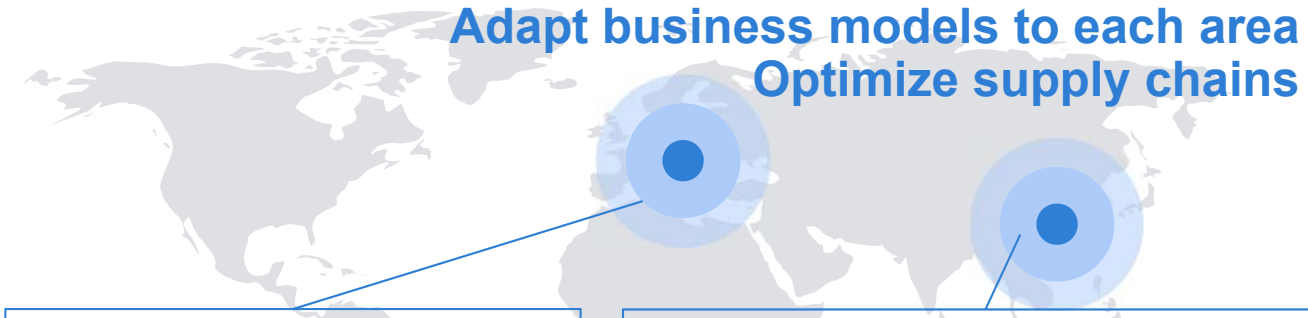
Basic ideas

> In “Project 2020+,” we expanded our business activities in East Asia, focusing on electronics business

> In “The TOP 2021,” we will focus on Europe whose automotive industry goes ahead of other areas

- Leader in weight reduction of cars, etc.
- Design leader

Strategy for each area



Adapt business models to each area
Optimize supply chains

Europe: Aggressive business expansion

> There are KOSEIHA companies as potential M&A targets

> We have SDCH’s* bases as potential bridgeheads

Asia: Organic growth

> Expand business, keeping up with growth of East/Southeast Asian markets

> Utilize strengthened production bases for high-purity gases for electronics, high-purity aluminum foil, etc.

Target: Increase the ratio of overseas sales to 60% of net sales by 2025

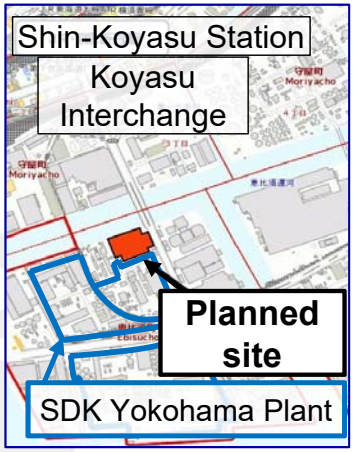
*SDCH=SHOWA DENKO CARBON Holding GmbH

Copyright © SHOWA DENKO K.K. All Rights Reserved.

Cooperation with R&D and production technology sections of adjacent Yokohama Plant. Starts operation in the spring of 2022

Outline of facilities

Building	6-storieds high
1-4th	• Labs for R&D, AI promotion
5-6th	• Conference/study rooms • Space for in-house exhibition/ collaboration
Schedule	To open in the spring of 2022
Planned construction site	Moriya-Ebisu area, Kanagawa Ward, Yokohama City



Outline of functions

Integrate functions in the “Stage for Fusion” with existing functions of Yokohama Plant to collaborate in creation of new value and innovation

Stage for Fusion

- **Advanced research**
- **Institute for Integrated Product Development**
  - **Research on integrated products**
  - **Analysis & Physical Properties Center**
  - **Computational Science and Technology Information Center**
- **Safety Evaluation Center** (Responsible Care Department)

Yokohama Plant

- **Advanced Battery Materials Division**
- **R&D on integrated products** (Ceramics)
- **PSC*** (Production technology)
- **Ceramics Division** (Fillers)

Functions: R&D | Support to R&D | Production

*PSC: Process Solution Center

Copyright © SHOWA DENKO K.K. All Rights Reserved.

Note

Performance forecast and other statements pertaining to the future as contained in this presentation are based on the information available as of today and assumptions as of today regarding risk factors that could affect our future performance. Actual results may differ materially from the forecast due to a variety of risk factors, including, but not limited to, the economic conditions, costs of naphtha and other raw materials, demand for our products such as graphite electrodes and other commodities, market conditions, and foreign exchange rates. We undertake no obligation to update the forward-looking statements unless required by law.

Copyright © SHOWA DENKO K.K. All Rights Reserved.