



MITSUI KINZOKU

(Mitsui Mining & Smelting Co., Ltd. TSE5706)

FY2019 Progress of 2019-2021 Medium Term Business Plan

June 8, 2020

(Unit: Billion yen)

	2016	2017	2018	2019	2020 Forecast	2021 Middle Term Business Plan
Net sales	436.3	519.2	497.7	473.1	470.0	550.0
Operating income	38.5	49.5	18.2	13.0	10.0	37.0
Ordinary income	31.0	11.2	17.8	9.3	1.0	37.0
Profit (loss) attributable to owners of parent	18.7	-0.7	4.7	1.6	6.0	23.0
Free cash flow	-14.1	12.1	-4.1	1.3	16.0	* 50.0
CAPEX	37.7	40.4	36.1	34.0	36.0	* 105.0
Shareholders' Equity Ratio	33.5%	32.4%	32.5%	30.7%	30.5%	40.0%
D/E ratio (net)	1.10	1.11	1.15	1.22	1.26	0.70

* 2019-2021 3 years total

● 2019 Sales and Ordinary Income – Year-on-year Comparison

(Unit: Billion yen)

	2019 results		2018 results		Difference	
	Sales	Ordinary Income	Sales	Ordinary Income	Sales	Ordinary Income
Engineered materials	167.8	13.4	165.5	16.6	2.4	-3.2
Metals	161.1	-1.5	166.6	-6.0	-5.5	4.6
Automotive parts and components	90.6	0.5	104.0	4.7	-13.4	-4.2
Affiliates coordination	109.9	1.4	126.9	4.9	-17.0	-3.4
Adjustment	-56.3	-4.5	-65.3	-2.4	9.0	-2.1
Total	473.1	9.3	497.7	17.8	-24.6	-8.4

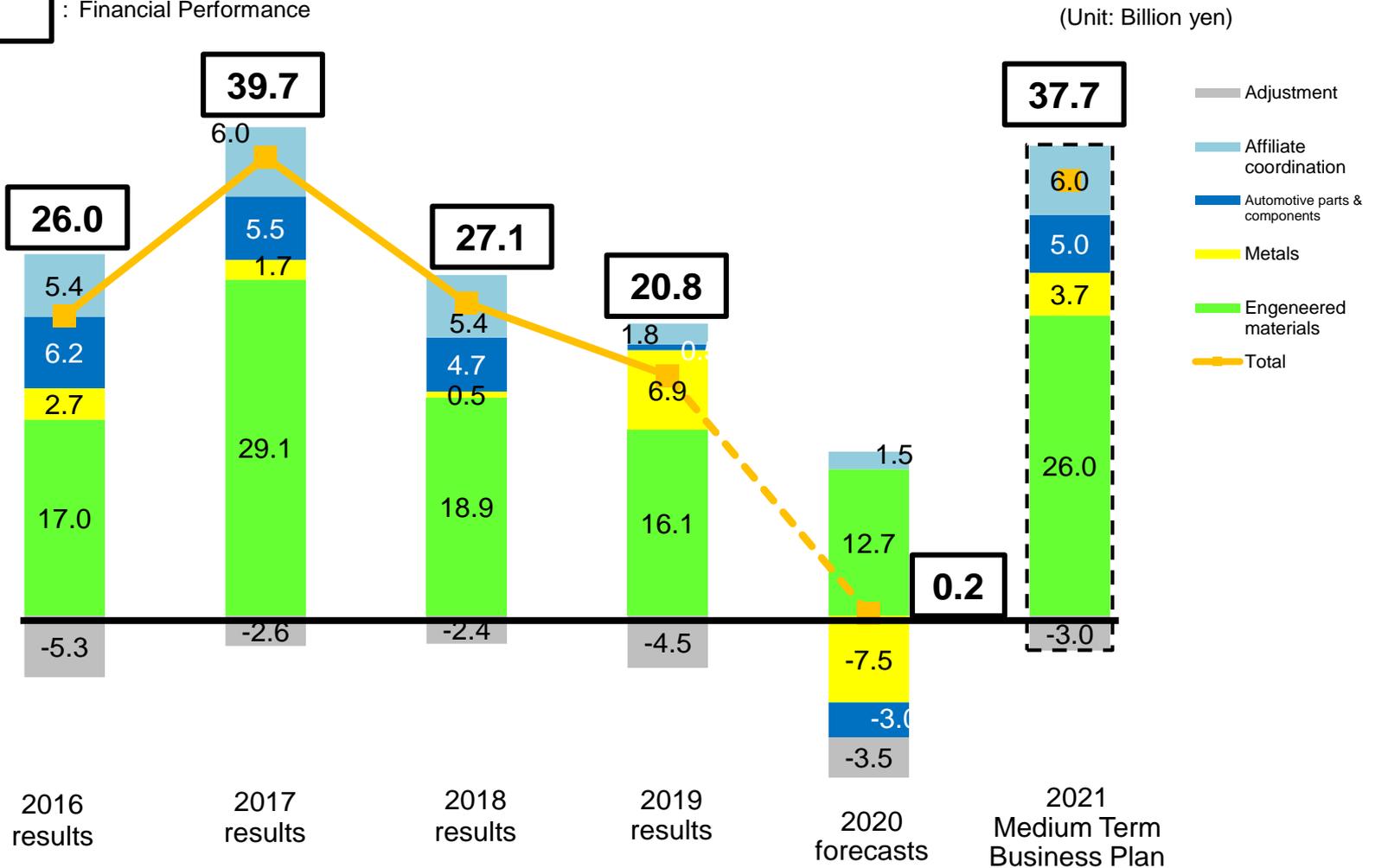
● 2020 Sales and Ordinary Income (Forecasts) – Year-on-year Comparison

(Unit: Billion yen)

	2020 results		2019 results		Difference	
	Sales	Ordinary Income	Sales	Ordinary Income	Sales	Ordinary Income
Engineered materials	168.0	13.0	167.8	13.4	0.2	-0.4
Metals	176.0	-7.0	161.1	-1.5	14.9	-5.5
Automotive parts and components	72.0	-3.0	90.6	0.5	-18.6	-3.5
Affiliates coordination	114.0	1.5	109.9	1.4	4.1	0.1
Adjustment	-60.0	-3.5	-56.3	-4.5	-3.7	1.0
Total	470.0	1.0	473.1	9.3	-3.1	-8.3

Trends in Financial Performance (excludes inventory factor, Caserones impairment)

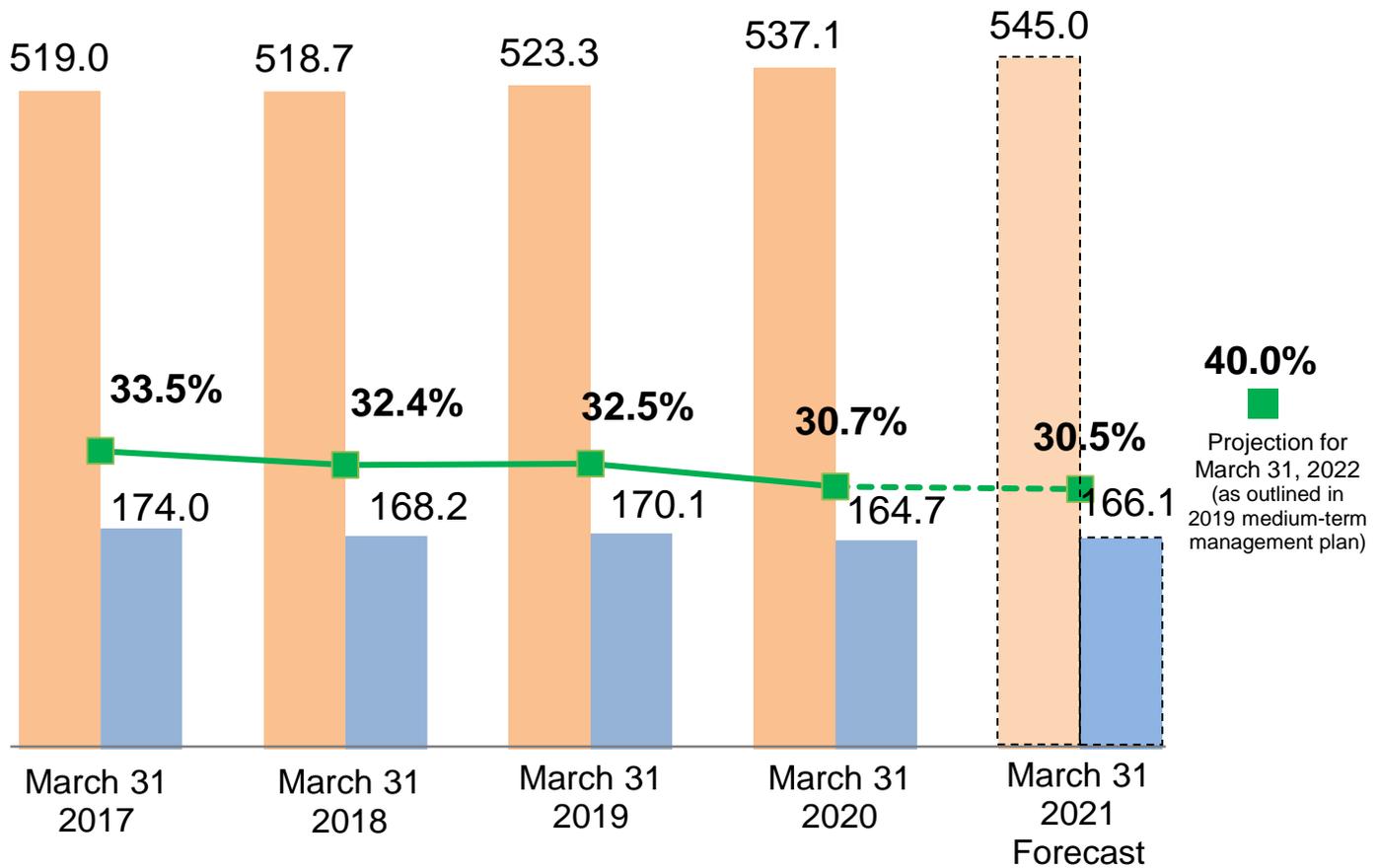
: Financial Performance



● Trends in Shareholders' Equity Ratio

(Unit: Billion yen)

■ Total assets
 ■ Net assets
 ■ Shareholders' Equity Ratio



Date	Segments/ Operations	Press releases	Remarks
Dec 5, 2019	R&D	<ul style="list-style-type: none"> • <u>Decision to introduce a mass production testing facility of solid electrolyte for all solid-state batteries</u> 	(see page 8)
Dec 19, 2019	Copper Foil	<ul style="list-style-type: none"> • Withdrawal of JX legal actions against Mitsui Kinzoku 	
Dec 19, 2019	Metals Copper Mine Management	<ul style="list-style-type: none"> • <u>Planned Revisions to Joint Structure for Copper Operations</u> 	(see page 18)
Dec 20, 2019	Copper Foil	<ul style="list-style-type: none"> • Selling off Copper Foil plant in the US 	
Feb 12, 2020	Metals Copper Mine Management	<ul style="list-style-type: none"> • <u>New Subsidiaries Created in Revising the Joint Structure for Copper Operations</u> 	(see page 18)
Mar 4, 2020	Copper Foil	<ul style="list-style-type: none"> • Mitsui Kinzoku Begins Mass Production of the Latest Thinner Carrier Product of Extremely-Thin Electrodeposited Copper Foil with Carrier MicroThin™ (Carrier thickness changed from 18μm to 12μm) 	
Mar 17, 2020	Metals Resources	<ul style="list-style-type: none"> • Mitsui Kinzoku responds to Peru's state of emergency declaration 	
Mar 18, 2020	Copper Foil	<ul style="list-style-type: none"> • Mitsui Kinzoku responds to Malaysia's COVID-19 restrictions 	

Actions to develop new business ideas

We established a new corporate sector (Business Creation Sector) to generate more products and business ideas with growth potential, and generate them more efficiently.

Co-creation strategy for generating new markets

- Cultivate tomorrow's opportunities with consumers and other external contributors (markets).
- Combine our resources* with those of external contributors to generate new products and markets.

Examples of our resources

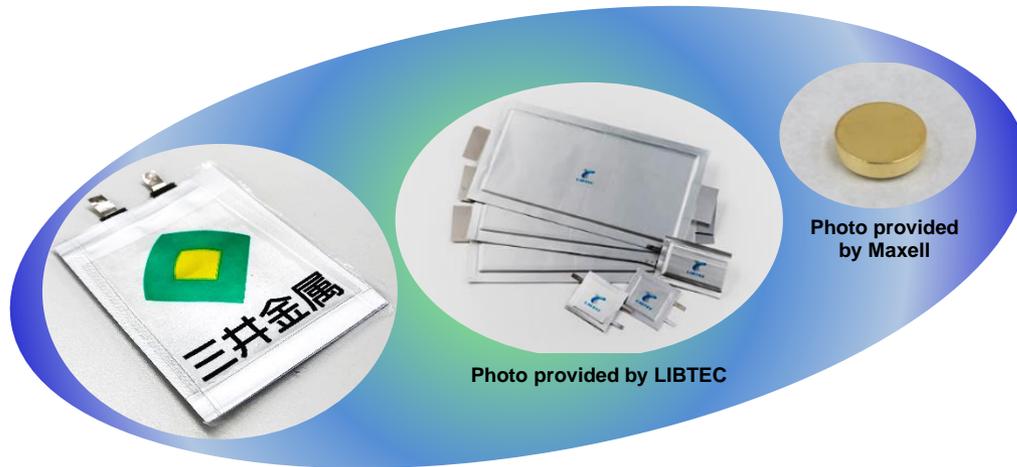
- Core tech
 - Electrochemical tech
 - Powder control tech
 - Complex compound tech
- Knowhow
 - Material design
 - Evaluation
 - Apparatus
- Sales channels
 - Electronic substrate / electrical device makers
 - Battery makers
 - Automakers



Progress in developing next-gen products

Solid electrolyte for All-Solid State Batteries (ASSBs)

(Press releases dated November 24, 2016, and December 5, 2019)



- Cultivating new markets
Product testing underway for multiple customers and applications
Practical trials for special applications should begin in FY2020
- Mass production
Technology is being prepared to enable mass production on existing lines
Pilot plant under construction
* Plant should go online in January 2021

HRDP®: Next-gen ultra-fine circuit material

(Press release dated January 25, 2018)



HRDP®

- Cultivating new markets
Product is being sampled among electronics makers
Practical trials in customers' facilities should begin in FY2020
- Mass production
Mass production tech being prepared with Geomatec

Progress in 2019 medium-term business plan

Business unit	Action plan for 2019–2021	Progress
Functional powders	<ul style="list-style-type: none"> Expand sales of 5G-related products Expand abrasives business 	<ul style="list-style-type: none"> Copper powders for electronics have sold less well than planned Abrasives business is proceeding as planned
Catalysts	<ul style="list-style-type: none"> Maintain share in motorcycle market Expand sales in automobile market and strengthen technology development 	<ul style="list-style-type: none"> Proceeding as planned in both motorcycle and automobile markets GPF catalyst launched and doing well
Copper foil	<ul style="list-style-type: none"> Expand sales of 5G-related products Expand MicroThin™ sales to HDI makers and non-smartphone PKG makers 	<ul style="list-style-type: none"> Sales of high-end electro-deposited copper foil for 5G applications better than planned MicroThin™ sales to non-smartphone PKG makers largely as planned; sales to HDI makers less than planned
PVD materials	<ul style="list-style-type: none"> Make ITOs and IGZOs more competitive and increase their share 	<ul style="list-style-type: none"> Need to rethink strategy in view of market downturn

■ copper powders for electronics (right)



■ catalysts for automobiles



■ MicroThin™



■ ITO sputtering targets (PVD materials)



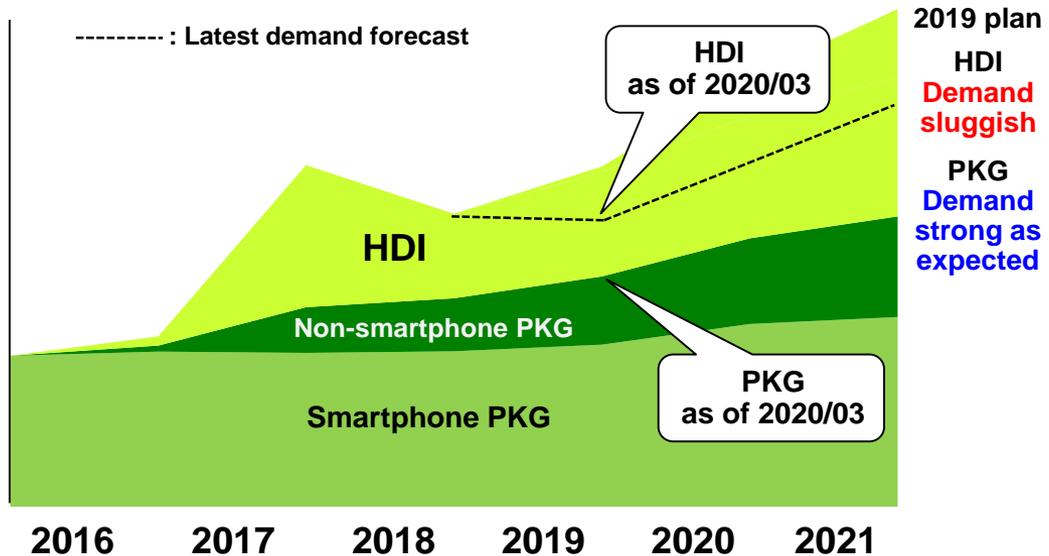
MicroThin™ for PKG* applications: 5G-related demand rising as expected

MicroThin™ for HDI** applications: Demand has dulled due to sluggish take-up of new applications; we await a fuller shift to 5G

* PKG = Package substrate **HDI = High density interconnect

Demand Forecast for MicroThin™

(change from forecast in 2019 plan)



- HDI applications
 - Demand failed to grow due to sluggish take-up of new applications
 - From FY2021, there will be...
 - More 5G smartphones
 - Greater uptake among Chinese firms

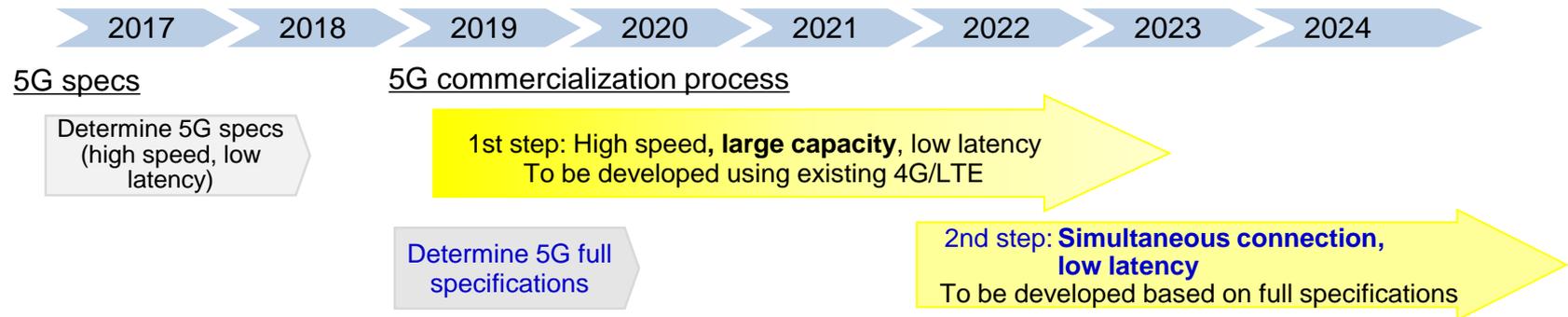
- PKG applications
 - Demand for non-smartphone applications (external memory, GPU*) strong as expected. Demand should continue to grow with transition to 5G.

* GPU = Graphics processing unit

Why demand for HDI applications has slowed

- New applications slow to emerge
- Electronic substrate designs have been efficient
 - Fewer motherboard layers of MicroThin™
 - Better yield rate
- Competitor entering MicroThin™ market

5G roadmap

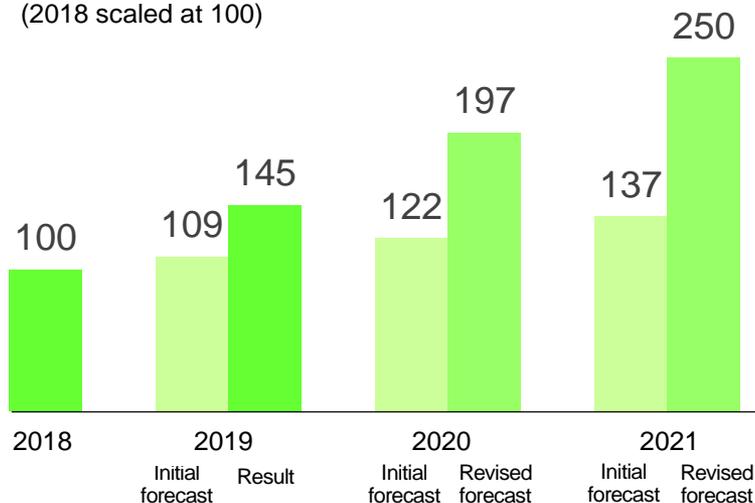


- Commercialization of 5G is already underway; market should blossom in 2021.
- Next phase will probably begin in FY2022; this will drive 5G-related demand for copper foil

Product for 5G market:

High-end electro-deposited copper foil

(2018 scaled at 100)

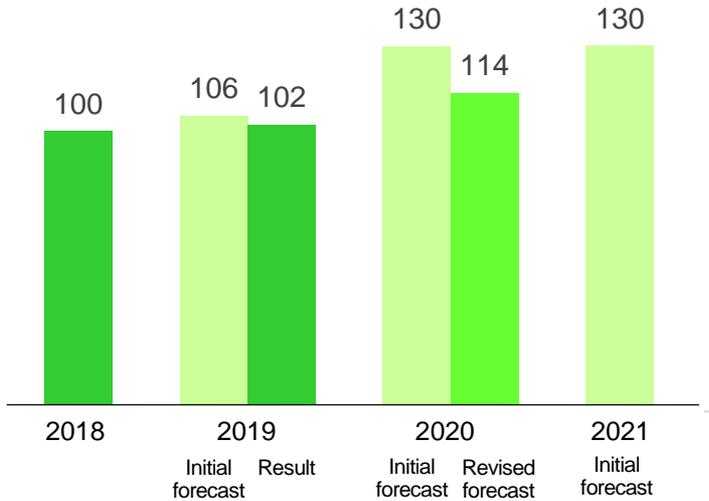


- For high-frequency communications: 5G-related demand for high-end electro-deposited copper foil is growing faster than expected; the demand should continue to grow
 - Demand for new applications is promising too
- ⇒ We are also optimistic about server-related demand for mid-range copper foil

Applications: Servers, routers, base stations

Expected sales of catalysts for motorcycles

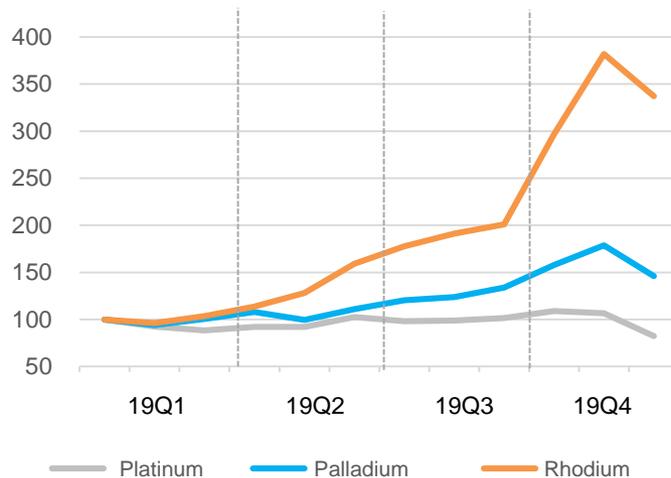
(2018 scaled at 100)



- Take-up should exceed FY2020 level amid need to comply with India's BS6 standard (in force from April 2020); however, sales will fall short of initial forecast due to COVID-19 impact
- * Factor behind higher take-up: Under BS6, some models require an extra catalysts (2 instead of 1 as before)

Precious metal price trends

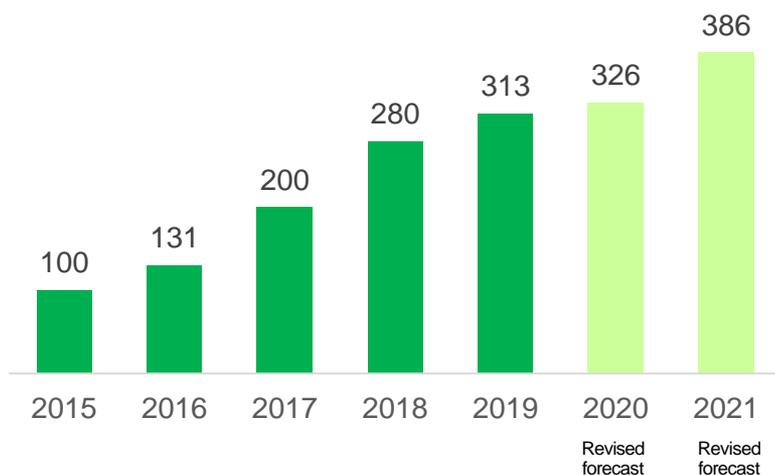
(April 2019 scaled at 100)



- FY2019 saw surge in palladium and rhodium prices; consequently, we recorded transient profits
- If the prices trend downward from the high level in FY2019, we may need to record transient losses; we will keep an eye on the price trends

Expected sales of catalysts for automobiles

(2015 scaled at 100)



Catalyzed GPFs for automobiles*



Catalyzed GPF production site in China GPF Mitsui Kinzoku Catalyst Zhuhai Co., Ltd. (Zhuhai, Guangdong)

- Amid a slow market, we are steadily winning orders for applications in new autos
- COVID-19 will have dented FY2020 sales, but sales should pick up again with new auto-related orders in Japan and India in FY2020 and beyond
- We may boost production capacity further to accommodate increased orders
- Plant edifice completed
Work is underway to install fittings/fixtures and connect to utilities
- Machinery for mass-producing GPF catalysts for gas-fueled automobiles to be fitted in Japan and China in 2021; mass production to begin in 2022
- Timing of expansion in sales for GPF applications in Japan will present excellent business opportunity for next medium-term business plan (starting in FY2022); will keep eye on regulatory trends

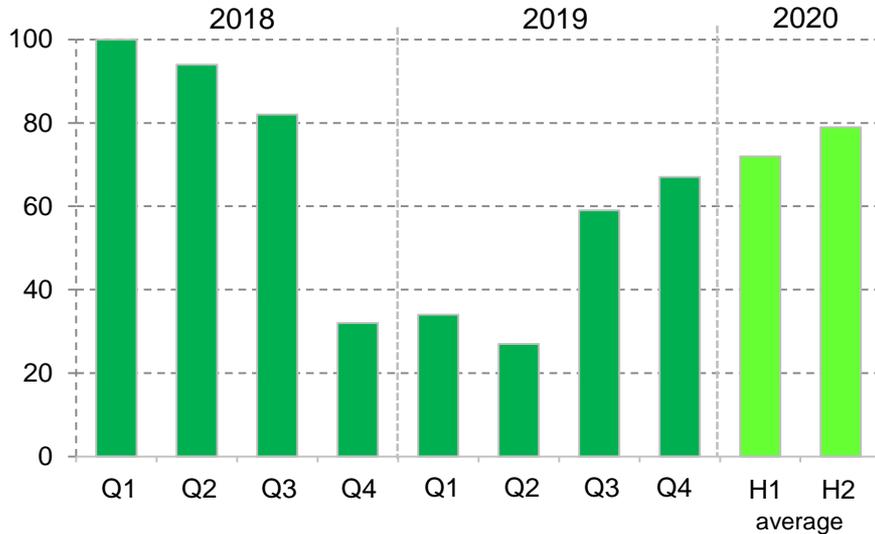
* Catalyzed GPF = a catalyzer that converts toxic gases into harmless gases and catches particulates (e.g. PM 2.5)

Engineered materials segment

- Copper powders and ITO sputtering targets for electronics

Sales of copper powders for electronics

(18Q1 scaled at 100)

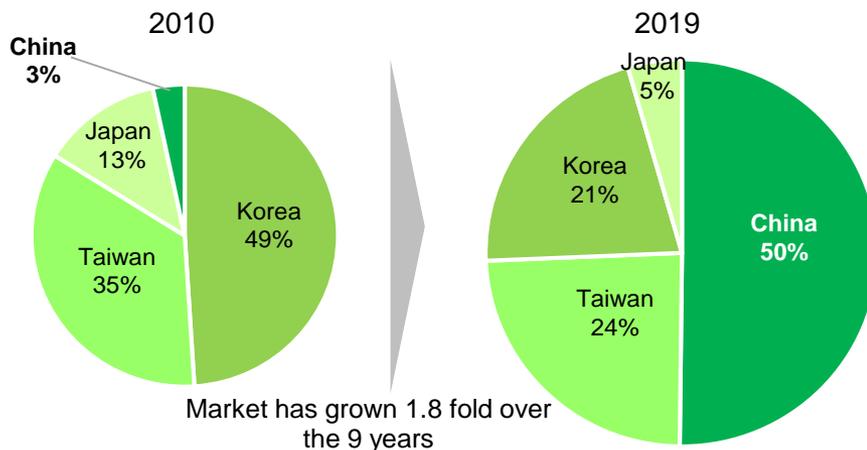


- Sales picked up in Q3 FY2019, but FY2019 sales results and FY2020 forecasts are short of FY2018 peak
- In the project to boost production capacity (see press release dated August 2, 2018), the work at the new Hikoshima plant has been delayed; it remains undecided whether/when investment in plant will be resumed.

Production sites: Hikoshima (Shimonoseki, Yamaguchi)

PVD materials (ITO sputtering targets)

Flat panel display production by country



- China became greatest panel producer in 2017. Panel makers are suffering due to excess money supply (helicopter money).
- To implement the business shakeup plan prepared last year, project teams for the business units have launched efforts to cut costs and raise prices at all locations.

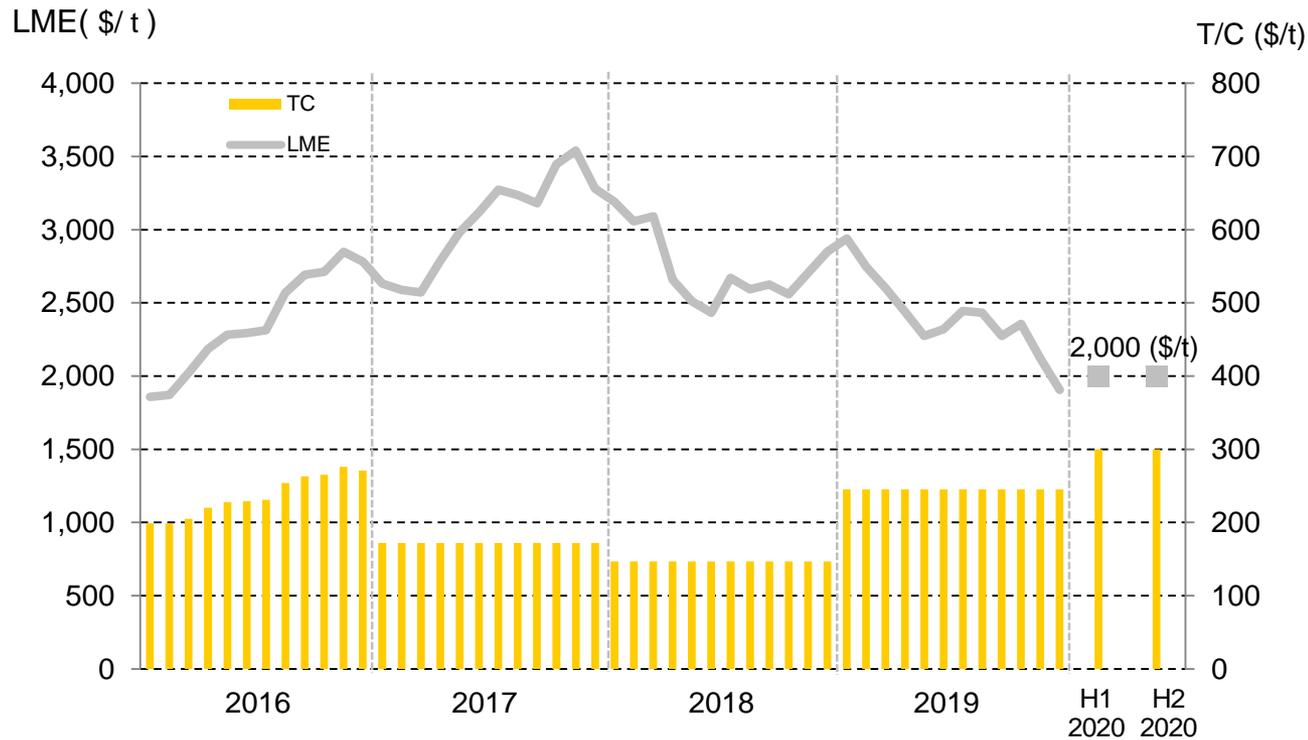
Action plan for 2019–2021

	Action plan for 2019–2021	Progress	Future policies
Smelting	<ul style="list-style-type: none"> Start operation at Kamioka hydropower station 	<ul style="list-style-type: none"> Power station started supplying power in April 2019 Power output as planned 	<ul style="list-style-type: none"> Ensure stable operation
	<ul style="list-style-type: none"> Increase processing of recycled materials (including lead) 	<ul style="list-style-type: none"> Increased processing as planned 	<ul style="list-style-type: none"> Further increase processing
	<ul style="list-style-type: none"> Sell more corrosion-resistant zinc alloys 	<ul style="list-style-type: none"> Boosting of production equipment proceeding as planned 	<ul style="list-style-type: none"> Develop products that meet needs of corrosion-resistant metal markets
	<ul style="list-style-type: none"> Make copper mining business more competitive 	<ul style="list-style-type: none"> Copper smelting spun-off as subsidiary 	<ul style="list-style-type: none"> Rebuild smelting network to recover more valuable metal
Mining	<ul style="list-style-type: none"> Support efforts to improve operations at copper mine 	<ul style="list-style-type: none"> Transferred operations to joint venture (NCR*) 	<ul style="list-style-type: none"> NCR to optimize operations

* NCR = Nippon Caserones Resources Co., Ltd.

Last year, zinc prices remained low amid a bearish market that was anticipating a surplus. At year end, zinc prices were below \$2,200/t. This year, the outlook has grown more cloudy still; zinc prices have dipped to \$2,000/t.

Trends in zinc price (LME) and treatment charge (TC)

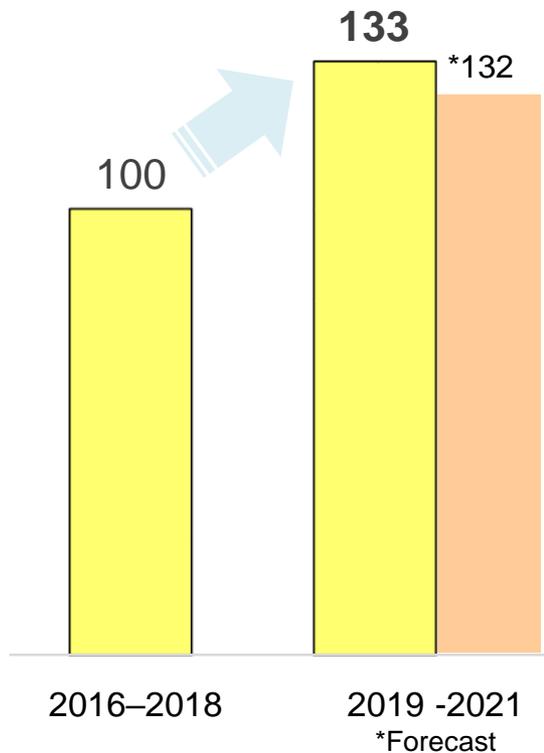


TC Benchmark	\$203/t (\$2,000/t)	\$172/t (-)	\$147/t (-)	\$245/t (-)	\$299.75/t (-)
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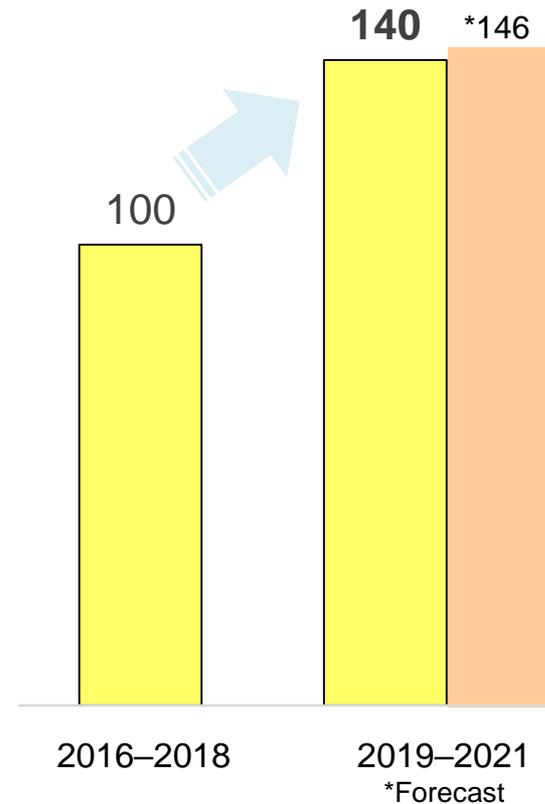
Levels of recycled raw material processing and secondary product production are markedly higher compared to time of FY2016 plan.

In particular, the level of recycled raw material processing has exceeded the forecast.

● Recycled lead processing



● Lead secondary product production

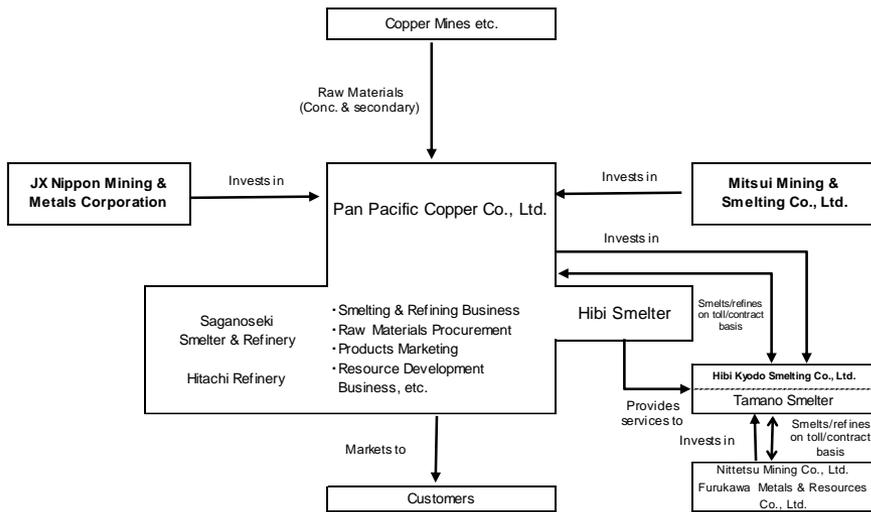


Metals segment - Restructuring of copper operations

Smelting operations have been spun off into Hibi Kyodo Smelting Co., Ltd (100% owned). The subsidiary will manage the operations directly.

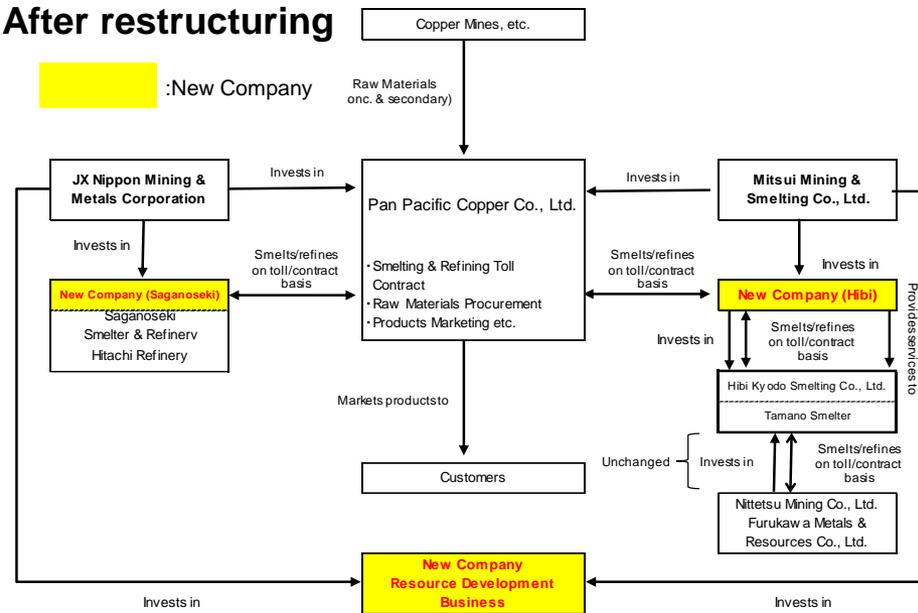
Of the mining operations, Caserones operations have been transferred to Nippon Caserones Resources Co., Ltd. The joint venture will focus on improving operations at the mine.

Before restructuring



(Note) Share Holding Ratio
 Pan Pacific Copper Co., Ltd.: JX Nippon Mining & Metals Corporation 67.8%; Mitsui Mining & Smelting Co., Ltd. 32.2%
 Hibi Kyodo Smelting Co., Ltd.: Pan Pacific Copper Co., Ltd. 63.51%; Nittetsu Mining Co., Ltd. 20.28%; Furukawa Metals & Resources Co., Ltd. 16.21%

After restructuring



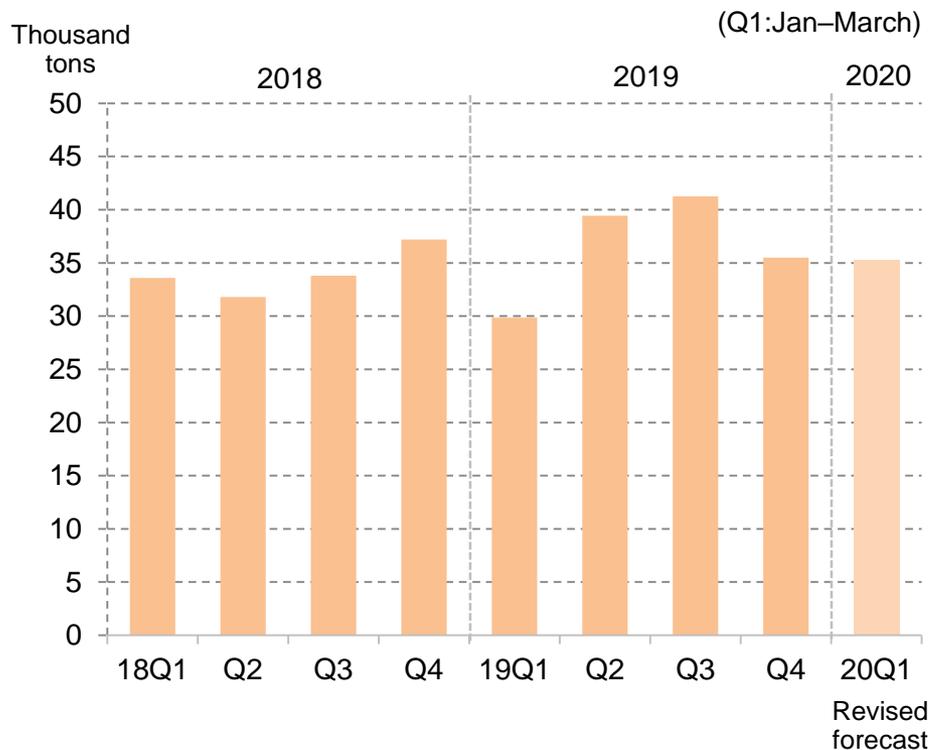
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 New Company (Hibi): Mitsui Mining & Smelting Co., Ltd. 100%
 New Company (Resource Development Business): JX Nippon Mining & Metals Corporation 67.8%; Mitsui Mining & Smelting Co., Ltd. 32.2%

By reorganizing and enhancing the smelting network, we hope to further boost the competitiveness of our copper smelting operations.

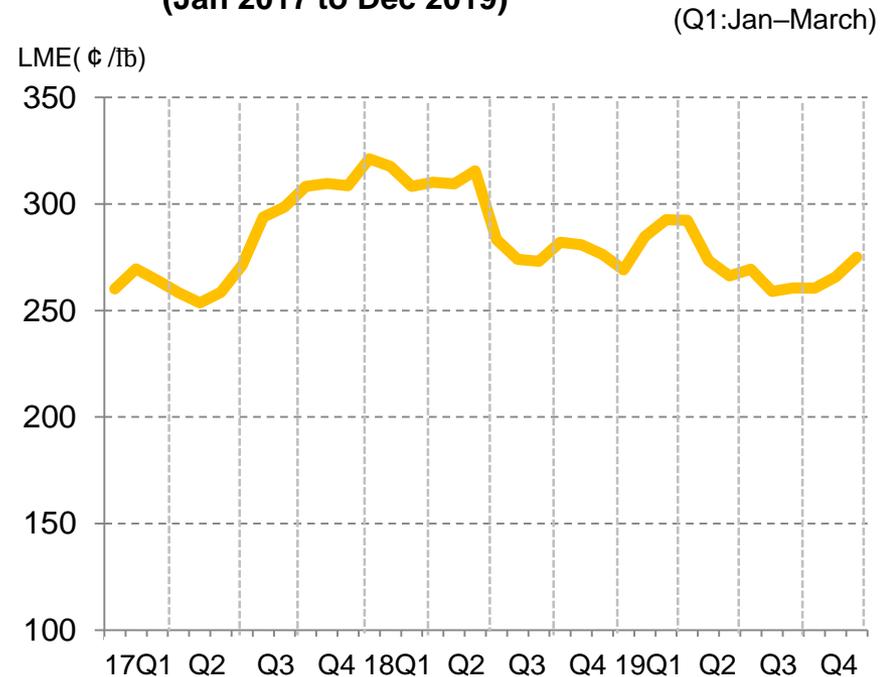
Operations were generally stable in FY2019, despite unrest in Chile. Output improved year on year.

In FY2020, operations deteriorated due to COVID-19. All efforts will be made to bring operations back to normal.

● Production trends (copper)



● Trends in Copper Price (Jan 2017 to Dec 2019)



Action plan for 2019–2021

Actions	Progress
<p>Win large strategic orders (expand sales) → Secure business for 2022 and beyond</p>	<ul style="list-style-type: none"> Continuing to promote system products for CASE mobility* <i>See next page</i> (with focused investment of business resources) We are midway in efforts to expand business and R&D organization in North America and Europe Moroccan plant completed; operations began in January 2020
<p>Improve cost competitiveness → Achieve 2019–2021 plan's goals; prepare foundation for 2022 and beyond</p>	<ul style="list-style-type: none"> Cut costs in proportion to smaller global market / sales → Cost-cutting helped put ordinary income into black Smartened and digitized overseas plants, reduced fixed cost through tighter investment controls, accelerated cost-cutting efforts → FY2020 profits up

Strategic orders were delayed due to change in client's plan, and efforts to improve cost competitiveness are ahead of schedule, but progress is largely as planned.

Sliding door system (example)

Power sliding door unit



Sliding door latch



Remote control unit



ECU

Moroccan plant
Mitsui Kinzoku ACT Tanger Maroc SARL



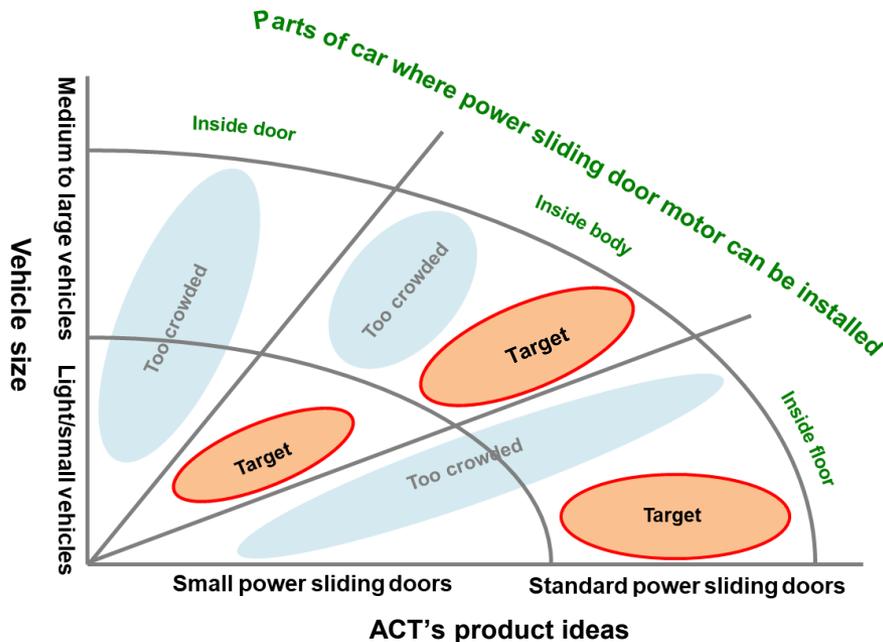
Product ideas and marketing for CASE* mobility; future vision

* CASE stands for Connected, Autonomous, Shared, Electric. It describes a new market trend for next-gen auto technology and services.

- The emerging CASE trend should fuel demand for door systems
- Leveraging our latch tech accumulated over long years, we will offer new door products and focus on CASE-compatible mobility applications. Eventually, we will extend the focus to automatic doors.

Power sliding doors: Target areas

The power sliding door motor can be installed in various parts of the car. We will target installation locations for which the market is not so crowded.



Evolution of ACT System products

Add value to vehicles by integrating our latch tech with motor parts, high-speed communications, sensor tech, and other new technologies.

Develop product ideas for automatic doors



Compact, light
Energy-efficient
High-speed
communication
Sensor tech

Easy Access Door System
Offers safety, comfort,
and a wow factor

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