



Long-term Vision for Newly Integrated Company (2021~2030)



December 10, 2020

SHOWA DENKO K.K.

Kohei Morikawa, President & CEO

Agenda

1. Long-term vision and synergy for newly integrated company
(Business growth + Innovation)
2. Long-term numerical targets
3. Short-to-medium-term synergy
(Business portfolio restructuring,
profit improvement + Asset streamlining,
organizational integration)

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Purpose of newly integrated company

Change society through
the power of chemistry

Contribute to the sustainable development of global society
by creating functions required of the times
as an advanced material partner



SHOWA
DENKO

1. Long-term vision and synergy for newly integrated company

Ideal state of newly integrated company

Company that
contributes to a sustainable
global society

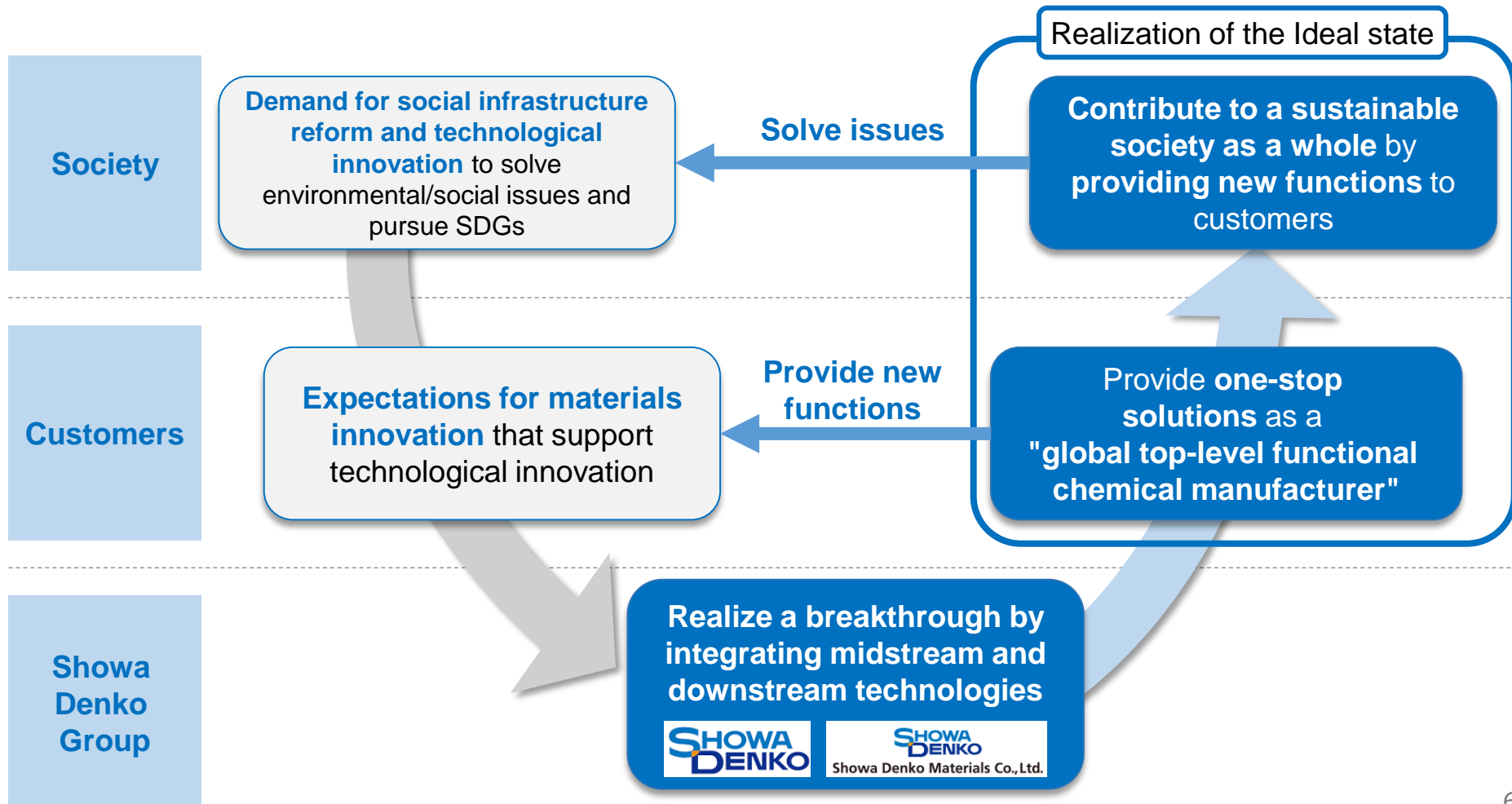
Company with a
strong presence in
the global market

1. Long-term vision and synergy for newly integrated company

Understanding of external environment and significance of integration



Amid demand for materials innovation, contribute to a sustainable society by integrating midstream and downstream technologies



1. Long-term vision and synergy for newly integrated company

Portfolio management to realize sustainable growth



Achieve high growth with a highly complementary business portfolio of "Core Growth", "Next-Generation", "Stable Earnings" and "Fundamental Technologies/Materials" businesses

Business acquisitions in new areas through M&A etc.



"Stable Earnings" business

Revenue base that earns a stable profit and generates investment capital the entire company as a whole

Device Solutions
(hard disc media)

Carbon

Industrial Gases

Petro-chemicals

Basic Chemicals

Aluminum Rolled Products

Aluminum Can

Coating Materials

Electronics Materials

Energy
(battery-related products, etc.)

"Next-Generation" business

Promote investment while verifying business feasibility to develop it into a next-generation pillar

Life Science

"Core Growth" business

Aggressively invest in businesses for significant future growth

Electronics

Mobility

"Fundamental Technologies/Materials" business

Technology platform business to support innovation of "Core Growth" and "Next-Generation" businesses

Ceramics

Functional Chemicals
(resins, etc.)

Aluminum Specialty Components



Carve out businesses that don't/no longer fit into any of the above 4 business categories

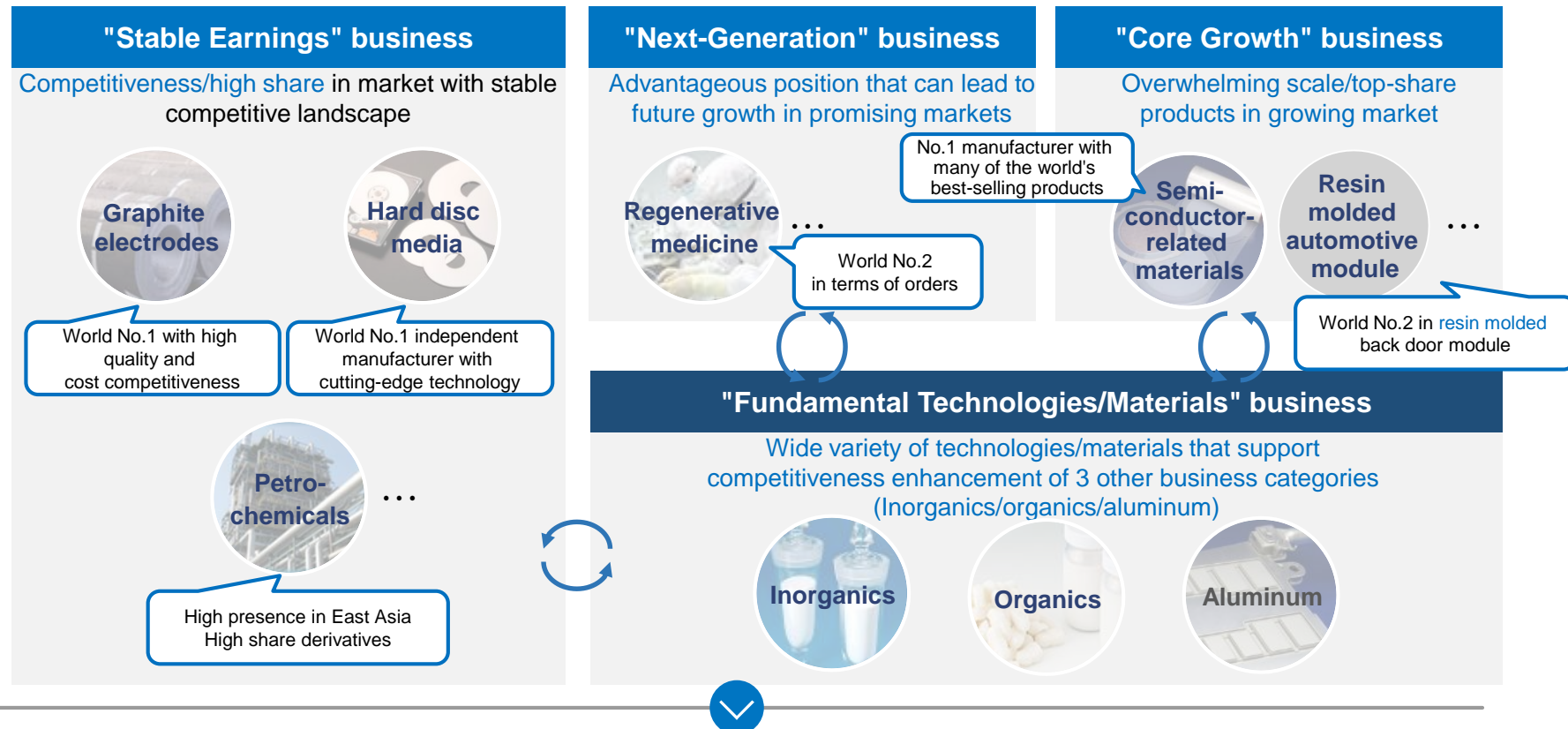
 : Mainly Showa Denko

 : Mainly Showa Denko Materials

1. Long-term vision and synergy for newly integrated company

Post-integration business portfolio

Each of the 4 business categories possesses a competitive advantage commensurate with their respective roles and generates synergies mainly using technologies and materials from the "Fundamental Technologies/Materials" business to provide functions to the market



Highly universal business portfolio that can be deployed in promising markets in the future by continuously refining technologies and materials of "Fundamental Technologies/Materials" business in a wide range of businesses

1. Long-term vision and synergy for newly integrated company

Market assessment and strategy for "Core Growth"/"Next-Generation" businesses



Compete with good understanding of differences in market stages and our position in each growth business

Electronics



Market outlook

Within a certain technological development direction, probability of **continued technological innovation** and **market growth** is high

Competitive environment

As player's positions are solidified, **rapid structure changes and new entries in the industry are unlikely** to occur, although future industry **restructuring** is still possible



Our position and strategy

Win in growing market by leveraging our **top position** and **enhanced technological capabilities**

- Continue to develop cutting-edge products and provide one-stop solutions

Mobility



Both areas of high certainty and areas of uncertainty co-exist in changing market situation

Several materials manufacturers exist and **competition for the top position just beginning**



Manage certainty and uncertainty with portfolio

- Develop businesses that cater to trends of weight reduction and electrification
- As for trend of electrification, prepare for uncertainty in market share by powertrain type

Life Science (Regenerative medicine)



Market expansion is **certain**, but there is **range of market views** in terms of expansion timelines and growing segments

There are first movers including us, but **more** new players **are likely to enter the market**



Drive growth by leveraging **first mover advantages**

- Quickly recoup investment by leveraging current competitive advantage
- Grasp changes and identify segments where competitive advantage can be established

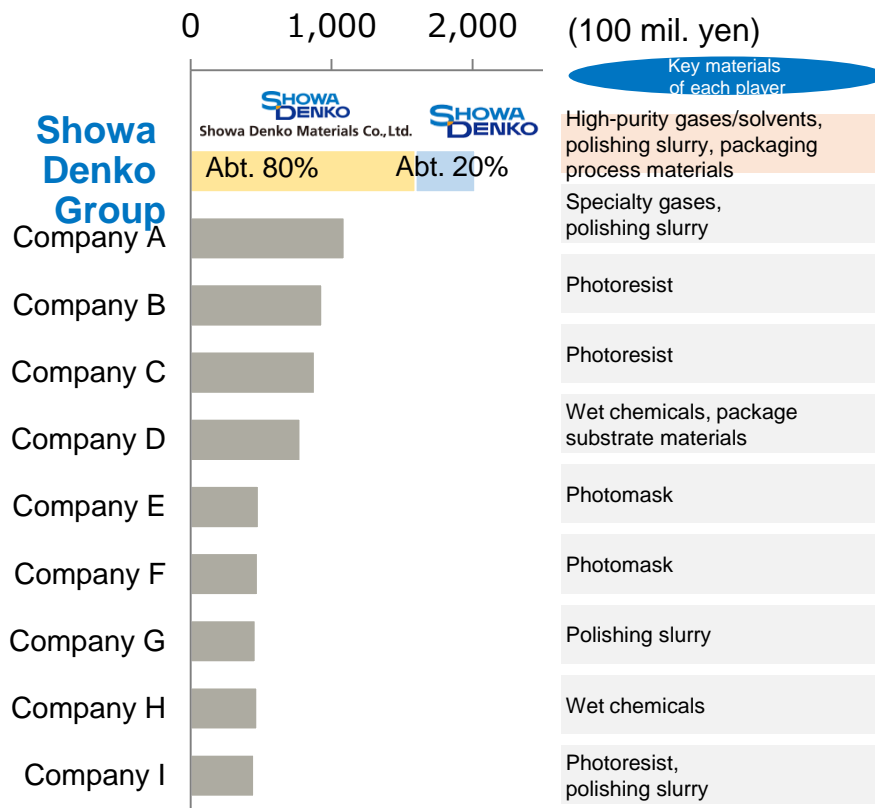
1. Long-term vision and synergy for newly integrated company

Our position in the semiconductor-related materials market



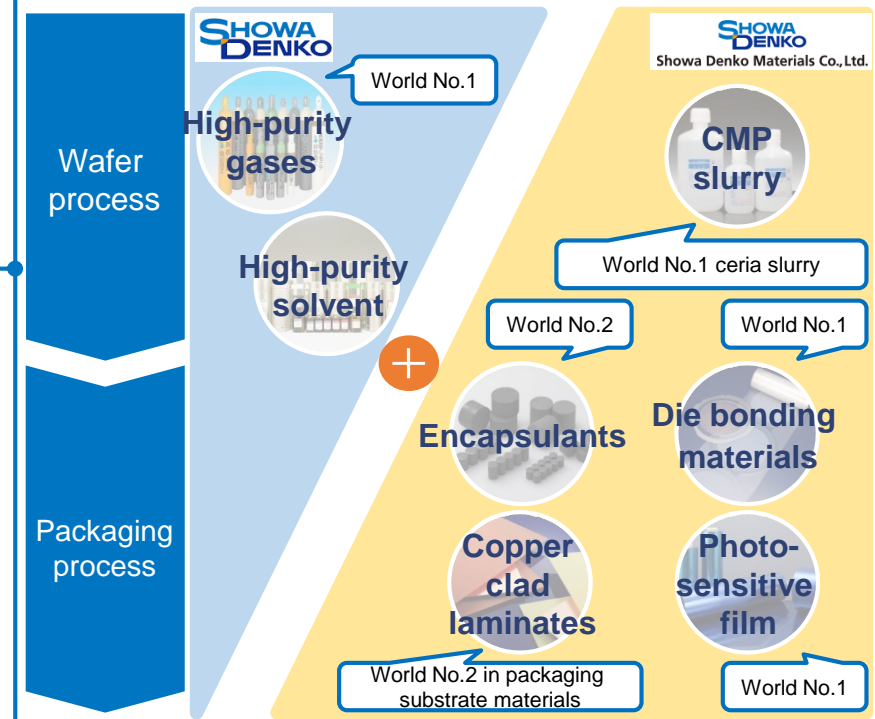
As the global No.1 semiconductor-related materials manufacturer, develop competitive business both in wafer/packaging processes to drive corporate growth

Global sales of key semiconductor-related materials players¹ (2020 forecast)



Key products of Showa Denko Group

Provides an extensive range of products both in wafer and packaging processes, with products within the top 3 share accounting for approx. 85% of sales



¹ Does not include silicon wafer
Source: Researched by Showa Denko

Related SDGs



1. Long-term vision and synergy for newly integrated company

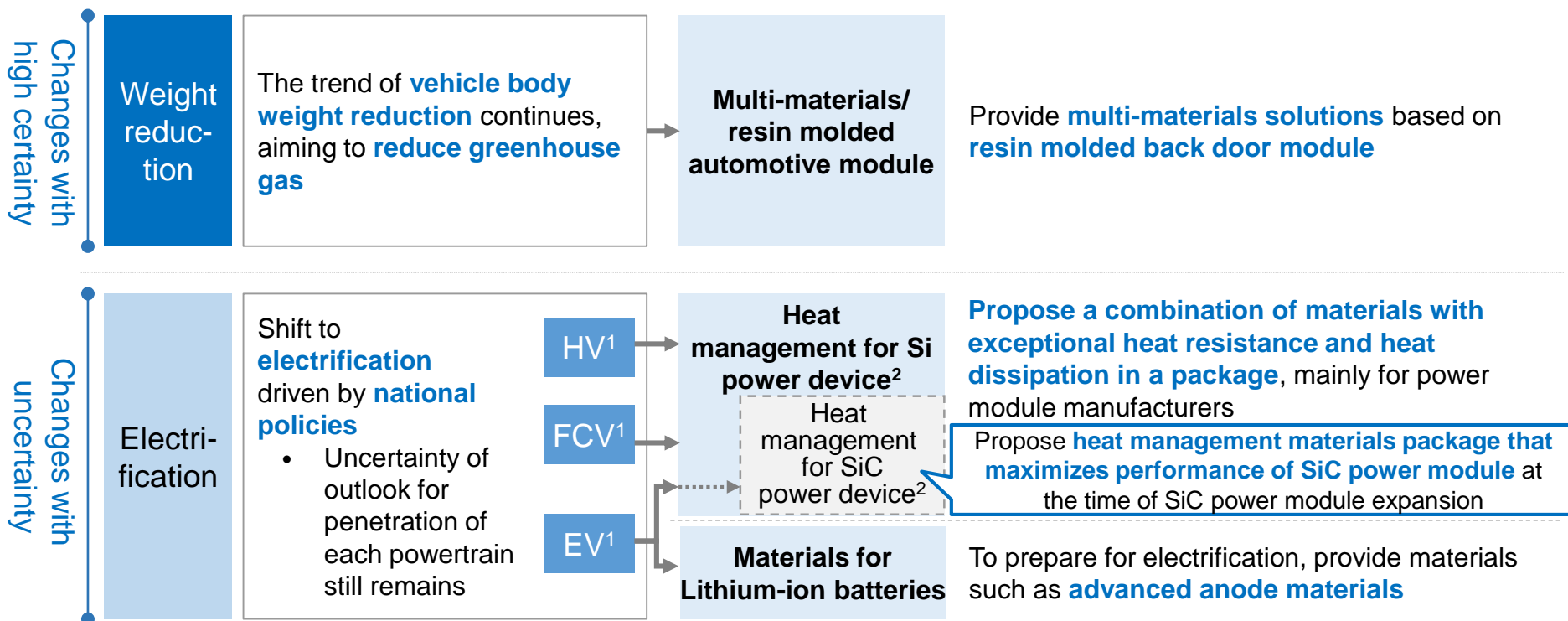
Current trends and business development in Mobility



Capture growing needs for weight reduction and heat management with unique business models;
Draw on business portfolio to manage needs with high certainty and uncertainty

Current trends

Major target businesses for Showa Denko Group



Related SDGs



1. HV = Hybrid Vehicle, FCV = Fuel Cell Vehicle, EV = Electric Vehicle 2. Si = silicon, SiC =Silicon Carbide

1. Long-term vision and synergy for newly integrated company

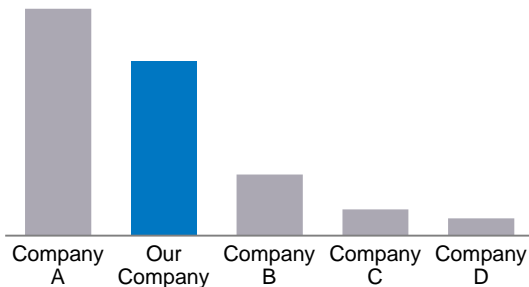
Initiatives in Regenerative Medicine business

Leverage first-mover advantage as a front-runner in contract development and manufacture of regenerative medicines to globally develop a competitive business in growing market

Global top-class contracting track record and know-how

Global top-class track record in autologous and allogeneic/clinical and commercial/wide range of cell types

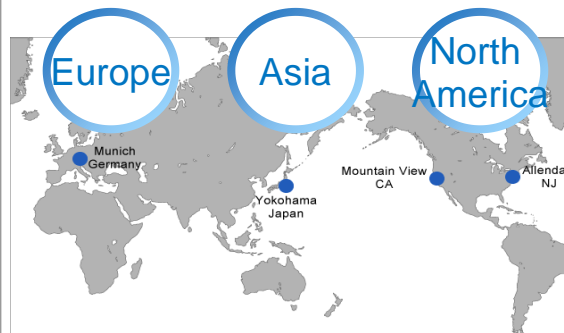
Cumulative orders received (2019/no. of items)



Lead the market with accumulated know-how on use of diverse element technologies as a source of differentiation and competitive advantage over the medium to long term

Global production structure

Established global service structure, with sites in North America, Europe and Asia



Recoup investment quickly by leveraging 3 global locations that serve as an advantage in winning orders

Development of pioneering manufacturing technology

Pursuing development and introduction of automation/large-scale suspension culture technology ahead of competitors



Get a start on expected future cost innovations ahead of competitors to gain a sustainable competitive edge

Related SDGs



1. Long-term vision and synergy for newly integrated company

Projected innovation impact

Expand growth businesses to a scale of 600 billion yen by 2030 through innovations including technological synergies resulting from integration of the two companies

Growth businesses

Electronics

Semiconductor
Wafer process

Semiconductor
Packaging process

Mobility

Multi materials/
resin molded automotive
module

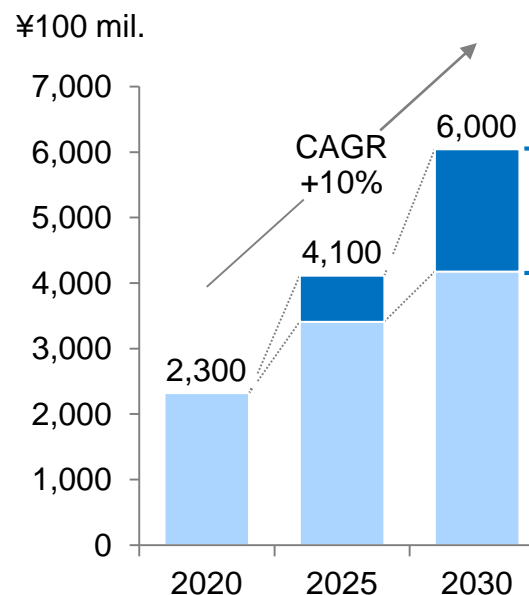
Heat management
(Power module)

Life Science

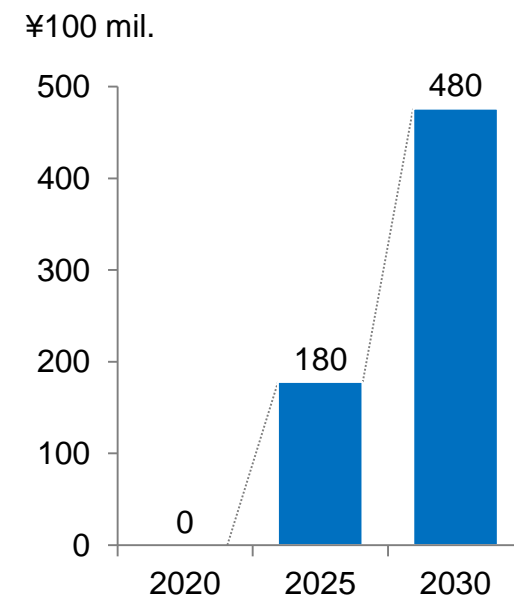
Regenerative medicine

Projected sales and operating income in growth businesses (estimated)

Sales outlook for all growth businesses



Profit increase (operating income basis)¹ from innovations (incl. synergy)



■ Innovation (incl. synergy)

■ Expansion of competitive existing products/refined products

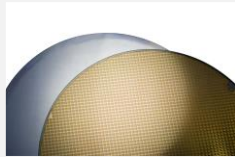
1. Does not include operating income based on sales of non-innovations

1. Long-term vision and synergy for newly integrated company

Examples of synergy in growth business (Semiconductor wafer process)



Semiconductor wafer process business



Key related products

Functional polymers

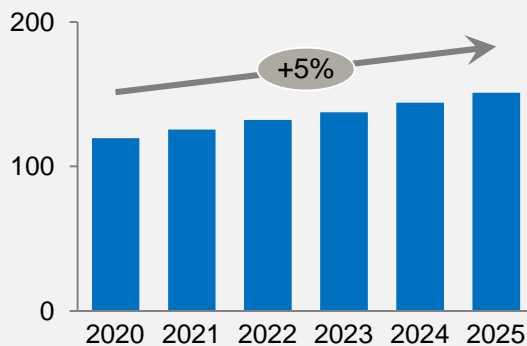
Ceramics

High-purity gases

High-purity solvent

Polishing materials

Projected semiconductor wafer shipment area (100 mil. square inches)



Medium-to-long term technical challenge: Arrival of technological innovation wall

With demand for higher performance, market is facing a wall of technological innovation

- Semiconductor performance is becoming **faster and larger** than ever before due to expansion of 5G, Cloud, automated driving, etc.
- GAFA, a leader in transformation, has started manufacturing key devices in house, and has approached material manufacturers in search of **advanced components and new materials**
- Meanwhile, the materials market is facing **a wall of innovation**; initiatives to achieve **breakthroughs including new technical approaches** are required



Our competitive advantage: Resolution of technology trade-offs through technological synergy

Integration of the two companies will make the resolution of technology trade-offs possible and will lead to the creation of further innovations

Ex.) CMP slurry

- Utilize Showa Denko's abrasive technology (particle size homogenization, surface potential control) for nano-ceria for which Showa Denko Materials gained top share through its solution blending technology
- Break through technology trade-offs between high-speed polishing and low scratching to produce new products that support next-generation 2nm fine pitch

: Showa Denko business

: Showa Denko Materials business

1. Long-term vision and synergy for newly integrated company

Examples of synergy in growth business (Semiconductor packaging process)



Semiconductor packaging process business



Key related products

Functional polymers

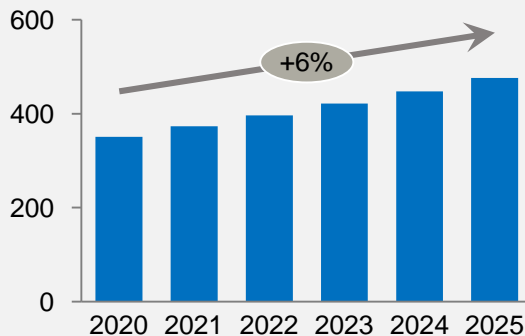
Ceramics

Packaging materials

Photosensitive materials

Laminate materials

Semiconductors (integrated circuits)
Projected market size (\$Bil.)



Medium-to-long term technical challenge: Materials sophistication and birth of new packaging process

Two aspects of technological innovations are required simultaneously – **functional sophistication of individual semiconductor-related materials**, and **new packaging configurations and processes**

- With 5G, lamination and size expansion, **more new functions** are required for each material, but technical difficulty is high
- With the birth of new packaging configurations and processes, **the need for proposal of one-stop solutions** will increase



Our competitive advantage: Provide PSC-driven one-stop solutions

Develop several next-generation products with a competitive edge, ahead of competing materials manufacturers, by adding resin design and filler technologies to current products

Ex.) Copper clad laminates

- Realize low Dk/Df¹ and low thermal expansion (low Dk/Df laminates) by combining Showa Denko's resin design technology and filler technology

Leverage Packaging Solution Center (PSC) to demonstrate performance achieved through materials combination leveraging evaluation techniques, and deliver more added value to customers by providing several products in one-stop

: Showa Denko business

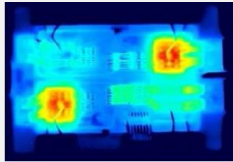
: Showa Denko Materials business

1. Long-term vision and synergy for newly integrated company

Examples of synergy in growth business (Heat management)



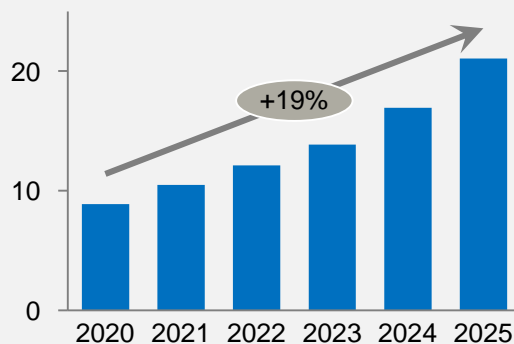
Heat management business (Power module)



Key related products

Aluminum specialty components
Ceramics
SiC epitaxial wafers
Sintered materials
Encapsulants

Projected power module market scale (mil. units)



Medium-to-long term technical challenge: Complexity of heat challenges due to vehicle digitization

With a shift to electronic control of vehicles, new **heat challenges** of built-in electronic devices will occur and **partial outsourcing** by power module manufacturers will begin as a result of expansion of their frontlines

- However, as issues such as interfacial resistance and control of difference in co-efficient of thermal expansion need to **be solved by combining materials**, simulation and module evaluation technologies are also required in addition to the materials lineup



Our competitive advantage: Offering of heat management materials package

Leverage our unique product line-up and analysis/module evaluation technologies to demonstrate functions resulting from combining materials to customers and solve technical challenges

- Particularly for SiC power devices, leverage the fact that we are the only company that has **SiC epitaxial wafers** among heat management materials providers and make **materials package proposals that draw out the potential of SiC**, with the aim of gaining top share in the market

 : Showa Denko business

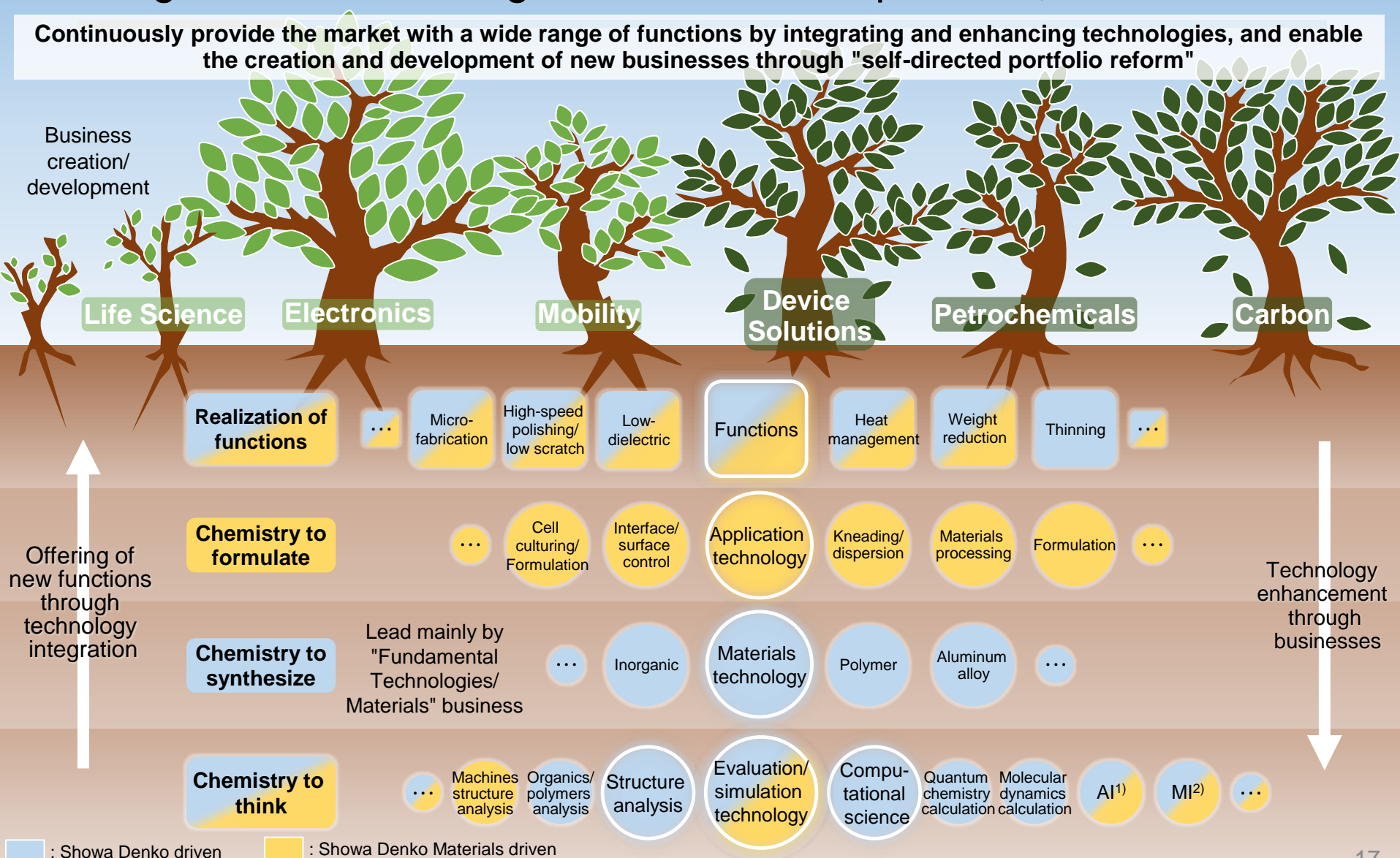
 : Showa Denko Materials business

1. Long-term vision and synergy for newly integrated company

Integration of technologies of the two companies



Continuously provide the market with a wide range of functions by integrating and enhancing technologies, and enable the creation and development of new businesses through "self-directed portfolio reform"

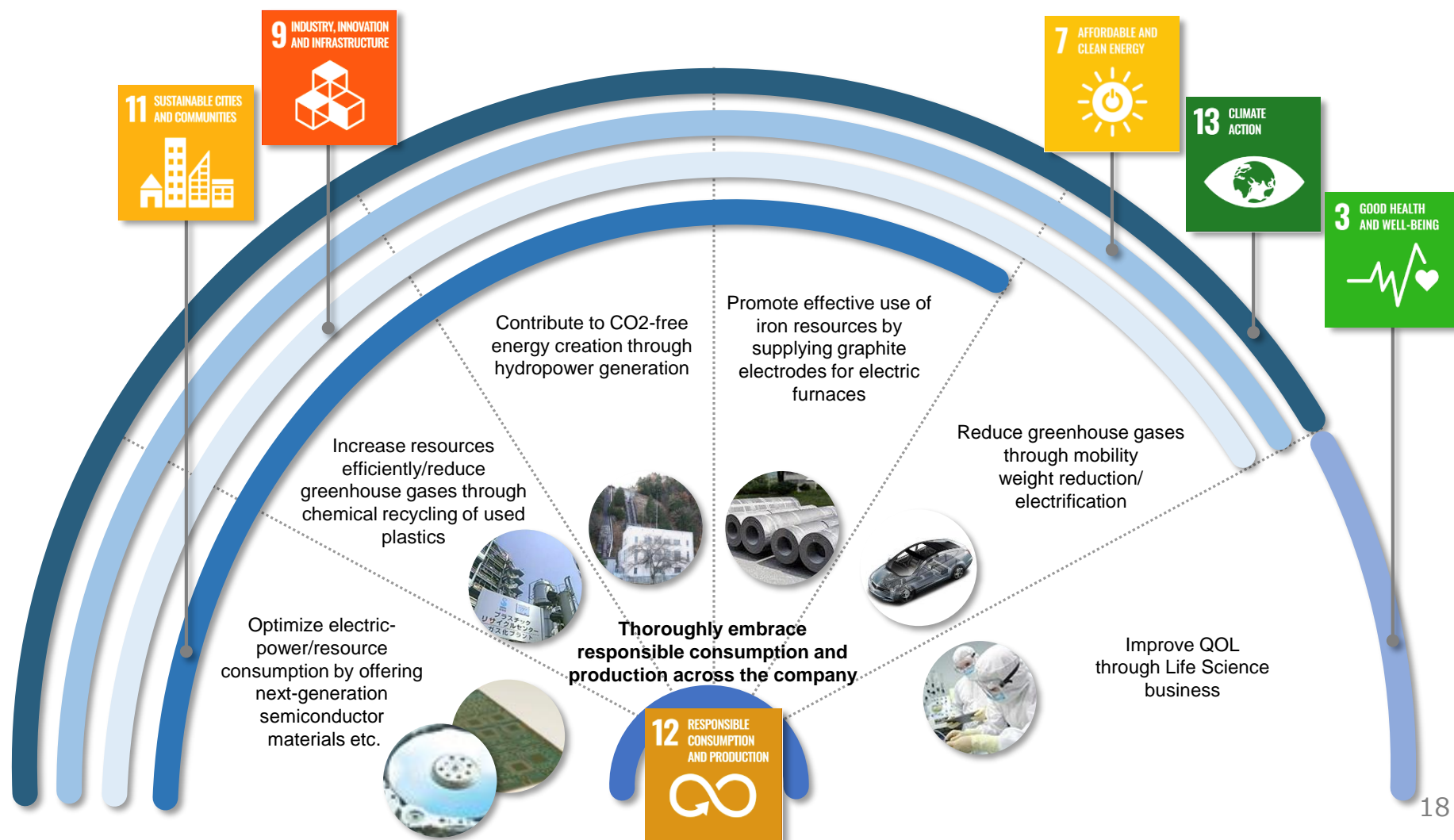


1. AI = Artificial Intelligence 2. MI = Materials Informatics

1. Long-term vision and synergy for newly integrated company

Examples of contributions to SDGs through diverse technologies and businesses

As a newly integrated company, contribute to SDGs through various technologies and businesses, and further strengthen ESG efforts



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2. Long-term numerical targets

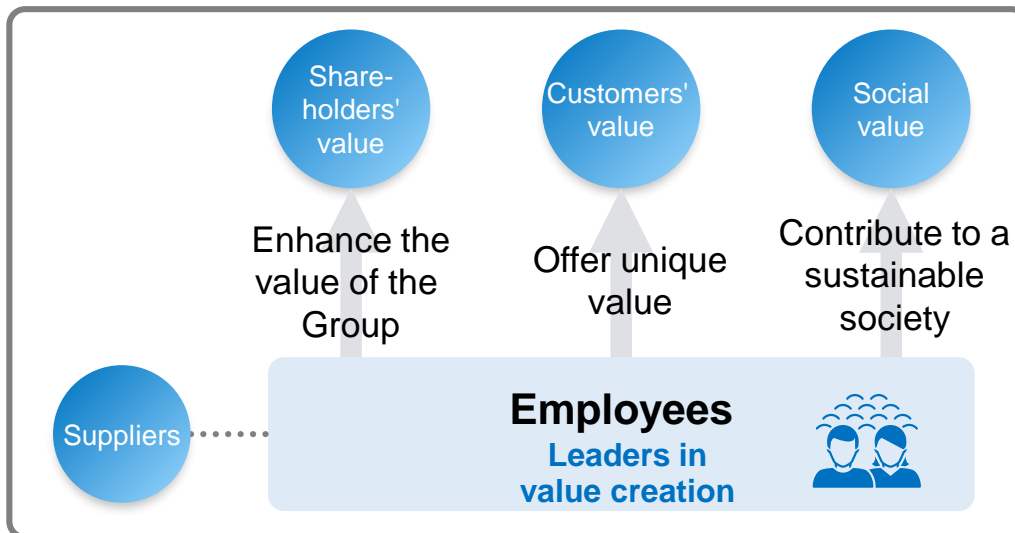
Thinking behind long-term numerical targets

Define TSR (Total Shareholders Return) as a comprehensive indicator of corporate value enhancement, with the aim of satisfying all stakeholders through various initiatives and synergy creation

Business philosophy

"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.



Perspective on management indicators

- Commit to "TSR" as a comprehensive indicator of corporate value enhancement
- As drivers for TSR (%) improvement, define EBITDA margin for business strategy and net D/E ratio etc. for financial strategy as KPIs

2. Long-term numerical targets



Long-term numerical targets

As long-term numerical targets for 2025, set EBITDA margin of 20%,
ROE of 15%, and net D/E ratio close to 1.0 times

		2020 ²		2025	2030
		(Institutional accounting basis)	(Annualized basis)		
TSR	(%)	Aim to be among Top 25% in chemicals industry over the medium to long term			
Sales¹	(Tri. yen)	0.96	1.2	1.6	1.8~1.9
EBITDA¹	(100 mil. yen)	500	900	3,200	
EBITDA margin	(%)	5%	8%	20%	
ROE	(%)	-22%	-	15%	
Net D/E ratio	(times)	1.9	-	Close to 1.0	

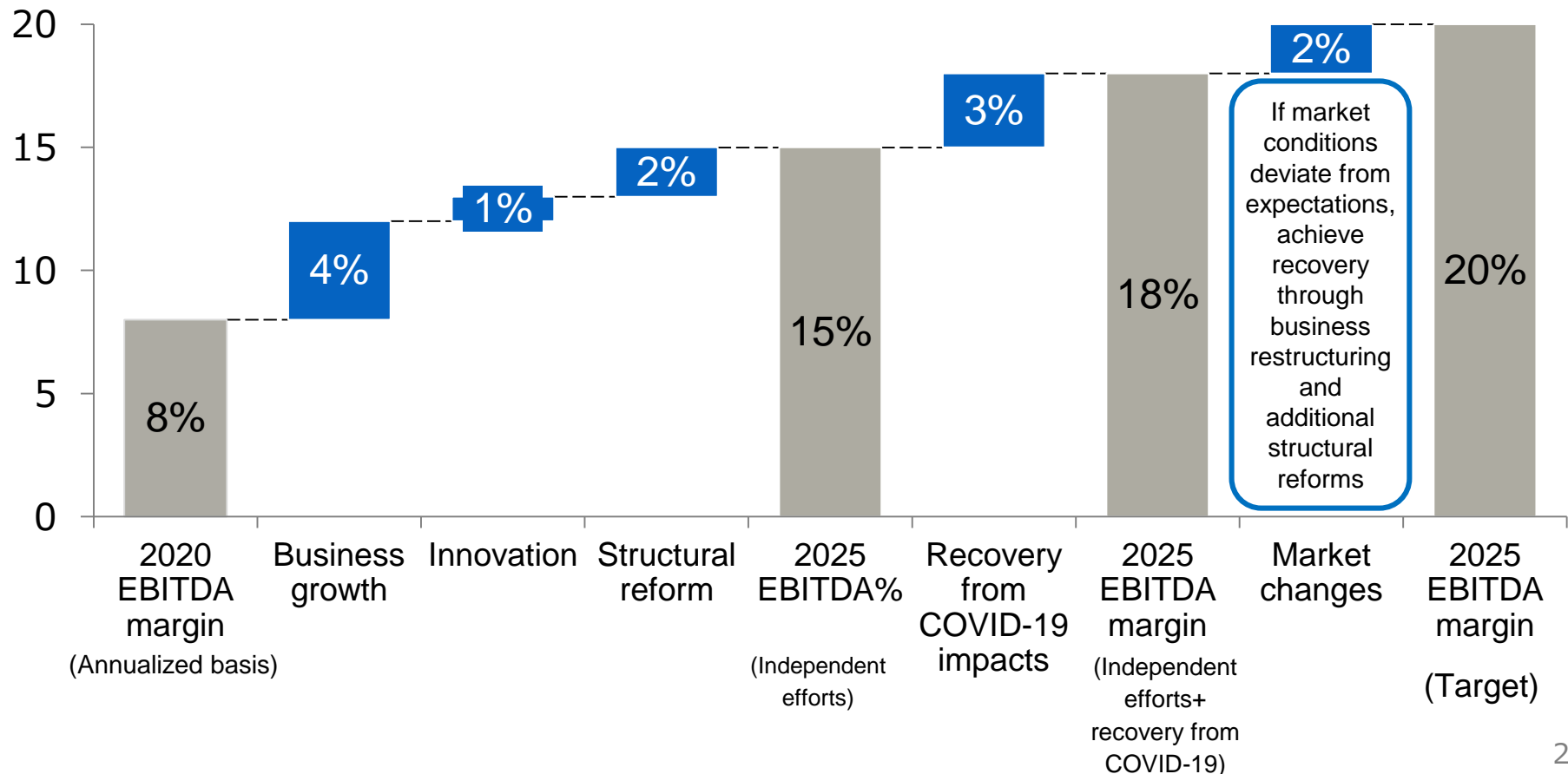
1. Approximate values in case of future sale of the business are not taken into consideration; 2. Institutional accounting figures include the results of Showa Denko Materials for the second half of the year (Jul. 2020-Dec. 2020) as of the 2Q financial results on August 12. Annualized figures are the combined figures of Showa Denko Materials' figures (Jan. 2020-Jun. 2020) and the institutional accounting figures (excluding an increase in COGS related to inventory step-up)

2. Long-term numerical targets

Profit improvement drivers through 2025

Achieve EBITDA margin of 20% in 2025 through business growth and innovation, with a focus on Electronics/Mobility, as well as structural reform and recovery from COVID-19, etc.

(EBITDA margin)

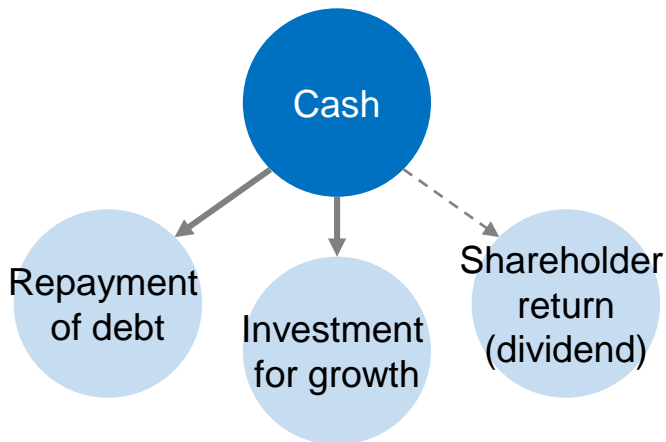


2. Long-term numerical targets

Shareholder return policy

For the time being, strive to pay out dividend as stably as possible, while prioritizing necessary growth investment and bringing net D/E ratio close to 1.0 times, and after that, aim for total return ratio of 30% over the medium to long term

Priorities in cash distribution



In view of the post-integration situation, it's necessary to prioritize debt repayment and growth investment to a certain degree in order to increase profits

Medium-to-long-term policy on shareholder return

- For the time being, prioritize repaying debt to **bring net D/E ratio close to 1.0 times** as well as investing in growth businesses, while striving to pay dividend as stably as possible
- Once net D/E ratio is brought close to 1.0 times in the medium term and a certain level of business growth is achieved, **aim for total return ratio of 30%** once again

2. Long-term numerical targets

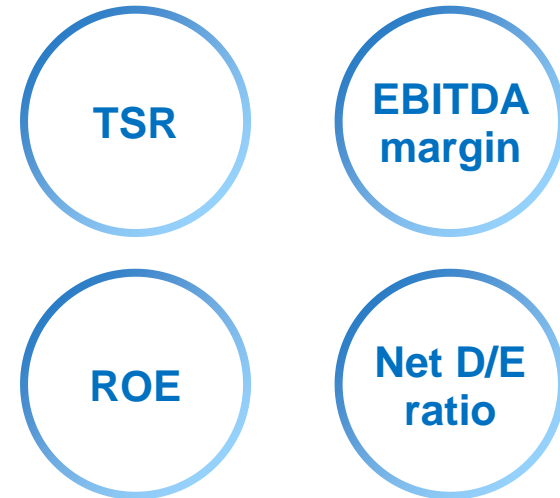
Thinking behind compensation system

Link a portion of executive compensation to management indicators to ensure that management is committed to achieving results
(specific indicators and weighting for each item are under consideration)

Thinking behind compensation system

- With the business philosophy "We will satisfy all stakeholders," all executives are committed to realizing it
- Link executive compensation to management indicators to enhance corporate value so as to ensure that management is committed to delivering results

Example KPIs linked to compensation



- Target KPIs, weighting for each item, and performance-based compensation ratio are under consideration

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organizational integration)

Overview of short-to-medium-term initiatives

As short-to-medium-term initiatives, we will steadily restructure our business portfolio, improve profit structure, streamline assets, and fully integrate organizations

Business portfolio restructuring

- Restructure business portfolio, and sell off businesses with EV (enterprise value) equivalent to 200 bil. Yen

200 bil.
yen

Sell-off of
businesses

Improvement of profit structure/ asset streamlining

- Cut direct/indirect costs through integration
- Reduce working capital, sell off marketable securities, etc.

25 bil.
yen +

Profit
improvement

50 bil.
yen

Asset
reduction

Organizational integration

- Substantively integrate organization in 2021
 - Unify chain of command in July, integrate head office in October
- Fully integrate as a corporate entity in 2023

3. Short-to-medium-term synergy



Initiatives to improve profit structure (1/2)

With cumulative initiatives, we're on track to achieve an impact of 28 billion yen on the current profit structure

	Initiative description	Amount of profit improvement (FY23, 100 mil. yen)
Sales-related profit improvement	<ul style="list-style-type: none"> Review sales policy for customers/agents, etc. 	30
Procurement/logistics cost reduction	<ul style="list-style-type: none"> Consolidate common materials/logistics-related suppliers Share transportation vehicles, warehouses, staff, etc. 	30
Productivity improvement	<ul style="list-style-type: none"> Improve productivity of production lines 	20
Rent reduction	<ul style="list-style-type: none"> Reduce rent by integrating head offices 	10
Reduction of other costs	<ul style="list-style-type: none"> Reduce common costs, SG&A, etc. 	70
Operational optimization	<ul style="list-style-type: none"> Carry out structural reforms through organizational integration and operational efficiency improvement 	120 (1,500 staff)
Companywide total		280

3. Short-to-medium-term synergy

Initiatives to improve profit structure (2/2)

Achieve a cumulative impact by steadily implementing the following initiatives

Example of improvement initiatives



Profit increase through new product development/ cross-selling

- Increase profits through development of Showa Denko Materials' products by utilizing Showa Denko's materials, and cross-selling between the 2 companies



Further reduction of materials cost through integration

- Realize further synergy through integration of procurement organizations, and evolve cost reduction activities



Consolidation of operational sites

- Reduce rents by consolidating sites in Japan and abroad, with the exception of head offices



Productivity improvement for post-integration organization




- Raise productivity by improving operations, including digitization, and reviewing management systems

⋮

3. Short-to-medium-term synergy

Asset streamlining

Forecast 50 billion yen for immediate countermeasures against deteriorating economic environment (through 2021);
Also need to consider additional initiatives over the medium to long term

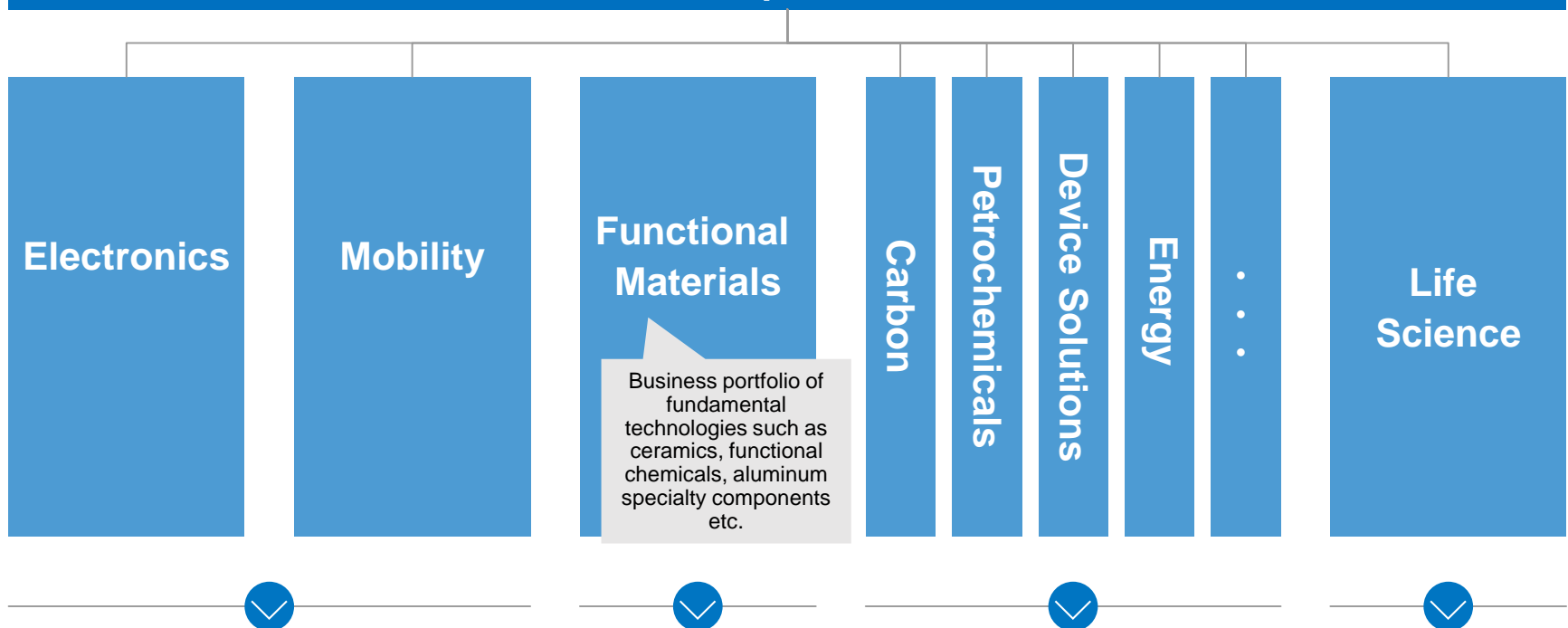
	Initiative description	Expected amount (100 mil. yen)
 Reduction of Working capital	<ul style="list-style-type: none">Compress inventory through supply chain improvement, etc.	250
 Sell-off of marketable securities	<ul style="list-style-type: none">Sell off cross-shareholdings	200
 Sell-off of other assets	<ul style="list-style-type: none">Sell off shares of affiliatesSell off excess assets	50
Companywide total		500

3. Short-to-medium-term synergy

Organizational/business integration and restructuring

Integrate/restructure Showa Denko's and Showa Denko Materials' businesses,
based on strategic business positioning

Corporate



"Core Growth" business

- Aggressively invest in target businesses for significant future growth; proactively manage businesses, including leading development and marketing and making investments

"Fundamental Technologies/ Materials" business

- Technological platform business that support innovation

"Stable Earnings" business

- Revenue base that generates stable profits and investment funds for the company

"Next-Generation" business

- Promote investment while verifying business feasibility to develop as next-generation pillar

3. Short-to-medium-term synergy

Organizational integration-Cooperation among head office functions (Research & Development)



Institute for Integrated Product Development aims to create synergy by fusing diverse and dispersed technologies from Showa Denko and Showa Denko Materials

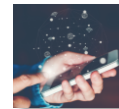
"Stage for Fusion" overview (Kanagawa Ward, Yokohama City)



※Scheduled to be completed in spring 2022

- Create and promote research and development themes that connect diverse technology fields through fusion of information across businesses
- Also functions as a center for collaboration with external domestic/overseas partners

Example themes



Development of materials and composites for next-generation high-speed communication

- Leverage Showa Denko's ceramic and organic synthesis technologies and Showa Denko Materials' composite technologies to create elemental technologies and new materials required in the 5G era



Creation of a platform from the perspective of SDGs/ ESG investment

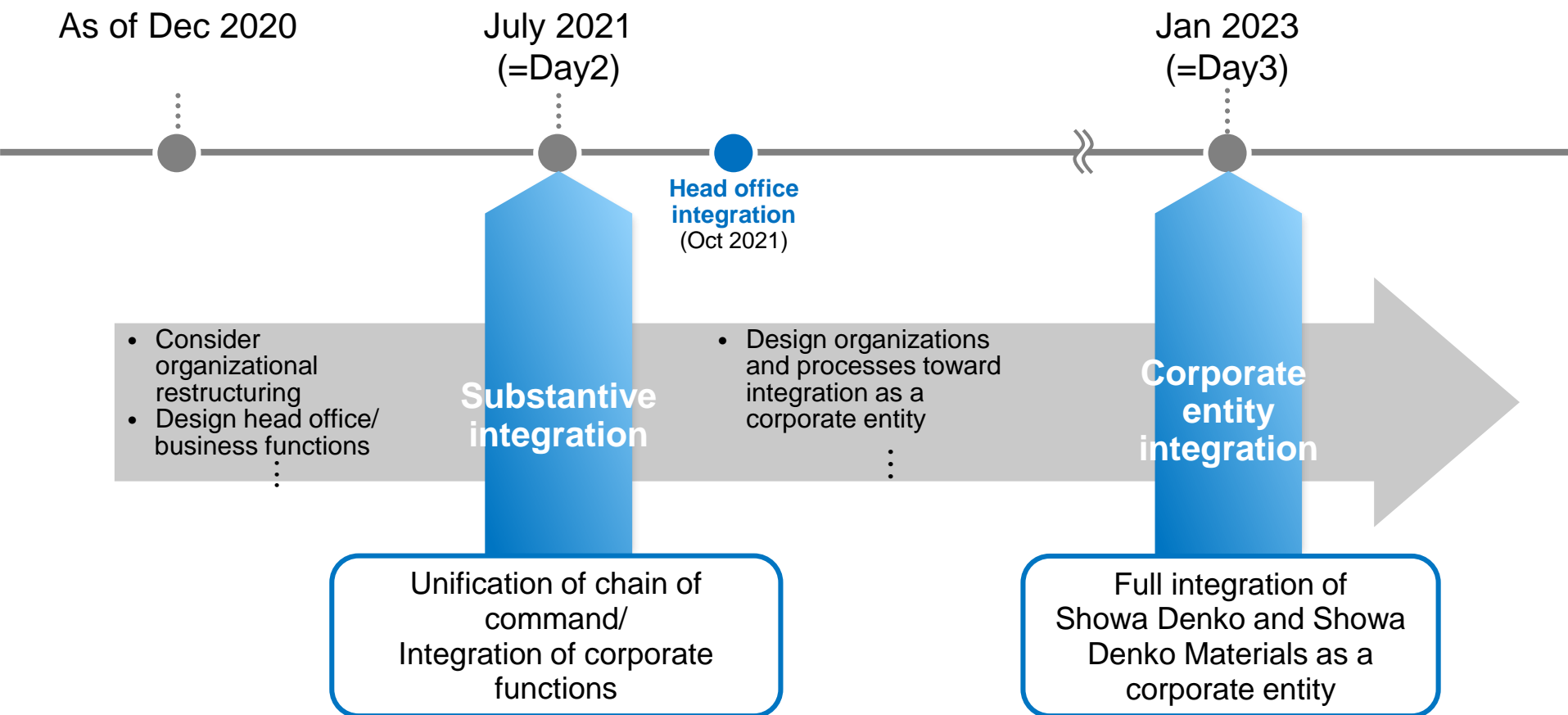
- Ensure that the perspective and philosophy of SDGs/ESG investment takes root across the Showa Denko Group, and create new themes from a technological perspective

3. Short-to-medium-term synergy



Organizational integration-PMI progress, integration milestones

We're making steady progress on PMI, with the milestone of integration as a corporate entity in January 2023 (Day 3), following substantive integration in July 2021 (Day 2) and integration of head office in October of the same year



Project cumulative PMI costs of 16 billion yen over 2021 to 2023 period

Reference

Image of group performance for 2021/
Major businesses' short-term trends

Image of group performance for 2021

For 2021, we aim to achieve net sales of ¥1,250 billion or more, operating income of ¥40 billion or more, and EBITDA of ¥150 billion or more

	Performance forecast for 2020 ¹	Image for 2021	Difference (2021-2020)
(Billion yen)			
Net sales	960	1,250 or more	+290 or more
Operating income	-30	40 or more	+70 or more
EBITDA²	50	150 or more	+100 or more

1. Performance forecast for full-year 2020, including expected results of Showa Denko Materials for the second half of 2020, announced on August 12, 2020 concurrently with the financial results for the first half of 2020



















2. EBITDA = Operating income + Depreciation expense + Depreciation of goodwill

Major businesses' market environment & trends



2020: Sales and profit dropped due to COVID-19, but steady in semiconductor and electronics business

2021: Recovery of performance due to market recovery in 2H and the effect of cost reduction in 2020

	2020	2021 and after	Measures
 Graphite electrode	 <ul style="list-style-type: none"> Customers' inventory adjustment prolonged by COVID-19 ends Big reduction in sales and profit 	 <ul style="list-style-type: none"> Recovery in steel production will increase demand Sales and profit will improve 	<ul style="list-style-type: none"> Reduce production capacity. Normalize inventory. Cost reduction. Depreciate book value of inventory
 HD media	 <ul style="list-style-type: none"> Failed to achieve sales plan due to COVID-19 Watch US-China trade friction carefully 	 <ul style="list-style-type: none"> Expansion of data centers will continue to increase demand Sales and profit will increase 	<ul style="list-style-type: none"> Start to supply next-generation MAMR media Accelerate development of HAMR media
 Petrochemicals	 <ul style="list-style-type: none"> Sales/profit decreased due to COVID-19 and a fall in naphtha price. Recovery in China in 2H improved sales/profit. 	 <ul style="list-style-type: none"> Additional plants will be established outside Japan, but our plant will continue full capacity operation due to increased demand. 	<ul style="list-style-type: none"> Start full-scale production of new derivatives Continue to strengthen earning power
 High-purity gases for electronics	 <ul style="list-style-type: none"> Growth of the demand for semiconductors returns. Market growth of more than 10%/year continues under COVID-19. 	 <ul style="list-style-type: none"> Expansion of semiconductor market will continue. Demand for high-purity gases will maintain two-digit growth rate. 	<ul style="list-style-type: none"> Strengthen supply system in Asia and promote local consumption of locally produced products Cultivate US/European market
 Information and communication¹	 <ul style="list-style-type: none"> Steady growth of demand due to strong semiconductor market 	 <ul style="list-style-type: none"> Through continuous response to the progress in 5G technology, we will achieve high growth rate. 	<ul style="list-style-type: none"> Promote development of new products Invest positively in promising fields
 Mobility¹	 <ul style="list-style-type: none"> Demand for cars in the world is recovering, following the recovery in China. Recovery started in 2H. 	 <ul style="list-style-type: none"> Through solid launch of products for new models, we will realize business growth that exceeds market recovery. 	<ul style="list-style-type: none"> Steadily start production of backlog new products R&D for development of products in line with the trend

Legends:  Growth or steady ;  Partial demand recovery ;  Stagnant market ;  Weak demand, adjustment of production

Graphite electrodes: Demand bottoms out and recovers

In 2020, we devaluated inventory of GEs in the 1H to be in line with a decrease in demand caused by a decrease in steel production, and achieved normalization of inventory at the end of the year. In 2021, we will improve sales and profitability through reduction of inventory, cost reduction and complete adjustment of supply and demand. In a medium term, demand will continue to increase, and our GE business will show good performance.



Performance/
Market
environment

2020



Inventory adjustment to cope with COVID-19 will end by the end of 2020
High-price NC¹ inventory strains income

- Demand for steel drastically deduced due to the impact of COVID-19
 - Global demand except China: -13.3% (Global demand: -2.4%)
- Customers' inventory adjustment will end in Asia first. Then it will be completed worldwide by the end of 2020. Demand for GE will start to recover soon.

2021 and after



Steel production will recover gradually
Normalization of production capacity
Cost reduction. Effect of devaluation of inventory's book value will be realized

- Demand for steel will increase steadily in medium to long term
 - Global demand except China : +9.4% (Global demand : +4.1%)
- SDK's sales of GEs: Up 30,000t ('20 to '21)
 - Demand will recover due to economic recovery and completion of customers' inventory adjustment
 - Market is bottoming out

Measures

- Normalize inventory
 - We have been reducing inventory, and will achieve proper inventory by the end of 2020 → Improve profitability
- Cost reduction. Application of LCM. We decided to close Meitingen Site in Germany, and implemented layoff.
- Continue normalization of inventory
- Promote cost reduction
- Realization of the effect of low-cost NC inventory
- Streamline production capacity
 - We will close Meitingen Site. Closure will start from upper process. The site will be closed completely by the end of 1H 2021. → We will realize cost reduction effect.

Demand for HD media for use in data centers is strong

We will increase supply of high-quality large-capacity media



Performance/ Market environment

2020



Though market was affected by COVID-19, demand for HD media for use in data centers remained strong

- Due to COVID-19, demand for HD media decreased and we failed to achieve sales plan. We pay close attention to US-China trade friction
- Demand for HD media for use in near-line servers increased steadily. However, shift from HDD to SSD in the demand for storage for PCs and game machines was accelerated.
- →Demand for external HDDs for PCs is strong
- Shipment volume of HDDs for use in near-line servers in 2020 will be an all-time record exceeding 60 million units

Measures

- Increase supply of high-quality large-capacity HD media
 - Continue development of “Best in Class” products
- Prepare for mass production of next-generation MAMR technology media
- Develop media for HAMR technology
- Continue productivity improvement and cost reduction

2021 and after



Expansion of data centers continuously increases the demand for HD media

Sales and profit will increase

- Increase in demand for data centers will continue, and the demand for large capacity media for near-line servers will be strong
 - Largest-ever shipment volumes of HD media is expected
- As preparation to increase the supply of high-quality large-capacity media, we will increase our capacity to produce aluminum substrates and strengthen supply chain
- Start mass production of MAMR media and accelerate development of them
- Continue development of HAMR media
- We will improve productivity and reduce cost through utilization of IoT/AI

The plant has been operating at full capacity since mid 2020
We ensure profitability by taking the advantage of recovery of demand



Performance/
Market
environment

2020



Sales and profit decreased.
However, sales and profit started to recover in 2H due to the recover of Chinese economy

- In the 1H, operating rate decreased due to a decrease in demand caused by COVID-19. In the 2H, the plant has been operating at full capacity due to the recovery of Chinese economy
- Negative spread in naphtha and crude-oil prices in 1H depressed yearly profit
- In addition to the increase in demand for packages for food and daily necessities, recovery of car production has been increasing demand for petrochemicals

Measures

- Start production of new derivative (1,3-BG)
- Improvement in catalysts enabled us to continue operation of ethyl acetate plant for 2 years
- Continue effort to strengthen revenue base, improve profitability and stability
 - Cultivate new customers. Extend life of catalysts. Predict equipment failure and execute preventive maintenance. Develop new derivatives
- Thorough execution of safe and stable operation.

2021 and after



Recovery of global economy will increase demand
Sales and profit will recover

- Though there will be negative impact of establishment of additional plants in Asian and Middle East countries, we will continue full-capacity operation since we anticipate increase of demand for petrochemicals in East Asia
- Crude-oil and naphtha prices will be stable. Spread between production cost and sales price of major products including ethylene will increase.
- Establish sales portfolio which is resistant to income fluctuation
- Improve profitability of organic products through improvement on catalysts and operation management
- Implement flexible procurement of raw material responding to changes in market environment
- Strengthen export taking advantage of location, and maintain high operating rate.

High-purity gases for electronics

Two-digit growth rate of high-purity gas business will continue due to the increase in demand for semiconductors



Performance/
Market
environment

2020



Booming semiconductor market increases demand Increase in sales and profit

- Progress in micromachining technology for semiconductor circuits and multi-layering of 3D-NAND flash memory chips increases demand for high-purity gases.
- Progress in digital transformation (DX) increased the demand for semiconductors
- Spread of teleworking and staying at home increased the demand for information terminals, and the increase in data traffic triggered recovery of investment in data centers. As a result, semiconductor market remains prosperous, and the demand for high-purity gases continues strong.

Measures

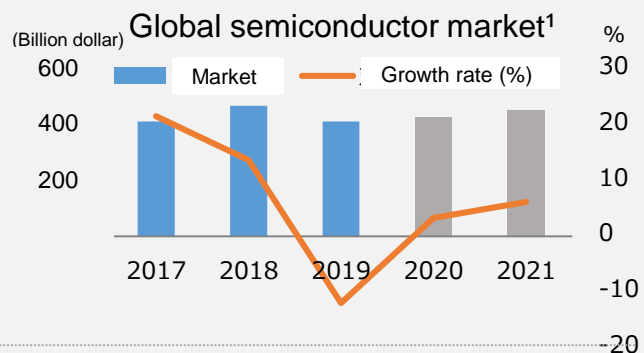
- To respond to strong demand for high-purity gases from overseas, we continued strengthening stability of supply system
 - Established additional production facilities in Taiwan
 - Started operation of a new distribution site in Xi'an, China
 - Established a JV in Sichuan, China

2021 and after



Growth of semiconductor market will increase demand for high-purity gases. Two-digit growth surpassing the market growth will continue

- Demand for semiconductors remains strong due to the spread of DX
- Demand for high-purity gas will continue to increase due to startup of new production lines, which was delayed by COVID-19, and progress in multi-layering of 3D-NAND



- Continue strengthening stability of supply system and the system to promote local consumption of locally produced high-purity gases
 - Continue strengthening global SCM system
 - Start operation of additional facilities in Shanghai
 - Strengthen marketing in Europe and the US

Rapid growth of semiconductor market will continue. Recovery of smartphone market will also help us to expand the business



Performance/
Market
environment

2020



We confirmed recovery of the demand for smartphones and growth of the demand for semiconductors

- We are coping with the increase in the replacement demand for smartphones equipped with 5G technology
- The demand for solid state drives for use in servers and CPUs are increasing
- Investment in data centers is increasing

Measures

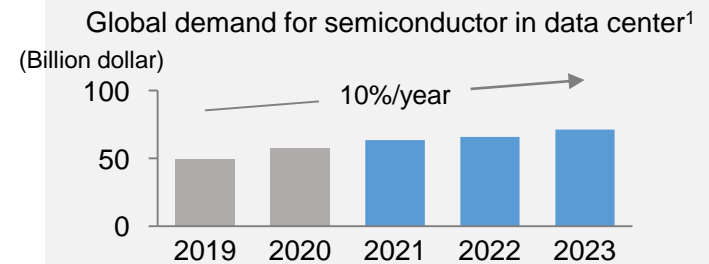
- New plant in Taiwan starts operation
 - We produce substrate for high-performance multilayer semiconductor chips
- To maintain growth and leading position in the industry
 - We continue aggressive investment in semiconductor related technologies. We develop next-generation package at the Packaging Solution Center

2021 and after



Investment in 5G technologies leads to growth of the market

- Investment in 5G technologies will increase demand for servers. Recovery of the demand for smartphones is expected.



- Establish overwhelming brand power in the field of semiconductor packaging material
- Increase our presence as a partner to semiconductor manufacturers
- Continue aggressive investment in the fields of leading-edge technologies where rapid growth is expected, including 5G, AI, and advanced driver-assistance systems (ADAS)

Mobility (Showa Denko Materials)

Ensure steady start of production of backlog products for new models, and aim to achieve more-than-market-average growth



Performance/
Market
environment

2020



Though car market was stagnant in the 1H, it is recovering in the 2H

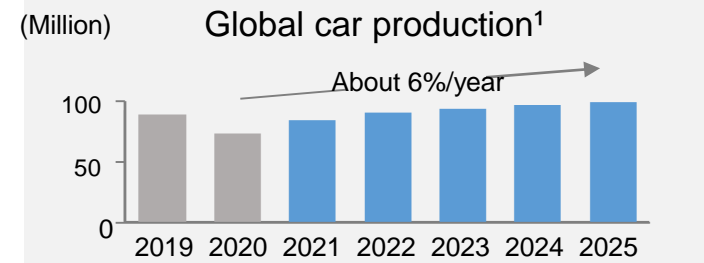
- Worldwide production of cars significantly decreased in the 1H due to the pandemic of COVID-19
- In the 2H, market prices of our products are rapidly recovering due to an increase in the demand for cars in China, Europe and the US and the start-up of production of new models

2021 and after



Mild recovery of car market is expected

- Recovery of car market and existing order for products for each manufacturer's new models will lead recovery of our business performance



Measures

- Start production of backlog parts for new models
 - Back doors, copper free disc pads, etc.
- Develop products for next-generation cars
 - Respond to the demand for weight reduction, electrification, and heat management
- Promote sales activities of products for promising next-generation models
 - Respond to the demand for weight reduction, electrification, and heat management
- Products for new models will contribute to recovery of our performance
- Start production of backlog products for new models steadily
- Continue development of products for next-generation cars. Strengthen marketing effort to promote sales of products for next-generation cars.
- Expand customer base, and increase sales to new customers in North America and Japan

Disclaimer

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 effect of the pandemic of COVID-19 on the world economy, 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.