APTSIS 20 Overview

APTSIS 20

Medium-Term Management Plan (FY2016–FY2020)

Basic policy

Be a high growth/high profit-model company through businesses in the Performance Products, Industrial Materials and Health Care domains

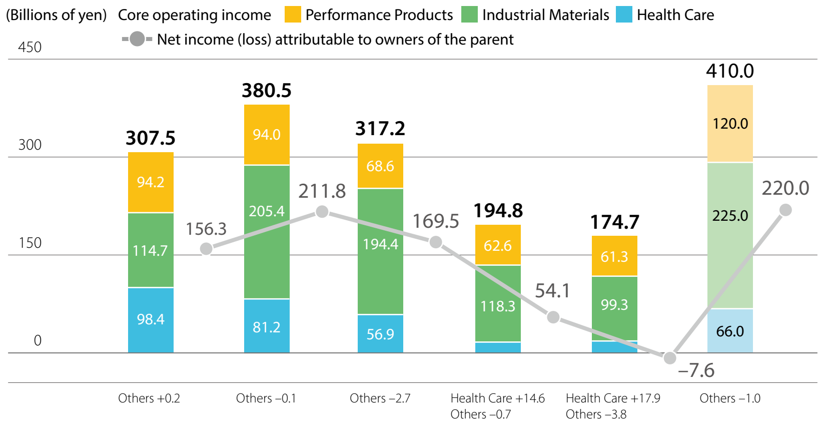
Growth | **Efficiency** | **Strengthening foundations**

- Promotion of integration and synergies in the MCHC Group
- Accelerate overseas business development and advance well-integrated management
- Strengthen portfolio management with an awareness of earnings
- Realize a highly productive corporate structure through cost-cutting and other measures
- Strengthen our financial position
- Thorough safety and compliance measures

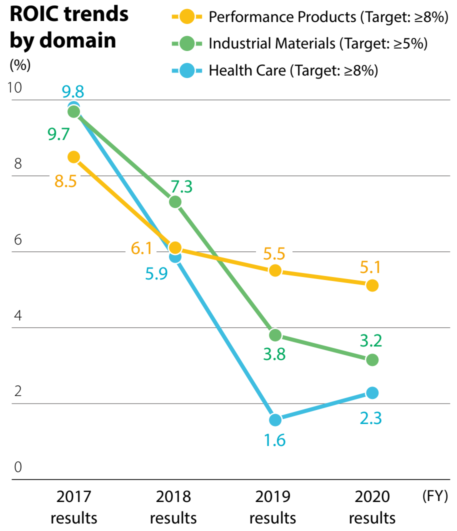
MOE Management of Economics

Numerical targets (KPIs based on MOE) and results

(Note) Figures for past fiscal periods (up to and including FY2019) are the business results figures announced at the time.



(FY)	2016 results	2017 results	2018 results	2019 results	2020 results	2020 targets
ROE (%)	15.1	17.8	12.7	4.2	−0.6	13.0
ROS (%)	9.1	10.2	8.1	5.4	5.4	9.0
Net D/E ratio (times)	1.06	0.89	1.26	1.79	1.73	1.00



Review **Restructuring exceeded the target, but other numerical targets were missed, partly due to the deteriorating economic environment and delayed execution of growth strategies.**

Thanks to business portfolio reforms under the previous medium-term management plan, *APTSIS 20*, fiscal 2017 saw an increase in sales revenue in the Industrial Materials domain and expanded sales volume, mainly in the Performance Products domain, resulting in new records for both core operating income and net income attributable to owners of the parent. From fiscal 2018, sales revenue went into decline under the deteriorating economic conditions arising from the economic downturn, trade friction between the United States and China, the impact of the COVID-19 pandemic and other factors. This trend was accentuated by further impacts, notably the inability of the Health Care domain to record royalty revenue due to ongoing arbitration proceedings. Numerical targets other than for restructuring were missed for a number of reasons, including delays in the execution of growth strategies particularly in the Performance Products and Health Care domains. We will redouble our efforts to strengthen our business foundations while also working to transform business models in existing businesses and foster new businesses.

Main business measures and results

Performance Products	Industrial Materials	Health Care
Enhancing portfolio management • Accelerate portfolio transformation • Pursue growth strategies in focus markets	**Strengthening foundations** • MMA, industrial gases: Maintain and grow global share • Improve petrochemical product performance and optimize production	**Ethical pharmaceuticals** • Strengthen the product pipeline • Develop business in the United States
Synergies and collaborations following the creation of Mitsubishi Chemical • Synergies (cumulative FY2017–FY2020): Business collaboration/growth ¥24.3 billion, streamlining ¥21.7 billion (Target: Business collaboration/growth ¥35 billion, streamlining ¥15 billion)		**Life Science** • Commercialize regenerative medicine • Develop healthcare and medical ICT business
Strengthening marketing capabilities and access to the global market (establishing RHQs*, etc.)		• FY2020 ratio of overseas revenue: 45.0% (Target: 50%)
Early commercialization of the seeds of next-generation businesses (R&D, open innovation, digital transformation (DX))		
More in-depth KAITEKI Management, promote work style reforms		

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Strengthening foundations

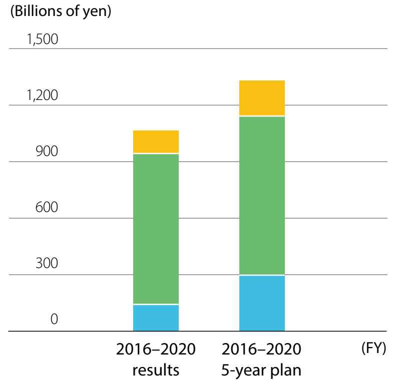
* RHQ: Regional headquarters

Resource allocation (investment and loans, capital expenditures, R&D expenditures)

Progress in overseas business development for industrial gases, investment of approx. ¥1.4 trillion over five years in the Industrial Materials domain

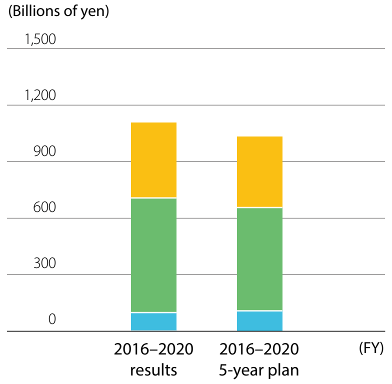
Performance Products | Industrial Materials | Health Care | Others

Investments and loans



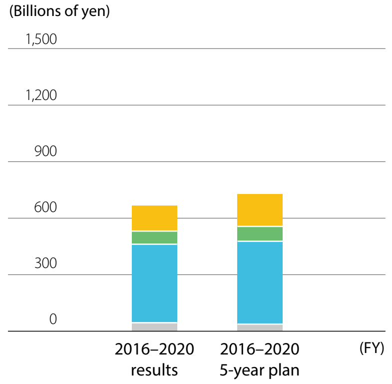
Performance Products and Health Care domains were below target, but investment and loans of approx. ¥1.1 trillion over five years executed mostly in the Industrial Materials domain, including industrial gases

Capital expenditures



Capital expenditures of approx. ¥1.1 trillion over five years implemented to actively increase capacity in the Performance Products and Industrial Materials domains

R&D expenditures

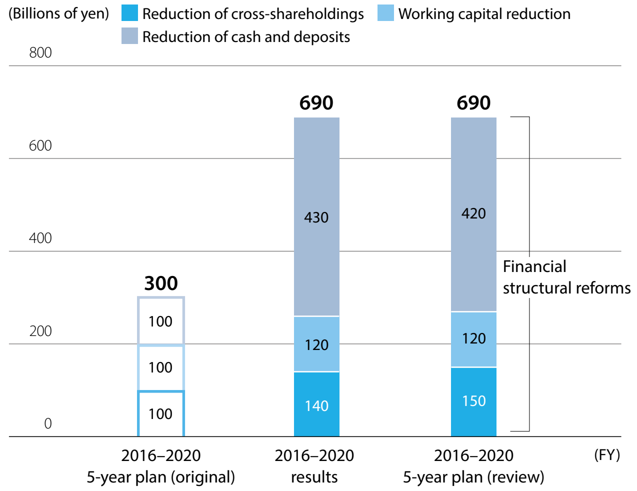


Invested approx. ¥670 billion over five years in R&D, mostly in the Health Care domain

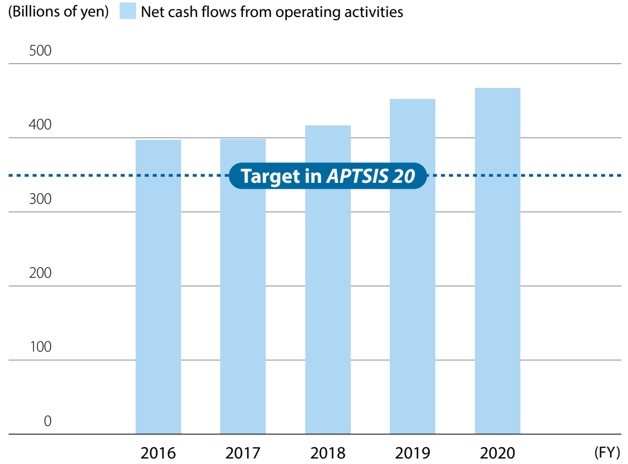
Cash flow generation

Enhanced cash flow generation capabilities through greater asset efficiency and other measures (reaching the target of ¥690 billion over five years)

Breakdown of cash generated



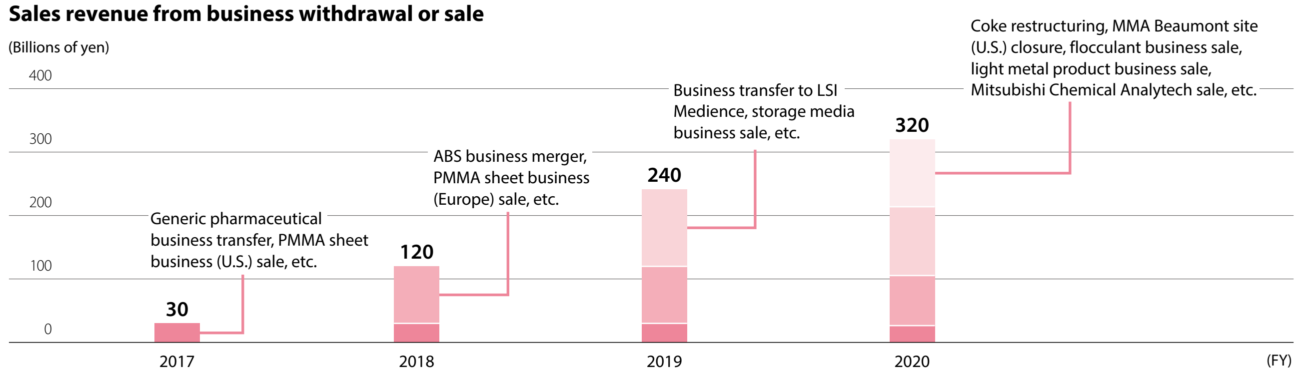
Changes in net cash flows from operating activities



Strengthening foundations (business restructuring)

Achieved corporate streamlining, affiliate cuts and restructuring of ¥320 billion, above the target (equating to ¥300 billion in sales revenue over the duration of the medium-term management plan)

Sales revenue from business withdrawal or sale



APTSIS 20 Overview

Measures by business domain

(Note) Figures for past fiscal periods (up to and including fiscal 2019) are the business results figures announced at the time.

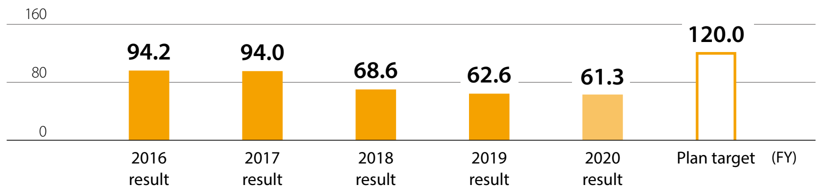
Performance Products Domain

5-year total	Targets	Results
Total investment*1	¥560 billion	¥519 billion
R&D expenditures	¥170 billion	¥135 billion

*1 Target after revision of medium-term management plan

Core operating income

(Billions of yen)



Steady progress in portfolio transformation
Growth strategies in focus markets still underway

Although capacity and sales were expanded in the film business in line with growth in demand, and progress was also made to grow the business through the acquisition of semiconductor-related businesses and other measures, core operating income was below target due to the deteriorating economic environment and delays in initially planned growth measures, including sales growth for automotive lightweight composites, increased overseas business development for packaging materials and origination of new businesses.

Restructuring progressed, however, and we achieved steady growth in the resin compound and lithium-ion battery materials businesses, in semiconductor-related businesses and in the film business.

Measures and results

Measures	Results	
Accelerate portfolio transformation	**Outcomes** ● Restructuring progress: Sale of the ABS resin, storage media, flocculant and light metals businesses	
Pursue growth strategies in focus markets	**Outcomes** ● Established resin compound growth strategy ● Strengthened the foundations of the battery materials business (joint venture with Ube Industries, development of new natural graphite-based anode materials) ● Strengthened semiconductor cleaning services business through Cleanpart acquisition ● Expanded capacity and sales in the film business (optical films, polyester films) ● Gained access to advanced technologies through Gelest acquisition (Si chemicals, semiconductor miniaturization technologies) ● Built business model for carbon fiber composite materials for luxury vehicles	**Measures not achieved** ● Growth in lightweight materials, battery-related businesses (due to slowdown in automotive sales and delayed expectations for EV uptake*3) ● Increase business development overseas for packaging materials driven by progress in developing circular economies ● Establish a biomedical applications business ● Expand sales of semiconductor materials (due to deterioration in semiconductor market conditions and the market environment)
Major investments	● Converted The Nippon Synthetic Chemical Industry Co., Ltd. into a wholly owned subsidiary in November 2016 in order to strengthen our business foundations further (purchase amount: approx. ¥43 billion) ● Acquired Cleanpart Group GmbH, a provider of semiconductor-related services in Europe and the United States, in October 2018 to strengthen our semiconductor business ● Acquired Gelest, Inc., a U.S. manufacturer of organic and inorganic hybrid chemicals, in October 2020 to expand our technology platforms	

*3 Our estimate

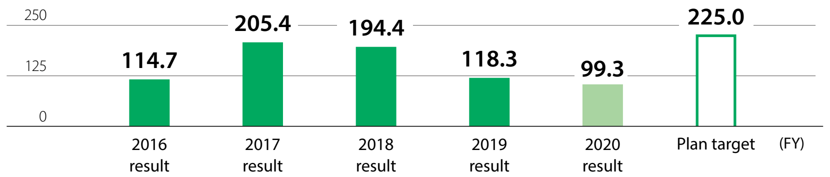
Industrial Materials Domain

5-year total	Targets	Results
Total investment*1	¥1,390 billion	¥1,406 billion
R&D expenditures	¥80 billion	¥68 billion

*1 Target after revision of medium-term management plan

Core operating income

(Billions of yen)



Steady progress in restructuring and measures to increase global share, despite impact of environmental changes

Core operating income in the Industrial Materials domain was below target because of declining market conditions for MMA and other products, due to trade friction between China and the United States and COVID-19 impacts, as well as declining coke sales volumes as domestic crude steel production was scaled back.

However, we were able to execute restructuring plans, including our withdrawal from the terephthalic acid business in India and China, and make progress in other areas, including operations using our new ethylene method (Alpha technology) at The Saudi Methacrylates Company (SAMAC), a new plant in the Middle East aimed at growing and stabilizing earnings in the MMA business, and the development of a global system spanning four regions in the industrial gases business through major M&A in Europe and the United States.

Measures and results

Measures	Results
Growing global share	**Outcomes** ● MMA: Full-scale operations using our Alpha technology started at a new Middle East plant (SAMAC) by our joint venture with Saudi Basic Industries Corporation (SABIC) ● Industrial gases: Business expansion through acquisition of operations in Europe and the United States, including from Linde AG (Germany) and Praxair, Inc. (U.S.)
Restructuring	**Outcomes** ● Withdrew from terephthalic acid business (India, China) ● Unified ethylene plant operations at the Okayama Plant ● Improved product mix with higher-performance polyethylene ● Expanded wide-area coordination for utilities ● Closed the Beaumont MMA site (U.S.)
Major investments	● JV with SABIC started full-scale operations in April 2018 at the new Middle East plant (SAMAC) (total business expenditure: approx. ¥100 billion) MMA monomer production capacity: 250,000 metric tons/year; PMMA production capacity: 40,000 metric tons/year ● To capture industrial gases market share in Europe, where MCHC was not operating, and progress business globalization further, acquired some of Praxair, Inc.'s European assets in December 2018, including industrial gas operations in Germany, Spain and Italy; carbon dioxide business in the United Kingdom and other regions; and the helium-related business (acquisition value: approx. ¥640 billion) ● Acquired part of a HyCO*4 business and related assets from Linde Gas North America LLC (U.S.), a subsidiary of Linde AG (Germany), through industrial gas subsidiary Matheson Tri-Gas, Inc. (U.S.) in February 2019 (acquisition value: approx. ¥46 billion)

*4 HyCO: hydrogen (H_2) and carbon monoxide (CO), which are separated from natural gas using steam methane reforming equipment. The HyCO business provides large-scale supply of H_2 and CO to customers in oil refining and petrochemical industries by way of a pipeline.

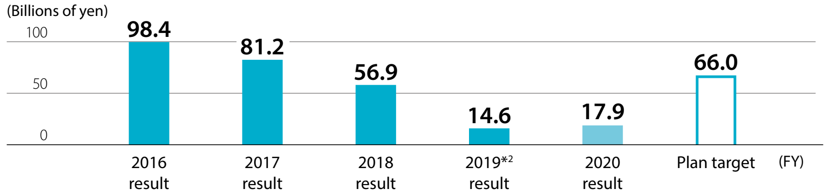
Health Care Domain

5-year total	Targets	Results
Total investment*1	¥408 billion	¥245 billion
R&D expenditures	¥440 billion	¥418 billion

*1 Target after revision of medium-term management plan

Core operating income

(Billions of yen)



*2 Figures do not include results from discontinued operations.

Established a sales base in the US, but was unable to generate results due to development delays and the non-recording of royalties during arbitration proceedings

We launched *RADICAVA* for amyotrophic lateral sclerosis (ALS) in the United States in August 2017 and established a sales base in the United States, which had been an issue since the formation of Mitsubishi Tanabe Pharma.

However, core operating income fell below target due to delays in the development of ND0612 for Parkinson's disease and the virus-like particle (VLP) vaccine of plant origin MT-2271 to prevent seasonal influenza, as well as our inability to book royalties from *Gilenya* for multiple sclerosis during arbitration proceedings on the contract provisions that began in February 2019. We made steady progress in clinical trials with regenerative medicine products using Multilineage-differentiating stress enduring cells (Muse cells), despite delays versus the initial development plans caused by COVID-19.

Measures and results

Measures	Results	
Pipeline reinforcement	**Outcomes** ● Obtained POC*5 (late-stage development): 10 discoveries (4 internationally and 6 domestically)	
U.S. development	**Outcomes** ● Launched *RADICAVA*	**Measures not achieved** ● Grow *RADICAVA* sales ● Recorded an impairment loss owing to delays in the development of ND0612 for Parkinson's disease and the VLP vaccine MT-2271 against seasonal influenza
Regenerative medicine (Muse cell-based products)	**Outcomes** ● Conducting clinical trials for the indications of acute myocardial infarction, ischemic stroke, epidermolysis bullosa, spinal cord injury and ALS ● Established Tonomachi CPC (cell processing center) and created mass cell culture techniques	
Restructuring	**Outcomes** ● Reorganized LSI Medience: Completed strategic capital partnership with PHC Holdings Corporation	
Major investments	● In October 2017, acquired as a wholly owned subsidiary the Israel-based company NeuroDerm Ltd., a pharmaceutical company with superior technology development capabilities that combines pharmaceuticals and medical devices and researches new formulations for Parkinson's disease drugs (total amount: approx. ¥120 billion) ● Converted Mitsubishi Tanabe Pharma into a wholly owned subsidiary in March 2020 with the goal of adapting to environmental changes in healthcare, including the expansion of drug discovery modalities, and creating further synergies between MCHC Group companies (purchase amount: approx. ¥490 billion)	

*5 POC: Proof of concept, demonstrating the feasibility of a new discovery or concept

APTSIS 20 Overview

MOS Management of Sustainability

The MCHC Group has introduced Management of Sustainability (MOS) Indices, which quantify the degree of contribution to sustainability, as its own management indicators. We set targets for these Indices and pursue our corporate activities accordingly. This report describes the degree of achievement of the MOS Indices and targets that have a significant impact on the environmental, social and economic value, in addition to the important indicators related to the basis of our continued existence.

WEB **For details on the material issues in *APTSIS 20* and a summary evaluation of the achievement of all the MOS Indices, please visit our website.**
https://www.mitsubishichem-hd.co.jp/english/sustainability/performance.html

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Non-Financial Information ▶ P. 103

Sustainability targets (KPIs for the MOS Indices) and results

MOS Indices and achievement rates

★★★★: 100% or above ★★★: 80–100% ★★: 50–80% ★: 30–50% Significantly low: 30% or below

	MOS Indices (Data elements)	Achievement rates under *APTSIS 20* (FY2016–FY2020)	Related SDGs
The global environment	Reduce the burden on the atmospheric environment (GHG, SOx and NOx emissions)	★★★★	
	Reduce the burden on the water environment (total phosphorous, total nitrogen in wastewater and chemical oxygen demand [COD] emissions)	★★★★	
	Reduce the burden on the soil environment (total landfill)	Significantly low	
	Provide products and services related to renewable energy	★★★★	
	Provide products and services that contribute to reducing GHG emissions	Significantly low	
	Provide products and services that help solve water resource problems	★★	
Social systems	Provide products and services that help solve food problems	★	
	Contribute to medical treatment: Pharmaceuticals provision (contribution to treatment, increased effectiveness)	★★★★	
	Contribute to the prevention of diseases: Provide vaccines	★★★	
	Provide products and services that contribute to a comfortable society and better lifestyles (comfort value)	Significantly low	
	Initiatives to provide products and services trusted by society: Increase customer satisfaction	Significantly low	
	Initiatives to provide products and services trusted by society: Reduce the number of complaints	★★	
	Promote communication with business partners (regarding CSR procurement, status of initiatives such as distribution of guidelines, checklists, monitoring of the situation, interviews/visits/audits)	★★★★	
People (the company and its organization)	Improve awareness of compliance (results of awareness survey)	★★★	
	Prevent accidents and injuries (reduce safety incidents)	Significantly low	
	Build a dynamic and cooperative organization (employee satisfaction, rate of taking paid leave, percentage of employees working long hours, rate of taking sick leave, percentage of female managers)	★	

Review

The global environment

We achieved the *APTSIS 20* targets for the reduction of global environmental impact, particularly in atmospheric and water environments. We reached our targets through business withdrawals and site mergers that allowed us to reduce emissions that produce various environmental impacts, as well as improvements in facilities and energy conservation. The targeted contribution to the reduction of environmental impact through products and services was not achieved due to a decrease in sales and demand for products that contribute to reducing GHG emissions or solving water resource issues. We aim to achieve environmental impact neutrality by strengthening our sustainability management under KAITEKI Vision 30 and the implementation of measures under *APTSIS 25*.

Social systems

A positive contribution was made to the prevention and treatment of diseases throughout *APTSIS 20*, as sales of related products grew steadily. Meanwhile, the target for comfort value provision was not achieved as related products did not expand on the scale envisioned. For initiatives relating to stakeholder engagement, we stepped up communication with business partners, for example, through briefing sessions and the distribution of guidelines on CSR procurement, and worked to build sustainable supply chains. In terms of customer satisfaction, we did not achieve the level of performance that we had achieved in the previous medium-term management plan, despite targeting further improvement during *APTSIS 20*. We will further utilize the evaluation results in our business activities in a bid to make further improvements in customer satisfaction.

People (the company and its organization)

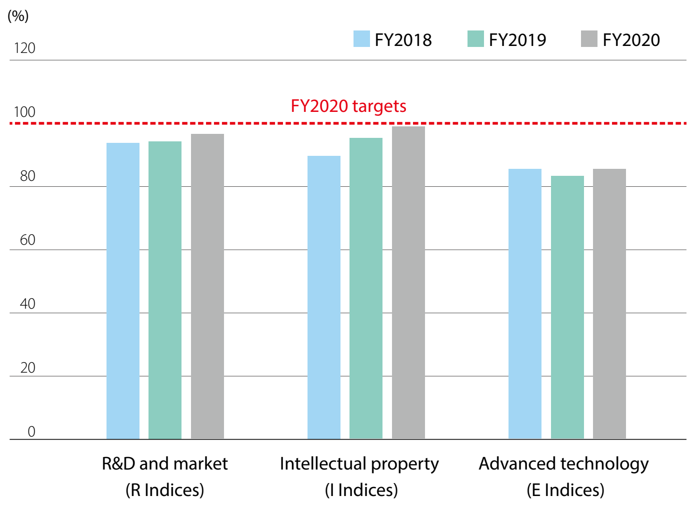
The number of safety-related incidents has been improving year by year, because we are implementing regular awareness campaigns and accident prevention measures that utilize the latest technologies, sharing information on accidents and developing human resources who are responsible for safety at work sites. However, we fell significantly short of our targets on accident and disaster prevention. We will continue to implement programs to improve accident and disaster prevention and ensure a rigorous approach to safety. Having built an organization that is dynamic and collaborative and where employees are motivated to work, we have seen an improvement in the percentage of employees taking paid leave, but long working hours are on the rise. In light of the changes in work styles brought about by COVID-19, we are working to implement further operational reforms and improve work-life balance. The awareness of compliance among employees has improved through a variety of training programs.

MOT Management of Technology

The MCHC Group has identified our technology and innovation capabilities, defining MOT Indices and relevant targets that serve as metrics for improvement. During *APTSIS 20*, we used these MOT Indices to advance initiatives for realizing next-generation businesses in key focus markets. The MOT Indices were updated to the current form in April 2018, prompted by the creation of the new Mitsubishi Chemical Corporation in April 2017.

Innovation targets (KPIs for the MOT Indices) and results

MOT Indices: Achievement rates over the past three years



Review

Achieved most targets for R&D and market, as well as for intellectual property, but fell short in advanced technology, including digital.

The current MOT Indices cover R&D and market (R Indices), intellectual property (I Indices), and advanced technology (E Indices). We made steady improvements in the R and I Indices between fiscal 2018 and fiscal 2020, and nearly achieved all targets in fiscal 2020. These results reflected strength in international patent applications and sales of new products. However, the E Indices did not improve as desired. To overcome this shortfall, we will focus our energies on the pursuit of digital transformation (DX) and programs across the Group to advance our key technology positions.

Promoting digital transformation

We measure 13 items to gauge our digital maturity, which is a key indicator in the E Indices (see table at right). Progress on each item is evaluated by assigning a ranking between one and four, and these rankings are combined to quantify the overall digital maturity. A score of 100% would mean that all items were ranked at the highest level ("Advanced").

The level of digital maturity has risen each year, but we achieved a score of only 61% for fiscal 2020. Given the importance of DX to our business, we will continue to place high priority on achieving further improvements in digital maturity.

Items evaluated for digital maturity

Category	Item
Strategy	DX strategy
	Communication, penetration
Organization and human resources	Structure for DX promotion
	Human resources development
Data infrastructure	Data policy
	Data infrastructure and application
Business processes	Supply chain
	Manufacturing
	Customer contact points
	R&D
	Corporate functions
Business models	Business model reform
	Megatrends

MOT Indices under the new medium-term management plan

We must accurately gauge our technological capabilities across the MCHC Group in order to continuously hone our competitive edge. For the new medium-term management plan, *APTSIS 25*, we have revised the MOT Indices to be more straightforward, transparent and objective. We will use the insights obtained to accelerate realization of next-generation businesses.