



PSMC Powerchip Semiconductor Manufacturing Corp.



2020

CORPORATE SOCIAL
RESPONSIBILITY
REPORT

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About This Report

"2020 Corporate Social Responsibility (CSR) Report for Powerchip Semiconductor Manufacturing Corporation" is the third CSR report of Powerchip Semiconductor Manufacturing Corporation (hereinafter referred to as "PSMC" or "the Company"). The content of the report is provided and prepared by all units of the Company. The report is formulated according to the "Core" of the GRI Standards published by the Global Reporting Initiative (GRI). The information prepared and disclosed in the Report has been approved by the internal unit of PSMC.

The CSR is prepared and published each year to respond to any issues concerning stakeholders. The sustainability plans of PSMC and their implementation process and performance will be disclosed in a transparent manner in hopes of making more positive changes for the society.



Report Scope and Boundary

The reporting period is from January 1, 2020 to December 31, 2020. The Report is published in November 2021 and the boundary of the report includes the 12-inch fabs (formally Powerchip Technology Corporation) and the 8-inch fabs (formally Maxchip Electronics Corporation) which are located in Hsinchu Science Park. The content of the report covers aspects on the implementations and practices of economy, environment and society that concern stakeholders. Compared with the previous version, this report has some restatements, which will be explained respectively in the remarks on the tables.

Note: The disclosure boundary of the 12-inch fabs include P1/2 and P3 fabs. The disclosure boundary of the 8-inch fabs include 8A (including 8AD) and 8B fabs.



Reporting cycle

- ◆ Date of last issuance: December 2020
- ◆ Date of current issuance: September 2021
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Editorial Basis and Guiding Principles

The content structure of the Report is based on GRI standards and AA1000 Accountability Principles (AA1000AP). Using a material analysis model to identify sustainability issues and decision making priority that stakeholders are concerned with, the Report determines the environmental protection issues, the relevant strategies, their goals and measures, labor behavior, human rights and social impact for the purpose of disclosure. The Report is prepared based on the management policies listed (see Appendix 2 for details). The following principles and initiatives are taken as references:

- ◆ Global Reporting Initiative (GRI) and GRI Sustainability Reporting Standards (hereafter, GRI Standards)
- ◆ Sustainable Development Goals (SDGs)
- ◆ AA1000 AccountAbility Principles (AA1000AP) 2018
- ◆ ISO 26000 Guidance on Social Responsibility (ISO 26000)
- ◆ United Nations Global Compact (UNGC)



Audit of the Report

To increase the integrity of the Report, the Company engaged British Standards Institution (BSI) to audit the Report based on GRI Standards and AA1000 Assurance Standard 2008 (AA1000 AS), as well as Type II High Level Assurance Report in the Appendix of the 2018 Report. The audit conducted by BSI certifies that the Report has fulfilled the aforementioned framework and assurance level, thus increases the transparency and reliability of the organization of the Report. The assurance statement is attached as Appendix 1 of the Report, whereas the GRI content index is attached as Appendix 2 for the reference of readers.


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Words from the decision makers

Since Powerchip Technology Corporation (Powerchip), the parent company of Powerchip Semiconductor Manufacturing Corporation ("PSMC"), adjusted its corporate structure since May 2019, we are ranked among the world's top six professional wafer foundries, with three 12-inch wafer fabrication facilities, two 8-inch ones, and more than 7,000 employees. We are clearly aware that the larger the business scale, the more influence on both the industry and society; therefore, apart from balancing the interest of stakeholders, society and the Company, PSMC hopes to make use of our corporate values of integrity, service, quality, and innovation, and our operational experiences to build a sustainable development model and integrate it into the society, thereby creating a positive cycle of shared prosperity.

In addition to pursuing growth and profit in business and taking care of our employees' and shareholders' rights and interests, we also pay close attention to global climate change issues and contribute to energy conservation, carbon reduction, and environmental protection from an operational optimization angle. At present, our high-standard plant facilities have achieved a water recycling rate of more than 86%, with every drop of water having been used 3.4 times. In the past five years, we have invested NT\$210 million in energy-saving equipment and achieved a total carbon reduction of 36 million kilograms while saving 67 million kWh of electricity. Further, we have continued our efforts to reduce paper use, alleviate the intensity of greenhouse gas emissions, and increase the recycling rate of waste to develop a positive symbiotic relationship between the enterprise and the environment.

Being a responsible corporate citizen is PSMC's long-term belief. Despite the looming COVID-19 pandemic, we still sponsored eight musical concerts, stage plays, and an art and cultural exchange seminar through the Powerchip

Cultural Foundation last year to enhance the cultural taste in society and positive energy proactively. In addition, the PSMC Welfare Committee collaborated with external public welfare organizations to organize charity donation activities regularly to help support disadvantaged groups of society.

Moreover, we have also completed the re-election of the Board of Directors (BOD) members this year, appointing five independent directors among the nine BOD members. The backgrounds of independent directors, who occupy more than half of the Company's BOD members, range from multinational enterprise operation, cutting-edge semiconductor technology research and development, science and engineering, financial and accounting practice to international financial capital, etc., and they can therefore guide our business development strategy and help implement excellent corporate governance.

From 274 questionnaires we collected last year from employees, job applicants, customers, investors (shareholders), suppliers, competent authorities, contractors and neighboring factories/neighbors pertaining

to eight major issues that the stakeholders of the Company are concerned with, and 47 questionnaires on the impact of topics we collected from division heads of the Company, we endeavored to have a better understanding of different stakeholders' views and expectations of us, in hopes of deepening the communication with them, thereby making a concerted effort for PSMC's sustainable development.

Looking ahead, we will face challenges with a cautious and perseverant attitude, as always. We believe that to maximize profit, the best way for enterprises to create growth momentum is to share their prosperity with employees, shareholders, partners, and society. The growth and expansion of PSMC will be a driving force to create a beautiful and sustainable environment. We will always rise up to face, communicate, and respond to oncoming problems and challenges with a positive and honest attitude. We also firmly believe that sharing is the key to becoming an excellent and sustainable corporate citizen.

Chairman

Frank Huang



The President

Brian Shieh




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Results and Performance of Sustainable Development in 2020



274 copies
Number of questionnaires collected that covered 8 issues concerning stakeholders.

47 copies
Number of questionnaires collected that covered the impact of issues from all division heads.

26 issues
Number of major sustainability issues identified.



27.27%
Revenue growth compared to the previous year.

-% (negative to positive)
Net income growth compared to the previous year.

-% (negative to positive)
Earnings growth per share compared to the previous year.

17.78%
Growth in employee salaries and wages and benefits compared to the previous year.

1.73%
Growth in taxes paid to the government compared to the previous year.

None Occurrence of corruption.

None Major violations at all operating locations.

15 seconds
The time needed for attendance taking in the emergency evacuation attendance taking system, which is a substantial drop from the 15 to 20 minutes of before.

None Major information security incident(s).

Met target Internal 6S competition results.

None Major deficiencies in customers' FAB audits.

100%
Presenting rate of GP test report of production raw material/letter.

100% Passing rate of vendor evaluation.

100%
Ratio of agreement on not using conflict minerals ratio in its target materials and with its gas vendors.

121 vendors
Number of conducted evaluation on suppliers.

58 vendors
Number of conducted evaluation on contractors.

179 patents
Patent certificates obtained.

Completed
Collaborated with AP Memory Technology Corporation and major logic chip foundries to successfully stack DRAM and logic chips by means of wafer-on-wafer (3D WOW) system integration technology.

Completed
Officially mass-produced and shipped AIM chips.

14%
Launched the development of the 24nm NAND flash technology platform to continue to increase the output per unit area.

Completed
Developed the smallest NOR flash cell in the foundry industry.

Completed Developed 80nm BCD technology platform.


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Achieved The yearly target of energy conservation by 1%.

Over 85.6% The recycling rate of process water at all plants.

None

Disciplinary actions against PSMC as a whole taken by the competent authorities in environmental protection.

Decreased by 14.0%

The company-wide greenhouse gas emissions per unit production capacity compared to the previous year.

96.8%

The efficiency of volatile organic compounds (VOC) removal of all plants. (Must exceed 90%, as stipulated in the regulation)

89.31% The company-wide waste reuse rate. (Must exceed 85%)

None

Effective COVID-19 prevention effort. Confirmed cases as of the end of 2020.



99.3%

The actual achievement rate of training programs (including the E-Learning system).

None

Forced or compulsory labor incidents, resulting in fines by the competent authority.

100%

The response rate of employee communication platform, "Feedback Corner".

94% The satisfaction rate for annual training course.

100%

The Percentage of all employees at the Company receiving performance evaluation on a regular basis.

6,687 persons

The number of employees that received human rights protection training.

2,908 persons

The number of employees that participated in health promotion activities.

35 sessions

Artistic and cultural events hosted or organized.


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The Company's Growth Footprint and Achievement

Company History

2008

Maxchip established and acquired Fab 8A from parent company Powerchip technology corporation (PTC)

2009

0.18um LCD driver IC mass production

2010

0.18um micro controller IC mass production

2011

0.18um power management IC mass production

2012

0.18um power MOSFET mass production

2015

Fab 8AD started production

2016

Reconstructed Fab 8B, which was purchased from URE corporation, into an 8-inch power device Fab

2018

Changed company name to Powerchip semiconductor manufacturing corporation (PSMC)

2019

Fab 8B started production
Capital increase of PSMC to acquire 12-inch Fab P1/2, P3 and related operation assets from PTC

2020

Listed on Taiwan emerging stock market (sym. 6770)

About PSMC

In April 2008, the 8-inch fabs of Powerchip Technology were divided and established as Powerchip Semiconductor Manufacturing Corporation (formerly Maxchip Electronic Corp.). Originally focusing on production of DRAM, the parent company decided to exit the standard DRAM market in 2012. In 2013, the Company was transformed and became a professional foundry. In addition to customized operating flexibility, high efficiency and diversified process management, and the self-developed "Open Foundry" service strategy that is widely recognized by customers, the Company also offers customers many competitive advantages in the market.

To be able to focus on professional foundry and establish a clear industry positioning, the Powerchip Group has re-constructed its enterprise in May 2019. Powerchip has transferred relevant operations and assets of three 12-inch fabs to PSMC while Powerchip itself has been transformed into a holding company. PSMC was listed on the emerging stock market for trading in 2020.

Company Profile

Company Name	Powerchip Semiconductor Manufacturing Corporation
Founding Date	2008
Date of listed on the emerging stock market/stock code	Listed on the emerging stock market for trading in December 2020 (code 6770)
Major products	Foundry
Chairman	Frank Huang
Number of employees	7,188 (based on the data from the 2020 Annual Report)
Capital	NT\$31.05 billion
Operating revenue	Approximately NT\$45.68 billion
Operating location	The address of the head office is No. 18, Lixing 1st Rd, Hsinchu Science Park, Hsinchu city, Taiwan. There are two 8-inch fabs and three 12-inch fabs in Hsinchu Science Park.


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Plant Introduction



Zhunan Science Park

Hsinchu Science Park

A Focus on Foundry

Currently, the Company has two 8-inch, three 12-inch fabs and 6,900 employees, offering three major OEM services for advanced memories, customized logic integrated circuits, and discrete devices. The Company maintains the Open Foundry operating model, from chip design, manufacturing services to equipment and capacity sharing. Accommodating different customers and requirements, the Company builds a close and flexible operation mechanism with customers. We persist in improving technologies, strict quality control and high-efficient manufacturing. We will also continue to promote an international collaboration strategy, introduce top end technology and develop our own technologies so as to expand the market steadily. We are committed to providing professional foundry services and build a win-win situation for our customers. We hope to accumulate competitive advantages in this fast-changing high-tech industry and become a consistently profitable world-class semiconductor company.

External participation

PSMC is in a semiconductor industry that is changing rapidly. In addition to improving its production technology, the Company must acquire first-hand the industry trends via participation in various organizations to gather information and communicate with other industrial counterparts.

Name of the organization	Position
Taiwan IoT Technology and Industry Association	Chairperson, Director
ROC-USA Business Council	Member
The Third Wednesday Club	Member
The Allied Association for Science Park Industries	Director
Computer Audit Association	Member
The Institute of Internal Auditors, Taiwan	Member
Taiwan Semiconductor Industry Association	Executive Director
Global Semiconductor Alliance	Member
Taipei Computer Association	Member
Taiwan India Business Association	Member
Cross-Strait CEO Summit	Member
PM _{2.5} Control Association	Director
Taiwan Environmental Management Association	Member
JEDEC Solid State Technology Association (JEDEC)	Member



Sustainable development strategies

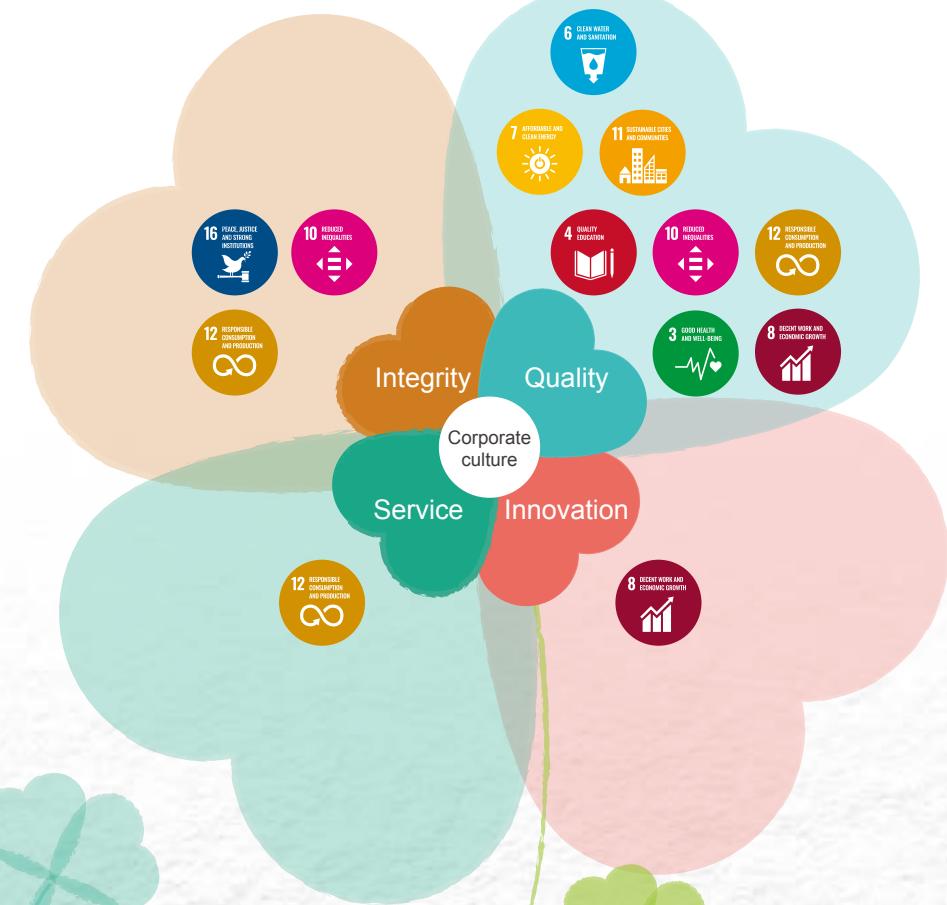
The Company masters the manufacturing process technologies for memories and logic products simultaneously. With advanced technology and capacity, the Company provides a diverse range of DRAM products, high-capacity flash memory, LCD driver chips, power management chips, CMOS image sensors, and foundry services for information, communication and consumer electronics markets.

With the booming of new applications, such as Internet of Things (IOT) and Artificial Intelligence (AI), PSMC has an opportunity to acquire a first mover advantage in the future market, and thus shall continue to promote international collaboration strategies, introduce top-end technologies, and make steady investment and expansion so as to accumulate competitive advantages in the rapid-changing high-tech industry and become a semiconductor manufacturer and sales service provider that creates a win-win with customers, employees, shareholders and the society at large.

PSMC has integrated the four major principles of corporate values into the core of our business philosophy; and we have worked to enhance corporate governance, pursued stakeholders' balanced interest, been devoted to implementing environmental protection and energy conservation while contributing to society, all the while complying with Code of Conduct-Responsible Business Alliance (RBA) Version 7.0 (formerly known as the EICC). We are also committed to ensuring that the employee welfare, occupational health and safety, environment protection, ethics conformity, and management systems reflect the Sustainable Development Goals (SDGs) set by the UN; disclosing not only our core competencies, but also the concrete actions undertaken. We will do our utmost to fulfill our corporate responsibility in promoting positive sustainable development.

Mission

Establish efficient management teams; provide customers with quality products and services to improve people's quality of life; and maximize investors interests (Shareholders and employees)





Communicating with stakeholders

We conducted stakeholder identification here at PSMC. In order to achieve sustainable development and long-term operation, we adopted the five principles of the AA1000 SES standards as a reference to identify the Company's eight categorical key stakeholders: employees, job applicants, customers, investors (shareholders), suppliers, competent authorities, contractors, and neighboring factories/neighbors.

Response to stakeholders

Stakeholder	The importance of stakeholders	Points of Interest	Channels and frequency of communication	Related chapters in the report
Employee	Employees are the Company's most valuable assets; they are also the key in terms of pushing forward production proposals. The Company looks after employees in the workplaces so that employees can work with a healthy body and mind. It will allow the Company to improve its competitiveness and create a win-win between employees and the Management.	Economic performance Market status (salary level) Occupational safety and health (Preventive measures of occupational disaster)	1. Announcement on the Company's website and enquiry is available (real time). 2. Feedback corner/employee wellness site (any time). 3. Quarterly meetings (quarterly). 4. Complaints hotline (any time): to assist and handle issues raised by employees. 5. Labor-Management meetings (quarterly), welfare meeting (quarterly): provide suggestions to the Company and conduct a solution. 6. Employee feedback (any time) and suggestion box set up 7. Occupational Safety, Health and Environmental Protection Committee meetings (quarterly) 8. Consultation with health servicing doctors and specialists (weekly).	2.1 Competitive niche 1.3 Financial performance 4.2 Employee welfare 4.4 Occupational health and safety
Job applicants	A pleasant job application experience can have an influence beyond the job applicants. The ripple effect proves that other people would not only know about the experience, they would also be interested in the products or services of the Company.	Management of employee occupational competency Labor/Management relationship Management of product and quality control	1. Recruitment hotline or e-mail address on PSMC company website (https://www.powerchip.com/job6.html?getId=77) (at any time). 2. Contact numbers or e-mail addresses of HR interviewers (at any time).	 Recruitment hotline
Customers	Customers' satisfaction and suggestions are what make us to strive for better and grow. We persist in improving technologies, strict quality control and high-efficient manufacturing, and we are committed to providing professional foundry services!	Management of product and quality control Product service and R&D innovation Customer privacy	1. Customer service phone number/mailbox (at any time). 2. Customer satisfaction survey (annually). 3. Participate in exhibitions of relevant products, directly get a hold on the customers and direction of the market development (any time). 4. Customer visits by employees from the marketing business department (any time).	1.2 Integrity and conformity to the law 4.1 Human resources 2.1 Competitive niche



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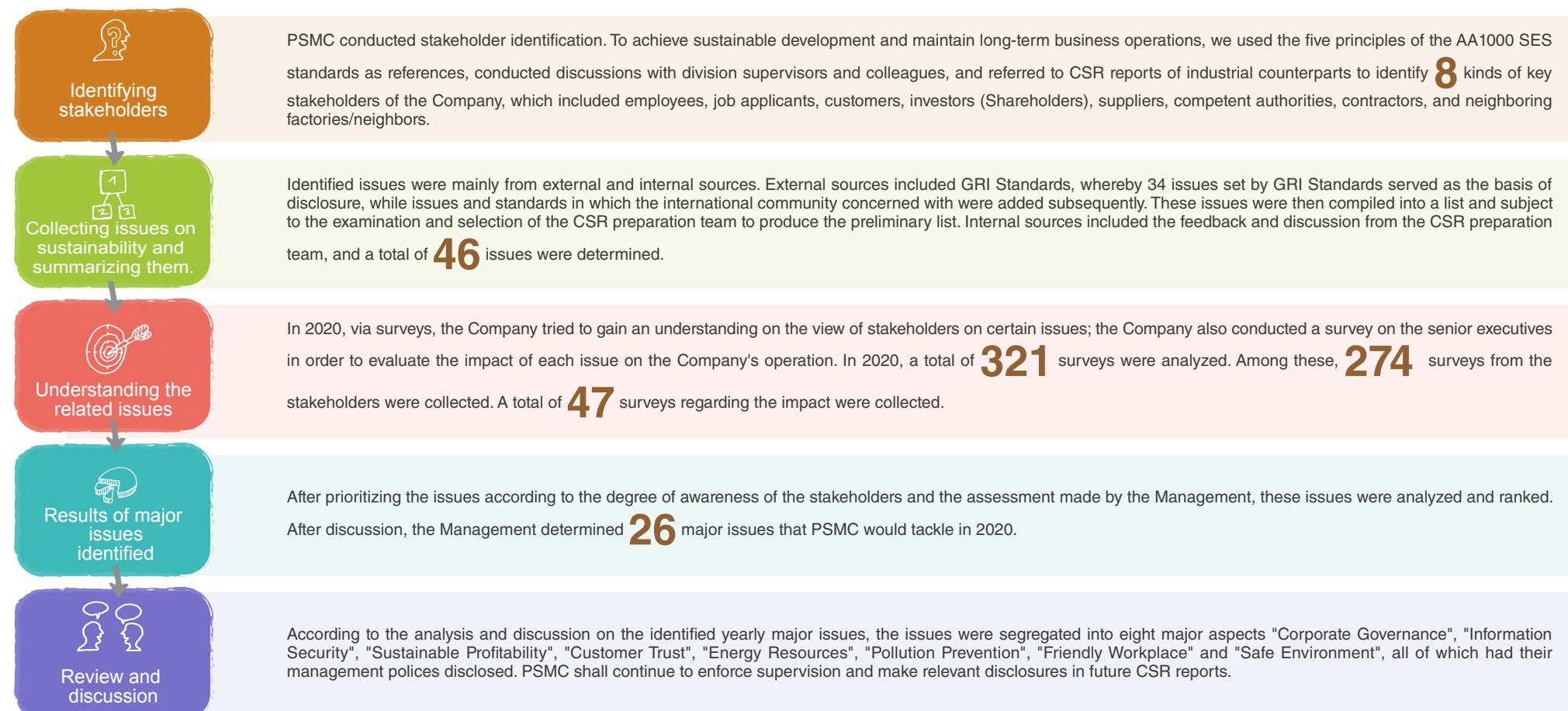
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Stakeholder	The importance of stakeholders	Points of Interest	Channels and frequency of communication	Related chapters in the report
Investor (shareholder)	The entire capital of the Company is provided by Shareholders and investors. Therefore, it is the Company's basic responsibility to protect their interests.	Economic performance Management of product and quality control Product service and R&D innovation	<p>1. Announce operating overview information (monthly) and financial statements on a regular basis.</p> <p>2. Shareholders meeting (annually): annual financial reports prepared according to regulations.</p> <p>3. Investor relations section on company website (https://www.powerchip.com/investor.html) (real time): Financial information, stock information, annual reports.</p> <p>4. Shareholder contact window and mail box set up (at any time).</p> <p>5. Spokespersons contact window set up (at any time).</p>	 Investor relations section on company website 2.1 Competitive niche 1.3 Financial performance 4.1 Human resources 2.2 Innovation and R&D
Suppliers	As a global professional management team, apart from strengthening competitiveness by managing our own product quality, we are also committed to a sustainable supply chain management. We maintain the quality of the supply chain via supplier management measures, initial assessment of new suppliers, existing suppliers' sampling audit/ evaluation.	Economic performance Legal compliance of socio-economic regulations Integrity Governance	<p>1. Supplier conferences (occasionally)</p> <p>2. Supplier evaluation (bi-annually)</p> <p>3. E-Supplier system (any time)</p>	2.1 Competitive niche 1.2 Integrity and conformity to the law 2.4 Suppliers
Competent authority	The competent authority is the supervisor of the relevant regulations for a company to operate its business. Law-abiding governance is the most important corporate social responsibility of a company.	Occupational safety and health (Preventive measures of occupational disaster) Emissions (air pollutants emission management) Water	<p>1. Maintain a good relationship with the competent authority and participate in the conferences and seminars held by the competent authority (any time).</p> <p>2. Identification of management system regulations (at any time).</p> <p>3. Official correspondence, proposal discussion, public information (any time).</p> <p>4. Participate in the functional organization and operation held by Hsinchu Science Park Bureau and Ministry of Science and Technology (any time).</p>	4.4 Occupational health and safety 3.3 Green production 3.2 Risk management for water resources
Contractors	Contractors are the vendors whom the Company has business with; their prosperity is in tandem with the Company's, in terms of business promotions and engineering quality.	Occupational safety and health (Preventive measures of occupational disaster) Legal compliance of socio-economic regulations Economic performance	<p>1. Contractor evaluation (annually).</p> <p>2. Contractor Meeting (quarterly).</p> <p>3. Toolbox meetings (daily).</p>	4.4 Occupational health and safety 1.2 Integrity and conformity to the law 2.1 Competitive niche
Neighbors	Any operating areas within the park are our neighbors and we maintain good communication and contact with them within the Park. We also maintain the safety and environment in the Park.	Water Emissions (air pollutants emission management) Waste water	<p>1. Weekday talks and telephone communication (any time).</p> <p>2. Company's website (any time).</p> <p>3. Take part in group activities or seminars (any time).</p> <p>4. Take part in external association operations (any time).</p>	3.3 Green production 3.2 Risk management for water resources



Identifying and managing major issues

We listen and take actions to mitigate any issues concerning stakeholders. The substantial analysis is incorporated into the process of preparing the CSR report, in hopes of identifying the sustainability issues concerning stakeholders via a systematic analysis model. The issues serve as a basis of reference for the disclosure of the Report, which will be beneficial for effective communication with all stakeholders. The analysis of the major aspects of the Report is divided to the following five steps:





Words from the decision maker

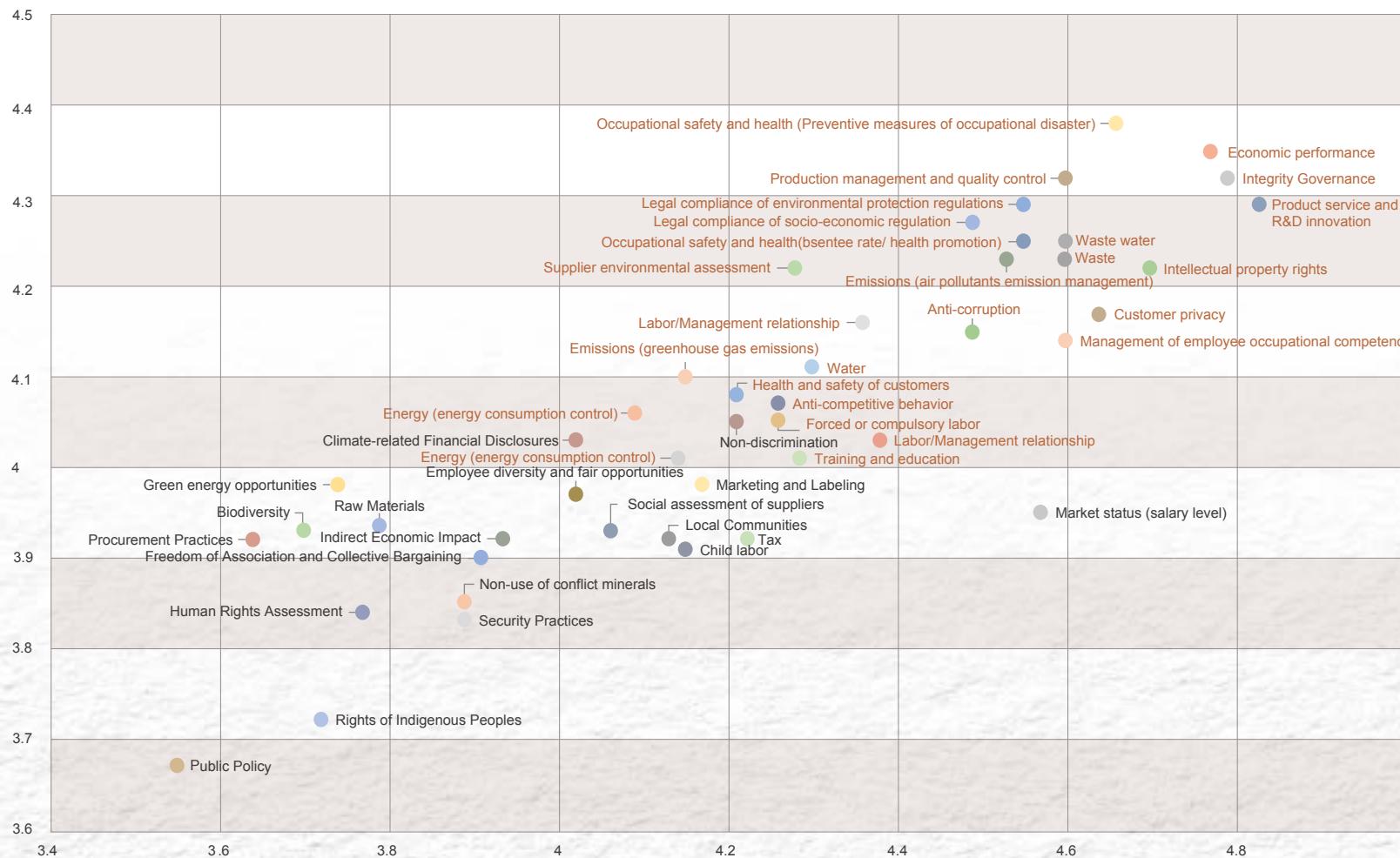
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Matrix Diagram of Analytical Results of Major Issues for 2020



Major Issues

- Product service and R&D innovation
- Economic performance
- Integrity Governance
- Occupational safety and health (Preventive measures of occupational disaster)
- Production management and quality control
- Intellectual property rights
- Waste water
- Waste
- Intellectual property rights
- Customer privacy
- Management of employee occupational competency
- Health and safety of customers
- Non-discrimination
- Forced or compulsory labor
- Marketing and Labeling
- Social assessment of suppliers
- Local Communities
- Child labor
- Tax
- Training and education
- Employee diversity and fair opportunities
- Procurement Practices
- Freedom of Association and Collective Bargaining
- Human Rights Assessment
- Rights of Indigenous Peoples
- Public Policy
- Green energy opportunities
- Biodiversity
- Raw Materials
- Indirect Economic Impact
- Non-use of conflict minerals
- Security Practices



Description of Major Issues Boundaries

Sustainability Domain	Major Issues	Boundary of Impact of All Aspects				Management Policy and Corresponding Chapters	
		The Internal of The Company (Direct impact)	Business partners (impact of business activities)				
			Customers	Suppliers	Contractors		
 Corporate Governance	GRI 205 - Anti-corruption	●				I. Striving for integrity management/ 1.2 Integrity and conformity to the law	
	GRI 206 - Anti-competitive Behavior	●				I. Striving for integrity management/ 1.2 Integrity and conformity to the law	
	GRI 419- Legal compliance of socio-economic regulations	●		●	●	I. Striving for integrity management/ 1.2 Integrity and conformity to the law	
	Integrity Governance (self-configured issue)	●				I. Striving for integrity management/ 1.2 Integrity and conformity to the law	
 Information Security	GRI 418 - Customer privacy	●	●			I. Striving for integrity management/ 1.5 Information security control	
 Sustainable profitability	GRI 201 - Economic performance	●				II. Striving for green innovations/ 1.3 Financial performance	
	Intellectual property rights (self-configured issue)	●				II. Striving for green innovations/ 2.2 Innovation and R&D	
	Product service and R&D innovation (self-configured issue)	●				II. Striving for green innovations/ 2.2 Innovation and R&D	
 Customer Trust	GRI 308 - Evaluation of the supplier environment	●		●	●	II. Striving for green innovations/ 2.4 Suppliers	
	GRI 416 - Customer Health and Safety	●	●			II. Striving for green innovations/ 2.3 Customer service	
	Management of product and quality control (self-configured issue)	●				II. Striving for green innovations/ 2.3 Customer service	


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Sustainability Domain	Major Issues	Boundary of Impact of All Aspects				Management Policy and Corresponding Chapters	
		The Internal of The Company (Direct impact)	Business partners (impact of business activities)				
			Customers	Suppliers	Contractors		
 Energy Resources	GRI 302-Energy (Energy consumption control and energy management mechanism)	●				III. Striving for sustainable environment/ 3.1 Climate change and carbon management	
	GRI 303 (2018) - Water and effluents	●				III. Striving for sustainable environment/ 3.2 Risk management for water resources	
	GRI 305-Emissions (greenhouse gas emissions)	●				III. Striving for sustainable environment/ 3.1 Climate change and carbon management	
 Pollution Prevention	GRI 305-Emissions (air pollution emissions management)	●				III. Striving for sustainable environment/ 3.3 Green production	
	GRI 306(2020) - Waste	●				III. Striving for sustainable environment/ 3.3 Green production	
	GRI 307-Legal compliance of environmental protection regulations	●		●	●	III. Striving for sustainable environment/ 3.3 Green production	
 Friendly workplace	Labor/Management relations	●				IV. PSMC as a happy enterprise/ 4.1 Human resources	
	Labor/Management relations	●				IV. PSMC as a happy enterprise/ 4.2 Employee welfare	
	GRI 404 - Training and education	●				IV. PSMC as a happy enterprise/ 4.3 Occupational competency development	
	GRI 409 - Forced or compulsory labor	●		●	●	IV. PSMC as a happy enterprise/ 4.1 Employment Situation	
	Management of employee occupational competency (self-configured issue)	●				IV. PSMC as a happy enterprise/ 4.3 Occupational competency development	
 Safe Environment	GRI 403(2018)-Occupational safety and health (Occupational injury prevention and absence rate/health promotion)	●		●	●	IV. PSMC as a happy enterprise/ 4.4 Occupational health and safety	



Development Strategies and Sustainability Goals

Since 2018, the disclosure which has been made in the CSR Report pertains to relevant measures undertaken by the Company that corresponds to the Sustainable Development Goals (SDGs) set by the United Nations (UN). In 2019, the Company implemented the targets and directions of its CSR in accordance with the concrete goals listed in the SDGs.

Aspects	Sustainability Domain	Strategy	Execution Results for 2020	Goal for 2021	Mid and Long-term Goals	SDGs
Economic aspect	Corporate Governance	Major Issues: Anti-Corruption, Anti-competitive behavior, Socioeconomic Compliance, and Integrity Governance		<ul style="list-style-type: none"> No occurrence of corruption. No occurrence of anti-competitive behavior. No major violations at all operating locations of PSMC. 		
		Exhaustive internal control system and regulations were used to manage different regulation risks. Regular audit was conducted to ensure implementation.	<ul style="list-style-type: none"> No occurrence of corruption. No occurrence of anti-competitive behavior. No major violations at all operating locations of PSMC. 			 10.3  16.5  16.6  17.10
	Information	Major Issues: Customer privacy		<ul style="list-style-type: none"> The Company had no occurrence of “proven violation of customer privacy” and “complaint on missing customer information” that would damage the interest of an external party. Internally, the audit on various information use found no abnormal storage and retrieval of information that would evidently damage the Company’s interest. 	<ul style="list-style-type: none"> No occurrence of information security incident. 	<ul style="list-style-type: none"> Prevent information security incidents.
	Sustainable profitability	Major Issues: Economic performances, intellectual property rights, production services, and R&D innovation		<ul style="list-style-type: none"> As of the end of 2020, the number of patent certificates obtained by PSMC had reached 1,468. PSMC applied for 179 patents, and obtained 122 patent certificates, reaching the annual target. PSMC collaborated with AP Memory Technology Corporation and other major logic chip foundries to successfully stack DRAM and logic chips using wafer-on-wafer (3D WOW) system integration technology, which have been mass-produced and shipped to our customers. PSMC has completed the development of the smallest NOR flash cell in the foundry industry 	<ul style="list-style-type: none"> In 2021, the Company expects patent applications to exceed 100. PSMC has completed the development of the smallest NOR flash cell in the foundry industry and expects to begin mass-production for customers in 2021. PSMC will complete the development of 3D Interchip and display samples at the end of 2022; and will begin production in small quantities in 2023. 	 8.2



Aspects	Sustainability Domain	Strategy	Execution Results for 2020	Goal for 2021	Mid and Long-term Goals	SDGs
Economic aspect	Customer Trust	<p>Major Issues: Supplier environmental assessment, customer health and safety, and production quality management</p> <p>Promote internal 6S activities and implement "QC 080000" to enhance the qualities of production processes.</p> <p>Comply to the procurement policy of PSMC to ensure stable material sources from suppliers.</p>	<ul style="list-style-type: none"> The 6S performance of different divisions all met requirements. The participating units of the customer FAB's 6S audit had no major infraction. The order fill rate of GP's test report of production raw material/letter of undertaking reached 100%. PSMC HSPM was in alignment with the questions in customers' annual on-site or written audit questionnaires, and could also meet customers' requirements for a list of hazardous substances. The passing rate of annual vendor evaluations was 100%. 	<ul style="list-style-type: none"> 100% of the raw material vendors and contractors complete the evaluation process in accordance with the selection principles. 100% of new suppliers will complete the preliminary survey. To achieve a 100% examination rate. 	<ul style="list-style-type: none"> Establish the target 6S scores for different teams in every quarter. Customer satisfaction is maintained at a score of 85 points. Satisfy customer requirements for environmental protection specifications. 	 12.4 12.6 12.7
Environmental aspect	Energy Resources	<p>Major Issues: Water, energy (energy consumption control and energy management mechanism), and emissions (greenhouse gases management)</p> <p>Introduce the relevant international management system and supervise in accordance with PDCA mechanism for continuous management; while promote the relevant measures in reducing electricity and water uses, carbon emission, and energy resources, so as to mitigate the possible impact caused by climate change.</p>	<ul style="list-style-type: none"> Met the yearly target of energy conservation by 1%. The recycling rate of process water at all plants reached 85.6% or more. The company-wide greenhouse gas emissions per unit production capacity was reduced by 14.0% compared to the previous year. 	<ul style="list-style-type: none"> Implement energy-saving/carbon reduction programs and reduce greenhouse gases by 1%. Introduce ISO 50001 Energy Management System in 8-inch fabs. Water reclamation rate to reach at least 85.5%. 	<ul style="list-style-type: none"> Process water recycling rate should reach $\geq 85\%$. Save energy by 1% per year. Align greenhouse gases emissions with the reduction program under the government laws. All plants pass ISO 50001 Energy Management System certification. 	 6.5  7.3 7.a  11.b  12.2
	Pollution Prevention	<p>Major Issues: Waste water, waste, emissions (air pollution emissions management), and environmental compliance</p> <p>Introduce relevant international management system and use the best practicable control technology to implement curtailing at the source and ensuring the processes meeting environmental protection standard. Set a standard stricter than the law and regulations as a goal.</p>	<ul style="list-style-type: none"> No disciplinary actions were imposed by the competent authority of environmental protection. The efficiency of VOC removal of various plants exceeded the 90% as stipulated in regulations, reaching 96.8%. The company-wide waste reuse rate exceeded 85%, reaching 89.31%. 	<ul style="list-style-type: none"> Air pollution: The capacity of VOC treatment facility will be greater than 92.5%. Wastewater: The plant-wide discharge rate will be less than 68%. Waste: The recycling and reuse rate will reach 85%. 	<ul style="list-style-type: none"> Business operations are in compliance with the Environmental Protection Act. Air pollution: The capacity of VOC treatment facility will be better than the best practicable control technology standard. Waste water: Waste water discharge is reduced. Waste: The recycling and reuse rate will reach 85%. 	 6.3  11.6  12.4 12.5



Words from the decision maker

Results and performance of sustainable development in 2020

About PSMC

Sustainable development strategies

◆ Communicating with stakeholders

Aspects	Sustainability Domain	Strategy	Execution Results for 2020	Goal for 2021	Mid and Long-term Goals	SDGs
Social aspect	Friendly workplace	Major Issues: Employer-employee relations, labor-employment relations, training and education, forced or compulsory labor, and employee occupational competency management				
		Establish comprehensive communication channels pertaining to employee needs and recommendations, and provide supporting measures and system adjustments, so as to build a conducive and friendly workplace.	<ul style="list-style-type: none"> No forced or compulsory labor incidents, resulting in fines by the competent authority. Actual achieving rate of training programs (including the E-Learning system) was 99.3%. The satisfaction rate of in-person training courses was 94%. The response rate of employee communication platform, "Feedback Corner" was 100%. All employees received regular performance evaluation. 6,687 employees received human rights protection training. Hosted/organized 35 artistic and cultural events. 	<ul style="list-style-type: none"> The achievement rate for the training programs to reach 80%. "Feedback Corner" - employee communication platform response rate to reach 90%. 	<ul style="list-style-type: none"> Foster good labor/management relations for mutual growth of our colleagues and the Company. Provide equal career development and a training mechanism to employees. 	 4.4  4.5  8.5  8.7  10.3
Environmental aspect	Safe Environment	Major Issues: Occupational safety and health (Occupational injury prevention) and occupational safety and health (absence rate and health promotion)				
		Conduct daily operations in accordance with occupational health and safety management system, and impose examinations and correctional measures on the overall working conditions of the operational system to fulfill the goal of continuous improvement.	<ul style="list-style-type: none"> The Frequency-Severity Indicator (FSI) of the Company (0) was lower than one-third of the industry average (0.11), achieving the goal of zero significant incident in industrial safety and environmental protection. Hosted a total of 13 health promotion activities with 2,908 participants, with a total weight loss of 1,415.8 kg. 	<ul style="list-style-type: none"> The total injury index of the Company will be less than one-third of the industry standard. 	<ul style="list-style-type: none"> Achieve zero significant incidents in industrial safety and environmental protection and strengthen environmental safety as well as emergency responding ability, so as to reduce operating losses caused by accidents in plants. No pain at work leads to a healthy life. 	 3.3  3.4  3.9  3.d  8.8



Striving for Integrity Management

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Corporate Governance and Management Policy

Regulatory compliance is the basic criterion for the sustainability of a corporation. Failure in effectively managing regulatory compliance and corruption risks would negatively impact the Company's image and operation. We have established relevant rules and demand our employees to follow the ethical standards when conducting business; the Company's stakeholders are also made aware of the standards. Further, information on the corporate governance is also disclosed on the Company website. These rules are put in place to help the Company fulfill our social responsibilities and achieve integrity management.



Information security and management policy

We care about our customers' satisfaction with our products and services. We continue to improve, gain customers' trust, and stabilize our relationship through feedback from customer satisfaction surveys.



◆ Formulate "Information Security Policy" and "Information Security Management Measures". We are dedicated to protecting information and documents related to our customers through the strictly controlling of records of the Company's internal system. This ensures that customer privacy is fully protected. In addition, the authorization of personnel will be handled according to the relevant operation regulations of the systems.

◆ No occurrence of information security incident.

◆ Established an Information Security Committee - responsible for formulating and implementing the Company's security control operations. The committee holds meetings regularly to discuss and resolve issues relating to information security, covering areas on human resources, physical security, and information security. When major changes or a breach of information security occurs, an emergency meeting is held for discussion.

◆ We have been promoting use of less paper to our employees, in hopes of replacing paper with electronic files, so as to improve our systemic operations (application/enquiry/reading) to achieve the goal of reducing paper use, further reducing information security risks posed by paper documents more effectively.

◆ All of our employees are required to participate in the training on "Information Security Management Measures" (including information security training for the orientation of new recruits) each year to strengthen their awareness on the issue, so as to ensure information security for the Company as a whole.

◆ The Company has implemented a trade secret control project internally to enforce various software and hardware control measures.

◆ The Information Security Committee regularly discusses issues relating to information security and when major changes or a breach in information security occurs, a meeting is held by the committee for discussion on operational adjustments.

◆ The Company purchased IBM's Qradar system to perform internal and external network traffic analysis. Using the score mechanism of the reputation system provided by IBM Exchange, once network traffic from a high risk website is detected, the preventive measures in the firewall setting will be triggered. The Company also purchased Nessus, a vulnerability assessment software, to conduct internal vulnerability scanning and thus ensuring the security of the servers. The Company has developed an SOC system to conduct checks on multiple telecommunication tools (e-mails, VPN, etc.), to ensure the information security of PSMC.





◆ 1-1 Organizational Structure

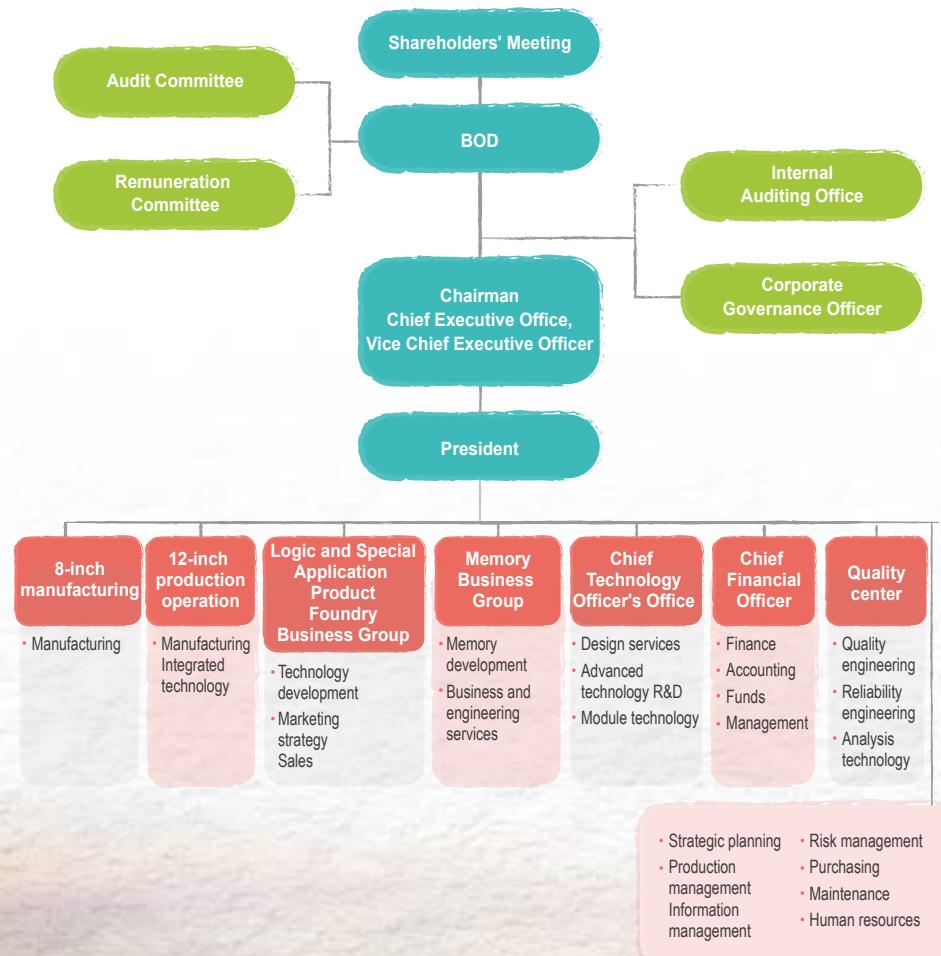
1-2 Integrity and Compliance

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1.1 Organizational Structure



The governance structure of the organization, including the top governance unit: The top corporate governance unit of PSMC is the BOD ; all members of the BOD are elected through voting by all shareholders. The directors' responsibilities are to establish the Company's vision for the future, strategies, operations, budget planning, as well as plan the Company's mid-long term development direction while supervising the Company's operational plans and execution.

The BOD of PSMC consists of nine directors (five of them are independent directors), their responsibilities include business operation, future development management, and supervision. All of the Directors and Supervisors are experienced professionals who are instrumental in operational and strategic planning. The BOD of PSMC has set up a Remuneration Committee and an Audit Committee to enhance its supervisory and management functions. The Remuneration Committee is responsible for assisting the BOD in formulating and reviewing the performance evaluation of directors and managers, as well as the policies, systems, standards, and the structure of remuneration while evaluating and determining said personnel's remuneration regularly. The Audit Committee is responsible for supervising the presentation of the Company's financial statements; appointment (dismissal), competence, independence, and performance of CPAs; the effective implementation of the Company's internal control; the Company's compliance with relevant laws and regulations, as well as the management and control of the Company's existing or potential risks.

The Company has established Professional Rules which has regulations governing the conflicts of interest. There are also regulations governing the conflicts of interest in the Board of Director Meeting Rules. In meeting matters, those who have a vested interest regarding themselves or their legal representative may not engage in discussions and voting. Matters regarding conflicts of interest are stated in the meeting minutes.

There are also regulations governing recusal from the conflicts of interest in the Board of Director Meeting Rules. For meeting matters, those who have personal interest involved may not participate in discussions and voting. Recusal from conflicts of interest are all recorded in the meeting minutes.

The Management team consists of professional managers hired and approved by the Board of Directors. All of the managers have professional qualifications and are extremely experienced in industries. The Managers are responsible for the Company's daily operations and management. As for economic, social and environmental aspects, the Vice Presidents of Financial Accounting and Administration, as well as other relevant high-level managers will make the decisions and deliver reports on these aspects at the meeting.

Directors' recusal from proposals due to conflicts of interest interest in 2020:

On March 9, 2020, the Company's BOD put forth a list of candidates for the Company's directors and supervisors. Those nominated as their personal interest were involved recused themselves from the discussion and voting in accordance with the law. The names of nominees were called one by one and approved by the remaining directors present, and the proposal was passed without objection.



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All BOD members are elected by all shareholders through voting. Considering the operational model, and development and practical needs, the Company selects the candidates for directorship based on their professional backgrounds, education (experience), integrity, profession or relevant professional qualifications, and experiences. The diversity in their backgrounds and viewpoints are taken into consideration, including gender, age, nationality and culture. The BOD selects qualified candidates with extensive industrial experience to improve the Company's overall professional knowledge and skills, so as to achieve the ideal goal of corporate governance. As such, the directors and managers are also arranged to take part in courses related to economy, society, and environment.

Measures taken to develop and improve the management in their knowledge in economic, social, and environmental issues: PSMC provides directors with information on courses and laws and regulations from time to time.

Continuing Education for Directors and Supervisors in 2020:

Name	Course name	Number of further education hours
Frank Huang	5G Key Technologies and Application Opportunities	3
	The Legal Responsibilities and Risk Control of False Financial Reports for Directors and Supervisors - Case Studies	3
Brian Shieh	5G Key Technologies and Application Opportunities	3
	The Legal Responsibilities and Risk Control of False Financial Reports for Directors and Supervisors - Case Studies	3
Tung Kuei-Tsung	5G Key Technologies and Application Opportunities	3
	The Legal Responsibilities and Risk Control of False Financial Reports for Directors and Supervisors - Case Studies	3
Jerry Shao	5G Key Technologies and Application Opportunities	3
	The Legal Responsibilities and Risk Control of False Financial Reports for Directors and Supervisors - Case Studies	3
Martin Chu	5G Key Technologies and Application Opportunities	3
	The Legal Responsibilities and Risk Control of False Financial Reports for Directors and Supervisors - Case Studies	3
Milton Hsieh	5G Key Technologies and Application Opportunities	3
	The Legal Responsibilities and Risk Control of False Financial Reports for Directors and Supervisors - Case Studies	3

Name	Course name	Number of further education hours
Lin Hsien-Ming	Analysis of the Top Ten Global Risks	3
	The Latest Practical Development of Our Country's Insider Trading and Enterprises' Countermeasures	3
Chang Chia-Lin	The Impact of the Amendment to the Securities Investor and Futures Trader Protection Act on the Directors' and Supervisors' Rights and Obligations	3
Wu Chung-Yu	Competitive Behavior Norms and Practical Case Analysis of Company Management Rights	3
	Threat Management and Prevention of Enterprises in the New Generation: Big Data Analysis and Company Fraud Detection and Prevention	3
	How Do Directors and Supervisors Supervise Companies in Managing Corporate Risks and Responding to Crises	3
	The Impact of COVID-19 on Global Economy	3
	The Legal Responsibilities and Risk Control of False Financial Reports for Directors and Supervisors - Case Studies	3
	Trends and Challenges of Information Security Governance (Part 2)	3
	Trends and Challenges of Information Security Governance (Part 1)	3

To achieve the purpose of seeking, motivating, and retaining talents, the Remuneration Committee has formulated and reviewed directors' and managers' performance evaluation, as well as the policies, systems, standards, and the structure of their remuneration. There are independent directors in the committee providing suggestions about remuneration from an external perspective; they also review and ensure the competitiveness of the remuneration on an annual basis.

The remuneration paid by the Company to directors and managers as well as the Company's future operational development and operational risks have been taken into consideration together; meanwhile, we evaluate if the remuneration provided is correlated with our operational performance positively, to strike a balance between sustainable development and risk control.

The Remuneration Committee reviews directors' remuneration and submits it to the BOD for approval; the proposal will then be reported to the shareholders' meeting.

Managers' remuneration (including salary, bonuses, and employee rewards) is determined based on each manager's participation in the Company's operations and the value of their contribution, with a reference to the annual salary survey report, average salaries for managers in the same industry; then reviewed by the Remuneration Committee and submitted to the BOD for approval.



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Column : Professional Governance

1. Independence and diversity of the BOD

To maintain the independence of the BOD, the current nine directors on the board is composed of four directors and five independent directors; independent directors (including external directors) have occupied more than half of the seats; these independent directors are in their first term. Due to their less than three term experience, they can execute their duties objectively. In the future, the Company will continue to pay attention to the re-election of independent directors to facilitate the execution of their duties.

To implement the BOD diversity policy, and to have diverse views to optimize the decision-making process through different backgrounds and perspectives while in accordance with the Company's Director Election Procedures, the BOD relies on the directors' expertise in various fields and the objectivity

and independence of the decision-making process in board meetings, which is ensured by the number of independent directors occupying more than half of the total board members. In addition, the basic criteria, such as gender, age, nationality, and culture, as well as professional background, skills, and industry experience are all considered for the composition of the BOD. However, considering future operational and development plans, we still focus on the experience in a relevant or financial industry. As a result, the average age of our directors is also older. In the future, we will include gender and age in the evaluation of directors' qualifications depending on the operational development.

2. Operation of the BOD

On average, the BOD meets once or twice a quarter to review the Company's business performance and to discuss important strategic issues and critical events. A total of nine BOD meetings were held in 2020, and the actual attendance rate of all directors during the year reached 95% or more. The unit identified to be responsible for processing identified issues at the meeting will report on such matters in the subsequent meeting. The unit in charge of BOD meetings is to provide various motions and report materials to the directors.

In order to implement corporate governance in regard to the Company's future operational planning and development, a corporate governance officer was appointed in March 2021, which was approved by the BOD, to supervise and implement corporate governance operations.

Name	Director/ Independent director	Independent director	Age			Terms in office			Diverse core competencies		
			<60	61-70	>70	<3	3-6	>6	An instructor or higher position in a department of commerce, law, finance, accounting or other academic department related to the business needs of the Company in a public or private junior college, college or university	A judge, public prosecutor, attorney, CPA, or other professional or technical specialist who has passed a national examination and has been awarded a certificate in a profession necessary for the business of the Company	Has work experience in the areas of commerce, law, finance, or accounting, or otherwise necessary for the business of the Company
Frank Huang	Director				●			●			●
Brian Shieh	Director			●				●			●
Rendian Investment Company Representative: Jerry Shao	Director		●					●			●
Powerchip Technology Corporation Representative: Xu Qing-Xiang	Director		●	●	●	●					●
Wu Chung-Yu	Independent director		●		●	●	●		●		●
Chang Chia-Lin	Independent director		●	●		●	●				●
Lin Hsien-Ming	Independent director		●	●		●	●				●
Lin Pen-Chien	Independent director		●		●	●	●		●		●
Yeh Shu	Independent director		●	●	●	●		●			●



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1.2 Integrity and Compliance

Professional Norms

Based on "integrity, service, quality, and innovation", we have established the Professional Norms, the Code of Conduct for Directors and Managers, and the Code of Conduct for Employees, which require the BOD, managers, and all employees to observe ethical standards strictly to implement our commitment to the integrity management policy. To cooperate with the Company's application for listed in the stock market and to respond to the requirements for corporate governance while continuing the relevant management systems, on March 9, 2021, the BOD approved the formulation of the Ethical Corporate Management Best Practice Principles, the Procedures for Ethical Management and Guidelines for Conduct, and the Corporate Social Responsibility Best Practice Principles, as well as the amendments to the Code of Conduct for Directors and Managers, which was then renamed the Codes of Ethical Conduct of the Company.

In order for employees to comply with ethical standards when conducting business and to help our stakeholders to comprehend the Company's ethical standards, PSMC has specially formulated the

"Professional Norms". We explain the integrity principles to the new recruits when we carry out the training for new bloods before they officially start working. They are to engage in all business matters in a truthful way, and any improper engagement with other manufacturers is forbidden. Emails and the Company's website are usually used to promote anti-corruption and integrity in business, helping the Company fulfill social responsibilities and operate with integrity. The cumulative completion rate of anti-corruption and ethics training courses for employee at or below the division level reached 99%. We have required all employees to receive refresher training on anti-corruption every year since October 2021 rather than every three years, as in the past.

If any employee violates the Professional Norms in communication with our existing cooperating suppliers or contractors when they place an order, they can file a complaint to the email provided anonymously.

The Code of Conduct of the RBA, formerly known as the Electronic Industry Citizenship Coalition (EICC), has established a set of norms to ensure that the working conditions and the supply chains of the electronics industry or the industries with electronic products as the main component are safe and sound, and that the employees in such industries are respected and dignified while their business operations are eco-friendly and in compliance with ethical conduct.

As a responsible corporate citizen, PSMC plans to pass the RBA certification in 2021 to comply with the UN Guiding Principles on Business and Human Rights, the Declaration on Fundamental Principles and Rights at Work of the International Labor Organization (ILO), and the spirit of the UN Universal Declaration of Human Rights, which all require us to be committed to safeguarding workers' human rights, respecting workers, fulfilling our social responsibility, and achieving sustainable operations. In 2020, the score of SAQ self assessment survey was 92.3%, which was in line with the relevant regulations of RBA.

The Company has also established the "Diligence issue declaration/reporting system" and an e-mail address for whistle-blowers. The employees must make declarations in accordance with "Professional Norms", which will be consolidated by the Internal Audit Division before being submitting to the President. Internal/External parties may blow the whistle anonymously or non-anonymously and the Diligence Promotion Committee will be responsible in following up. The Company will ensure the confidentiality and anonymity of the whistle-blower and all personnel taking part in the investigation of the Professional Rules violation to avoid retaliation. For those that violate the Professional Rules, the Diligence Promotion Committee will report to the President and (or) the Chairman depending on the seriousness of the offence and it will be handled and (or) sent to the judicial unit according to the Company's Personnel Rules.

The Internal Audit Division had not received any request for assistance from the Diligence Promotion Committee, Managers, Directors and Supervisors of the Company in 2019. In addition, no corruption cases and whistle-blowing in violations of Professional Norms were reported.



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Internal Control

The company is clearly aware that the establishment, implementation, and maintenance of the internal control system are the responsibility of the Company's BOD and managers, and so we have established such a system. The internal control system is designed to provide reasonable assurance for the effectiveness and efficiency of the operations (including profit, performance, and asset safety protection); reliability, timeliness, and transparency of reporting; compliance with applicable laws and regulations. The internal control system has innate limitations: no matter how robust and effective the internal control system, it can only provide a reasonable assurance of the achievement of the aforementioned three goals. In addition, the effectiveness of the internal control system may vary due to changes in the environment and conditions. However, the Company's internal control system has self-monitoring mechanisms in place, and corrective action will be taken against any defects identified. The Company uses the assessment items specified in the Regulations Governing Establishment of Internal Control Systems by Public Companies (hereinafter referred to as the "Regulations") to determine whether the design and implementation of the internal control system are effective. Based on the process of control, the assessment items specified in the Regulations divide the internal control system into five constituent elements: 1. control environment; 2. risk assessment; 3. control activities; 4. information and communications; and 5. monitoring activities. Each constituent element includes a certain number of items. For more information on such items, please refer to the Regulations. We have adopted the aforementioned assessment items for the internal control system to determine the effectiveness of the design and implementation of the internal control system. Based on the results of the determination in the preceding paragraph, the Company is of the opinion that, as of December 31, 2020, the internal control system (including the supervision and management of subsidiaries), including the design and implementation of the internal control system relating to the effectiveness and efficiency of the operations, reliability, timeliness, and transparency of reporting, and compliance with applicable laws and regulations, is effective and can reasonably assure the achievement of the aforementioned goals.

On March 9, 2021, the Company issued the Internal Control System Statement for 2020, which acknowledged the effectiveness of the design and the execution of the internal control systems. In 2020, there were no major violation incidents in various operating locations. In regards to the regulatory compliance of the Company in 2020, please see below.





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1.3 Financial Performance

Although the global economy plunged due to the impact of COVID-19 in 2020, the information and electronics industry still demonstrated strong resilience, which was driven by the stay-at-home economy and the reorganization of supply chains. The Company's consolidated revenue last year grew by 27% to NT\$45.7 billion, the net income after tax was NT\$3.81 billion, and the earnings per share was NT\$1.23. This has showed the excellent synergy from the Company's integration of the foundry production and sales of our 8- and 12-inch wafer fab facilities in 2019. Our outstanding performance of turning losses into profits also demonstrated PSMC's competitiveness in the foundry market.

The raging pandemic last year led to an increasing demand for work from home, telemedicine, and remote teaching, which stimulated sales in laptops, video game consoles, tablet computers, panel displays. In addition, with AI, 5G, and IoT driving a new wave of industrial revolution and the large-scale introduction of automotive electronics, the demand in the semiconductor market is surging. Reorganization of supply chains due to international trade conflicts has made the short supply of upstream electronic components even worse. In the environment of severe shortage of global foundry capacity, the Company's special memory, panel driver ICs, power management ICs, image sensors, and other products have returned to its long-lost glory, with both revenue and profit greatly improved.

With the production capacity of three 12-inch fabs and two 8-inch fabs, PSMC has seized the current favorable market conditions proactively; and worked to optimize our customer structure, developed customized foundry technologies, and increased foundry prices and capacity utilization, to further strengthen our growth momentum as we already turned losses into profits last year. In addition, to prepare for the application for listed on the stock market and the plant expansion this year, PSMC was listed on the emerging stock market for trading in December 2020 and returned to the capital market successfully.

In summary, the Company's consolidated operating revenue for 2020 increased by 27% from the prior year to NT\$45.7 billion, and gross margin also increased by 16% annually to reach 24%; our operating costs were NT\$34.7 billion and operating expenses NT\$5.46 billion, a slight increase by 5.4% and 3.6%, respectively, compared to 2019. With effective cost control, our net income after tax was NT\$3.81 billion and earnings per share were NT\$1.23, turning from losses to profits successfully.



Looking ahead to 2021, the Company's major management goals are as follows:



1. Use memory and 3D Interchip technology to develop a variety of foundry platforms for high-performance, low power consumption, and highly integrated products.



2. Implement the application of low power consumption special memory, and develop a layout of new product lines, including BSI image sensors and GaN/SiGe power components.



3. Improve production yield, capacity utilization, and operational efficiency while adjusting production and sales timely based on market conditions to increase profits.



4. Launch the P5 Tongluo Plant project.



5. Complete the stock listing application process.




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(Unit: NT\$ thousand)

After developing our foundry business for many years, PSMC has discarded the past business model of our business performance being closely related to the industrial cycle of standard memory. In a new wave of digital revolution, the application of semiconductor products will be further expanded. We are striving to revitalize our memory technologies, and work closely with our customers through the Open Foundry strategy to gradually expand to emerging markets, thereby creating a win-win sustainable operation model in a steady manner and becoming a world-class electronic technology manufacturer with stable profitability.

We are building a corporate culture of integrity, service, quality, and innovation actively, and spare no effort to create prosperity with our employees and the community based on our belief in creating a friendly environment and contributing to society in addition to giving back to our shareholders by providing them with great profit. Thank you for your long-term support.



Item/Year	2019	2020	Comparing the growth of 2020 to 2019
Operating revenue	35,897,121	45,684,615	27.27%
Gross profit	3,000,668	10,992,411	266.33%
Operating profit/loss	-2,098,779	5,744,244	-
Non-operating income and expenses	-516,106	-945,171	-83.14%
Profit before tax	-2,614,885	4,799,073	-
Profit of continuing operations	-2,643,184	3,806,477	-
Net income (loss)	-2,643,184	3,806,477	-
Other comprehensive income for the period (net income after tax)	-111,219	-86,850	21.91%
Total comprehensive income for the period	-2,754,403	3,719,627	-
Net income attributable to parent	-1,480,370	3,806,477	-
Net income attributable to equity holders of the Company	-1,162,814	-	-
Total comprehensive income attributable to parent	-1,551,814	3,719,627	-
Total comprehensive income attributable to equity holders of the Company	-1,162,814	-	-
Total comprehensive income attributable to predecessors' interests under common control	-39,775	-	-
Earnings per share	-0.94	1.23	-
Employee wages and benefits	8,068,231	9,502,870	17.78%
Payment of shareholders' dividends (cash) ^{Note}	95,234	600,000	530.03%
Payment of government taxes ^{Note}	40,759	41,465	1.73%

Note: Payments made by PSMC.



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1-3 Financial Performance

◆ 1-4 Risk Management

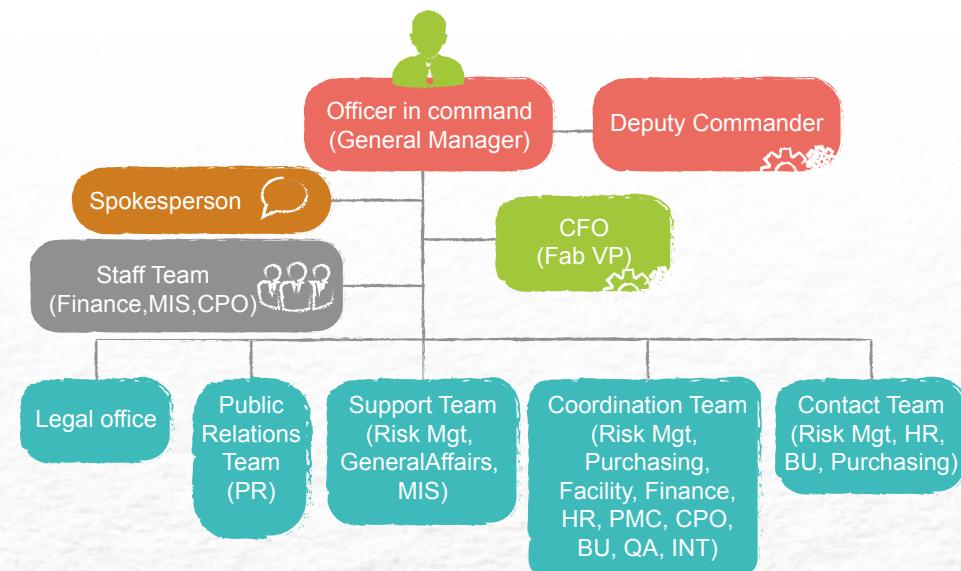
1-5 Information Security Control

1.4 Risk Management

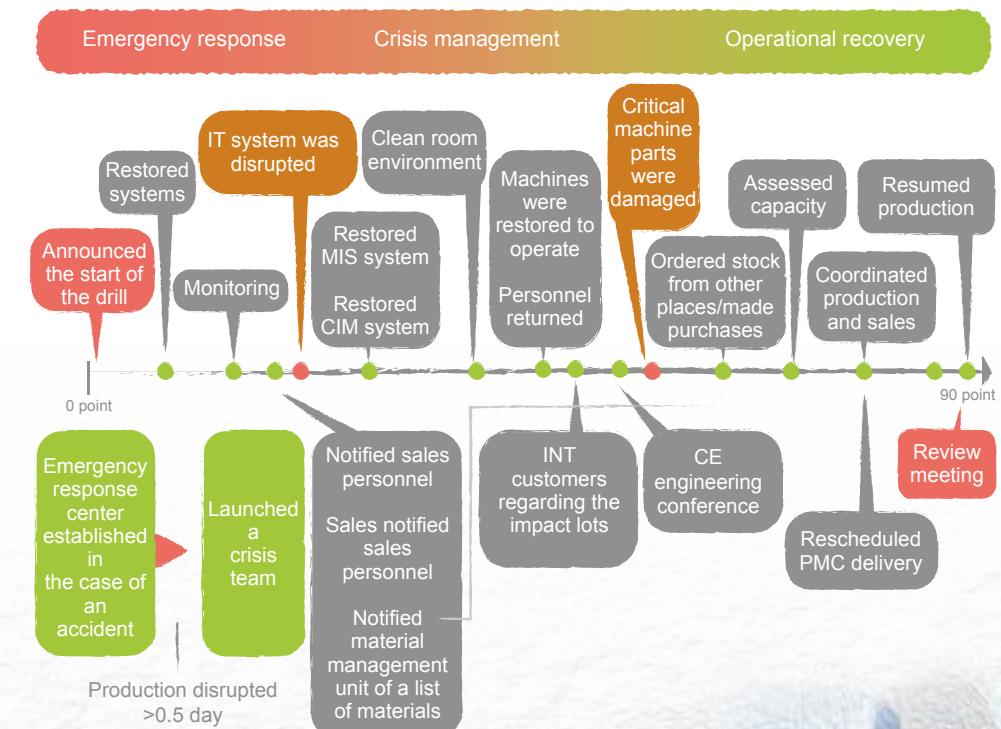
Operational Risk Diagnosis

We use the operational impact analysis method to identify the Company's key operations and the possible impact these operations may cause and establish an optimal operation recovery time. We analyze these key operations using operation impact. Through risk assessment charts, we analyze the potential threats, weaknesses and consequences of these hazards individually within operations, and understand the existing prevention and detection control measures. Then according to the seriousness level of the analysis level chart, occurrence analysis chart, risk level judgment standards, we can determine and grasp the operating risks and establish risk control policies to reduce risks. Operational risk diagnosis is made by the joint evaluation and diagnosis of all units; these include plant affairs, risk management, manufacturing, engineering, automation, information management, property management, purchasing, sales, production management, finished products, finance, human resources, and quality customer service.

BCM Crisis Management Organization



The BCM drill was completed in 2020. The scenario was that the external power supply was abnormal, causing damage to our critical machines and disrupting production for one day.





1-1 Organizational Structure

1-2 Integrity and Compliance

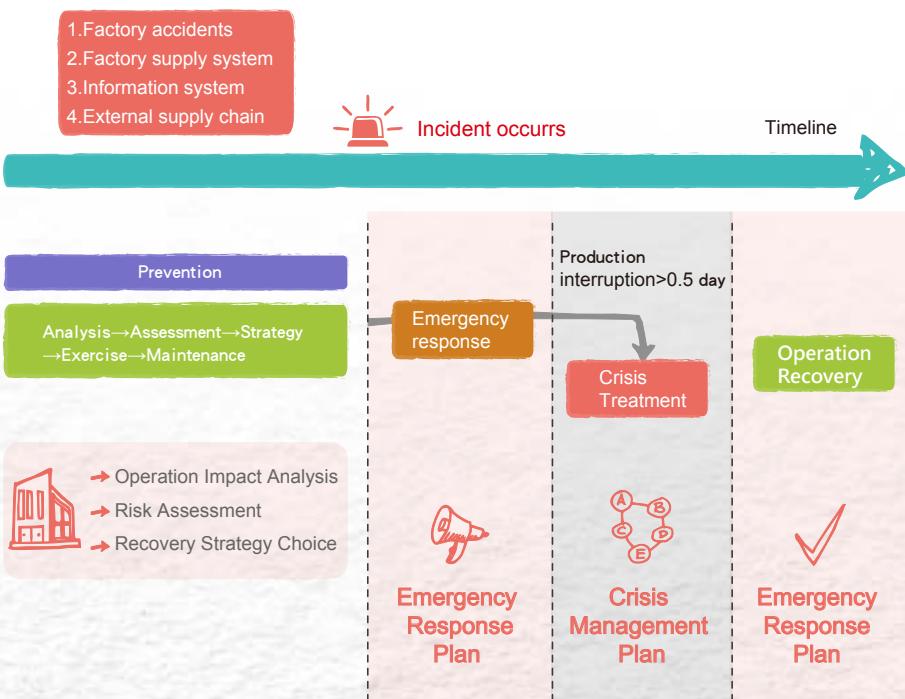
1-3 Financial Performance

◆ 1-4 Risk Management

1-5 Information Security Control

Continuous Operation Management

PSMC is an enterprise that pursues sustainable operations. To ensure that the Company does not experience operation interruption in the event of a major incident or crisis, and minimize the loss of property, employee lives, corporate image, customers and investors, the Company has management plans that handle crises systematically. To restore operations back to normal in the shortest time possible in the event of a major incident or crisis, PSMC has formulated crisis management plans and recovery plans on certain crises such as power and water shut-down for an extensive period, severe fires, destructive earthquakes, climate changes, interruption of raw material supplies, shortage of labor, hacking of the information system and key equipment malfunctioning; themed drills are carried out each year. The drill completion rate of continuous operation management amounted to 100%. The Company will continue to uncover weaknesses and make improvements.



References for continuous operation management

Operating Procedures for HSE Risk Evaluations	Plant Disaster Emergency Response Measures	Procedures for Crisis Management Plans	Procedures for Operation Recovery Plan
Procedures for emergency response on water supply interruption and restriction	Standard operating procedures for electricity recovery for plant affairs	Procedures for emergency response on raw material shortage	Procedures for MIS backup

Measures for Business Continuity amid COVID-19 Outbreak

As employees are the Company's important assets, we take good care of employees' health to maintain our competitiveness; and therefore have listed preventing infectious diseases as a part of our daily operations, and conduct risk assessment according to potential epidemic scenarios and have devised a contingency plan for epidemic prevention and response. Moreover, we actively collect information on and pay attention to the development trends of epidemics as the basis for employee health management and countermeasures while conducting annual reviews and adjustments to ensure the feasibility of the countermeasures.

In response to the potential impacts of COVID-19 on the Company, the Department of Risk Management has been paying attention to the development of the pandemic since the end of 2019, and had begun to provide appropriate health education to our employees to avoid false concepts. When the pandemic was gradually escalating, we mobilized our response team, composed of members from the Health Center, human Resources Department, the Information Management Department, the Operation Planning Department, the Procurement Department, the Public Relations Department, and the General Affairs Department, to launch the disease prevention according to the epidemiology, and to implement the measures below at different stages gradually while reviewing and adjusting them regularly to respond to changes in the pandemic:

1. We promoted the idea of employees voluntary health management and announced pandemic prevention measures in cooperation with the government's policy. We also conducted voluntary monitoring and asked employees to wear masks if necessary, and responsible units would follow up on the situation. Employees with a high risk of infection were listed as targets for tracking, and we would provide them with relevant assistance.
2. We strengthened the cleaning and disinfection of the public areas of each plant and provided disinfection supplies for our personnel, and conducted body temperature measurement and confirmed disease-related information for all vendors/visitors before entering the plant.
3. Informed vendors of on our pandemic prevention measures pertaining to them. Employees with a high risk of infection should wear masks at work; employees should avoid unnecessary business trips and reduce/decline visits from personnel from high-risk areas.


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4. We implemented alternative measures, such as working in different areas, work from home, video conferencing, etc., to reduce the risk of exposure to the virus.

5. We launched various preparatory tasks for impact on our operations, including supply chain confirmation, disinfection of products upon entry and exit, product inventory and storage, communication with customers, and communication with the media.

Through the efforts of relevant units and employees, although COVID-19 is still in the global pandemic stage, we can effectively keep track of our employees' conditions and take measures and actions early. We will continue this vigilant spirit to ensure that all partners working in the Company receive complete health care to achieve the goal of "win-win outcome for work and health", thereby strengthening the Company's overall competitiveness.

Financial risks

(1) The impact of fluctuation in interest rate, exchange rates, and inflation on the Company's profit or loss and its future countermeasures:

1. Fluctuation in interest rate

Unit: NT\$ thousand; %

Year/Item	2019	2020
Consolidated interest expense	523,363	678,183
Consolidated operating revenue	35,897,121	45,684,615
Percentage of consolidated interest expense over net revenue	1.46	1.48

Source of information: Audited consolidated financial reports

The Company's interest expenses for 2019 and 2020 accounted for 1.46% and 1.48% of the operating revenue in the current period, respectively. The changes in the two periods were small, so we did not conduct a further analysis. The consolidated interest expenses were mainly from the loans from financial institutions due to the Company's operating needs and capital expenditure. Although market interest rates fluctuated, it did not have a significant adverse effect on the Company's revenue and profit. The Company had both fixed and floating rate loans, and therefore monitoring and analyzing the interest rate fluctuation of financial market on the cash flow impact caused by interest-bearing liabilities; a timely evaluation is also made of the interest rate risk posed by the interest-bearing liabilities consistently. Measures are taken according to the needs at the time to reduce the impact of interest rate fluctuation on the profit and loss of the Company.

2. Fluctuation in exchange rate

Unit: NT\$ thousand; %

Year/Item	2019	2020
Consolidated net exchange gains or losses	68,070	316,469
Consolidated operating revenue	35,897,121	45,684,615
Percentage of consolidated net exchange gains or losses over net operating revenue	0.19	0.69

Source of information: Audited consolidated financial reports

The Company's 2019 and 2020 consolidated net exchange gains or losses accounted for 0.19% and 0.69% of the current net operating revenue, respectively. Since the Company's capital expenditures and manufacturing costs are mostly incurred in non-Taiwan currency such as USD and JPY, with its revenue mainly in USD, extensive fluctuations in exchange rate may have a negative impact on the Company. The Company adopts natural hedging strategy while supplementing with forward exchange contracts to mitigate exchange rate risks according to the fluctuation of the exchange rate market, actual position and capital status.

3. Inflation

The Company has not been significantly affected by inflation. Further, the Company closely monitors market inflation and has good interactive relationship with suppliers and customers so as to avoid the impact caused by inflation on the Company's profit or loss.

(2) The rationale of policies and future countermeasures for the profit or loss incurred for engaging in high-risk, high-leverage investments, loaning funds to others, endorsements/guarantees and derivatives:

1. The Company has established "Procedures for Lending Funds to Other Parties", "Procedures for Endorsements/Guarantees" and "Procedures for the Acquisition or Disposal of Assets" which serve as the basis of compliance for the Company. The Company has not engaged in high-risk and high-leverage investments, lending funds to other parties and extending endorsements/guarantees.
2. The Company mainly engages in derivative transactions to mitigate the exchange rate risks for USD-NTD and JPY-NTD. The risk arises from assets and liabilities in foreign currencies. The derivative transactions are risk mitigating in nature and are strictly subjected to the "Procedures for the Acquisition or Disposal of Assets", which serves as the basis of compliance for these transactions. As such, the Company is not exposed to major risks.



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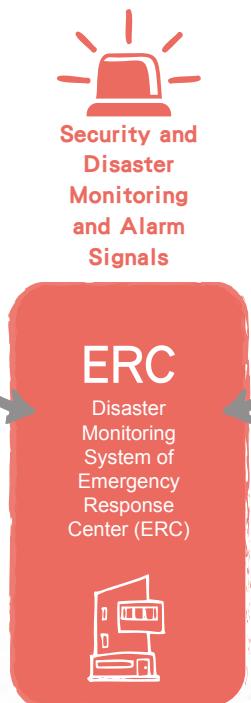
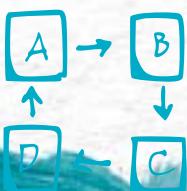
1-5 Information Security Control

Security Surveillance

The hardware facilities used in the Company's daily production are in compliance with the domestic and foreign regulations as well as the actual conditions of various plants. Security standards and control measures of plant machinery and equipment are compiled by the professionals of Risk Department; ensuring industrial safety risks are controlled from the source.



Further, an Emergency Response Center (ERC) is established in all factories. Through an integrated disaster monitoring system, the Company has more time to respond when disasters occur. Proper early response can not only reduce casualties and environmental pollution to the minimum, it can also substantially reduce equipment loss and increase the recovery of the factories.





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1-2 Integrity and Compliance

1-3 Financial Performance

◆ 1-4 Risk Management

1-5 Information Security Control

Safety improvement performance

◆ P3 fab area fire system

Annual improvement schedule

- As the supply for the relevant fire alarm equipment has been discontinued (2006-), it is expected that existing eight control panels of the old system will be replaced.
- Outdoor fire alarm detector/ aging circuits can easily cause detectors to malfunction and form a ground loop.
- The fire piping was reinforced with longitudinal bracing, four-way bracing, and an anti-tilting function in accordance with the requirements of NFPA 13 and FM 2-8.

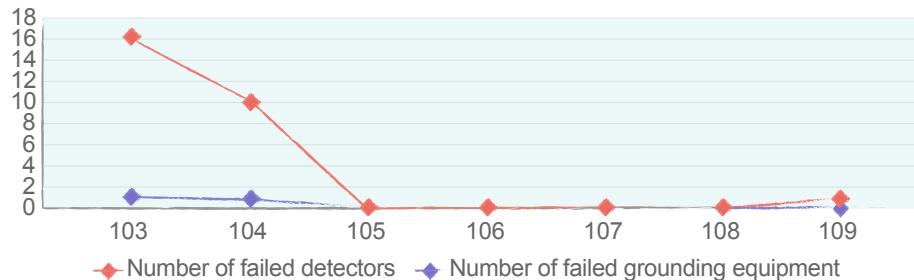
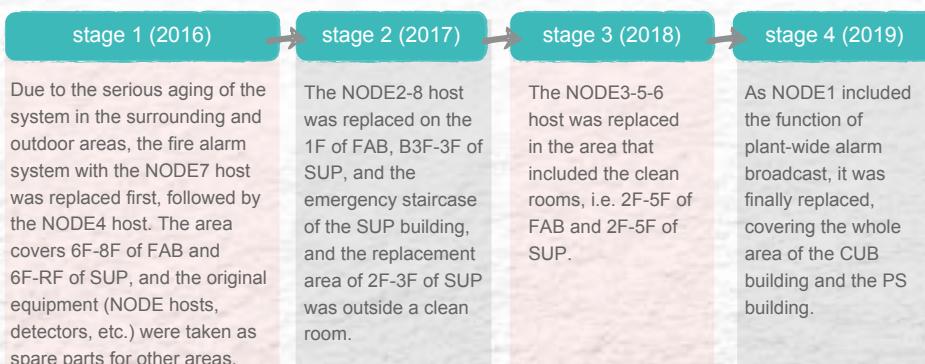
Concrete Results

- Apart from replacement of equipments, the pipelines had to be replaced as well.
- From the data in the table, the number of earth faults last year was zero, and the replacement of malfunction detectors last year was one time. Obvious differences between the data in the past five years and the data from 2014 to 2015 can be observed.
- The factor of the designed structural strength of the pipe frames was reinforced to 0.75G both horizontally and vertically from the original horizontal 0.5G.

✓ All completed

As Gamewell FACP is only used in P3 factory in Taiwan, and relevant equipment has been discontinued (2006-), we planned to replace the eight hosts of the old system (Gamewell) with those of the new system (Notifier).

The planned replacement schedule is estimated to be as follows:



Construction planning

Construction areas: All plant area, including the FAB, the SUP, the CUB, and the PS buildings.

Planned schedule:

2017	The standpipes, sprinkler system filter, and fire hydrant system of the clean rooms in a total of six areas(2F, 3F, and 5F of FAB; 2F, 3F, and 5F of SUP)
2018	The standpipes, sprinkler system (including water mist), and fire hydrant system of the factory supply system in a total of six areas(1F, 4F, 6F, and 8F of FAB; B1F of CUB; 8F of SUP)
2019	The standpipes, sprinkler system (including water mist), and fire hydrant system of the factory supply system in a total of six areas(1F-3F of CUB and 3F-5F of PS)
2020	The factory supply system, and standpipes, sprinkler system, and fire hydrant system of the warehouse in a total of four areas(B3F of SUP, B2F of SUP, 1F of SUP, and 4F of SUP)
2021	The standpipes, sprinkler system (including foam), and fire hydrant system of other areas in a total of one area(6F of SUP)

Construction content:

- The main fire pipelines and sub-pipelines of the entire plant need to be equipped with longitudinal bracing.
- As the direction of fire pipelines ($\geq 2\frac{1}{2}$) of the entire plant was changed (more than 3.6m), horizontal and longitudinal bracing needs to be installed.
- As the length of the fire pipelines (standpipes) of the entire plant exceeded 1m, horizontal and longitudinal bracing needs to be installed.
- Anti-tilting (over 11m) needs to be installed in the fire pipelines of the entire plant.

The priority of the construction areas:

- Plant-wide standpipes;
- production machine (including auxiliary equipment);
- factory supply system;
- other areas (office area, material storage area, etc.).

※ Area in which the construction has not yet begun (car and scooter parking space)- B1F of CUB and 4F-11F of CUB in a total of nine areas.



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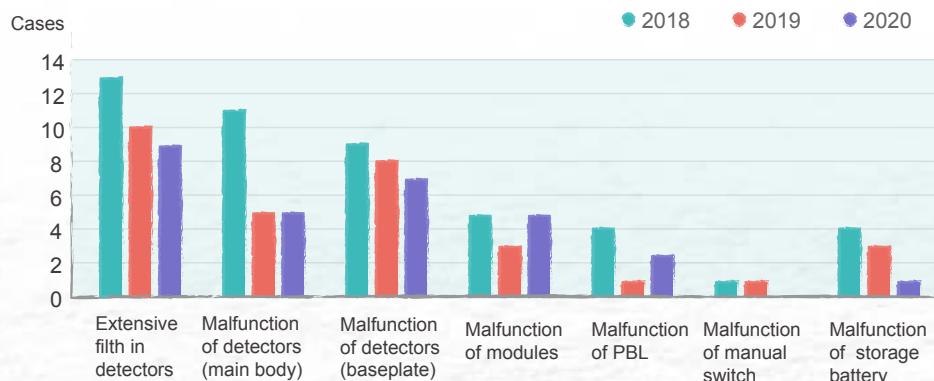
◆ Improvement to availability of P1/2 fab area fire system

Annual improvement schedule

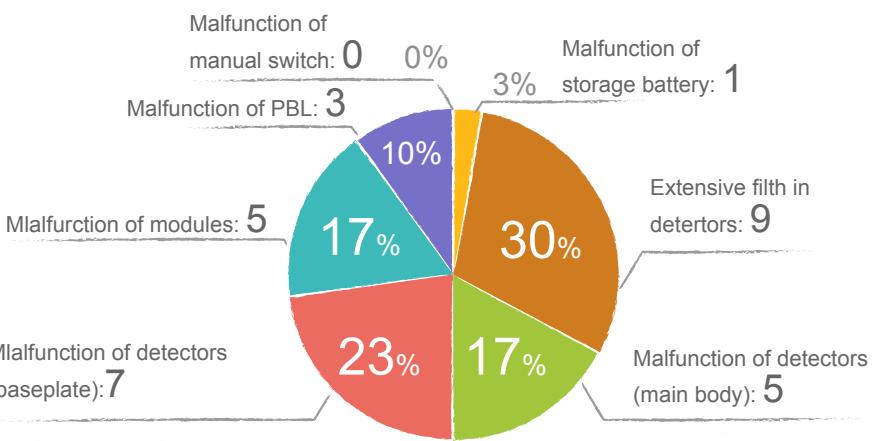
- The malfunction data of the fire system in 2018 was adopted as the basis for analysis of the high malfunction rate of the equipment for the systemic preventive management for 2018 to 2020. This was conducted to strengthen the reliability.
- Improvement projects on systems in high risk areas were undertaken. Budget items were executed according to schedule.
- Inspection frequency was increased for high-risk areas (areas in which systems frequently malfunctioned due to environmental factors).
- System spare parts were managed (established a safe level of storage and the quantity was checked quarterly).
- Special areas were inspected regularly and the lifetime system components were replaced.

Concrete Results

- The number of malfunction in system components from 2018 to 2020 showed a downward trend.



2020

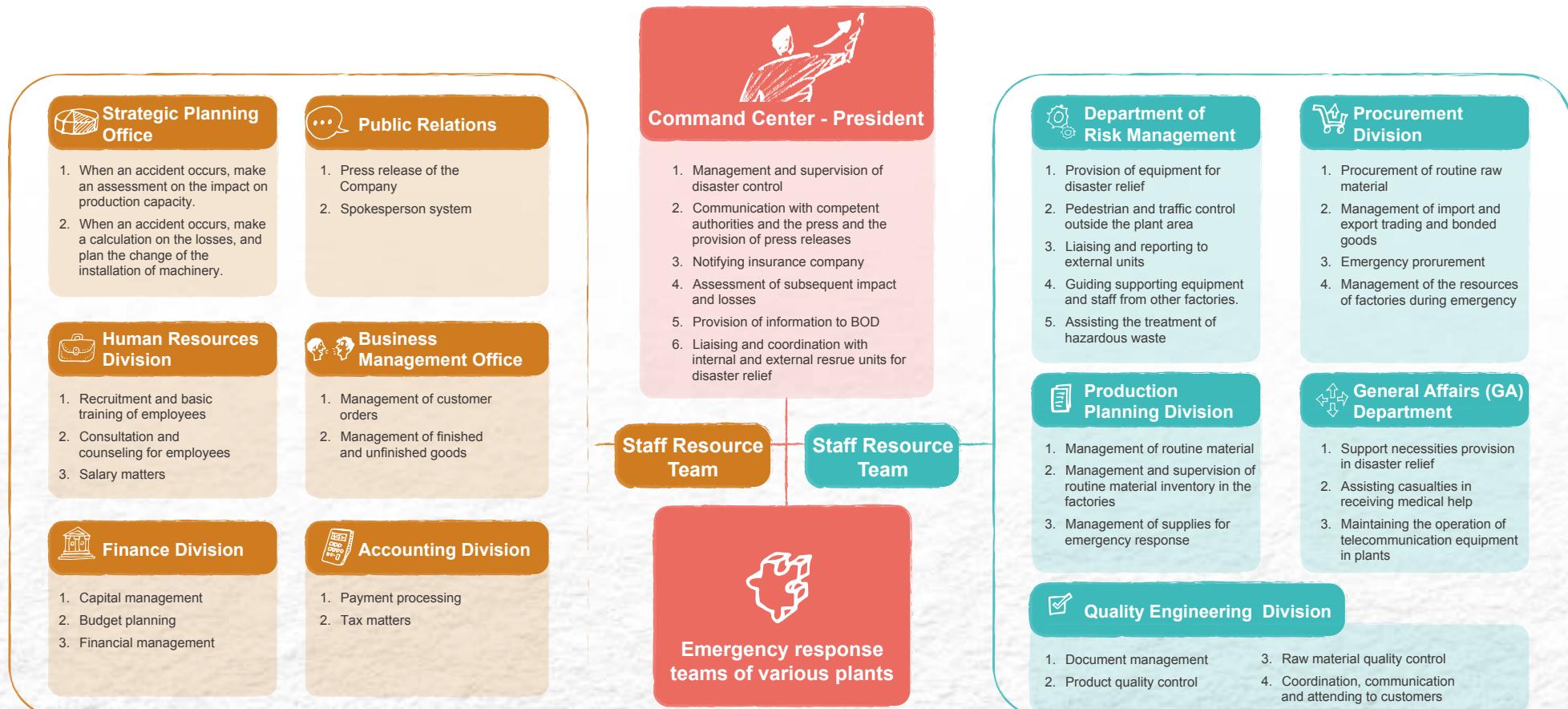



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Emergency response

To apply the correct and effective response measures in case of an emergency so as to minimize the casualties, property damage and impact on the environment due to an accident, the Company has established the "Plant Disaster Emergency Response Measures" and formed and trained an emergency response team. The team is subjected to a departmental drill at least once every six months, and a comprehensive (cross-departmental) drill once a year. General employees are subjected to one evacuation drill every year.

Organizational Chart for Emergency Response




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Organizational Chart for Regional Emergency Response

Regional Command Center

1. Overall response command
2. Responsible region personnel evacuation
3. Each Group response work of the contact and coordination
4. Announce the condition released and personnel reversion decision
5. Plant outer emergency rescue unit

Aides

- A. Prevention system confirmed
- B. Collection site conditions return
- C. Coordinator job
- D. Assist resource scheduling and confirmation
- E. Assist commanders



Safety Control Group

- 1. Guiding personnel evacuation
- 2. Personnel Controlled
- 3. Isolation Disaster
- 4. In/Out of the disaster record/equipment check
- 5. Erecting decontamination station/equipment decontamination



Rescue Group

- 1. Search and rescue Personnel accident site
- 2. The accident scene rescue and containment
- 3. Removal and interdiction of dangerous substances
- 4. The important material of rescue
- 5. Assist and support the fire fighting personnel in rescue
- 6. Environment Monitoring



First Aid Group

- 1. Set up a provisional aid station
- 2. Casualty be taken to hospital for medical treatment



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Regular ERT training



Emergency response drill

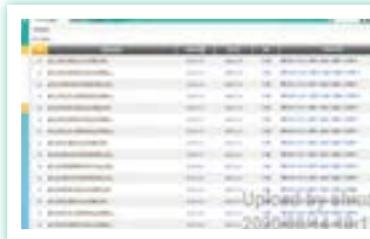
The scenario that the gas of auxiliary equipment was leaked and an alarm was triggered was adopted for the emergency response drill.



Office building fire extinguisher training and clean room evacuation drill

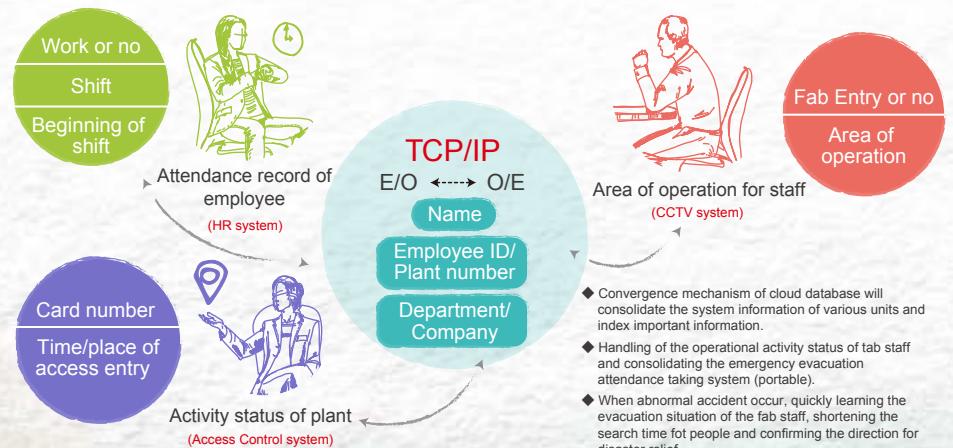


We plan to execute courses in emergency personnel practice and examination quarterly, and regularly hold emergency personnel refresher training to greatly increase the emergency response capability of emergency personnel. The related courses take into consideration the characteristics of the 24-hour shift of the employees, so an E-learning system and health management system is employed for the employees to receive health information and take training courses anywhere, anytime.



▲ e-learning system interface

We established an attendance taking system for emergency evacuation. The gathering time for attendance taking may be reduced from between 15 to 20 minutes to 15 seconds, significantly lowering the required time for attendance taking and human error. Via the gathering of cloud information, the search area of the rescue team can be targeted to the last access entry which can effectively reduce the number of rescuers and rescue time.





Creative Communication More diversified Pteam collaborative platform

With the development of information technology, the communication tools have advanced from telephone, e-mail, instant messaging to enterprise integrator; communication efficiency is thus increased significantly. However, the challenges faced pertaining to information security is also getting grimmer.

After assessing the enterprise integrator products in the market, in terms of information security protection, they were unable to satisfy PSMC's commitment in the protection of trade secrets. As such, the Company went a step further than its industrial counterparts and decides to develop the Team Enterprise Integrator Platform.

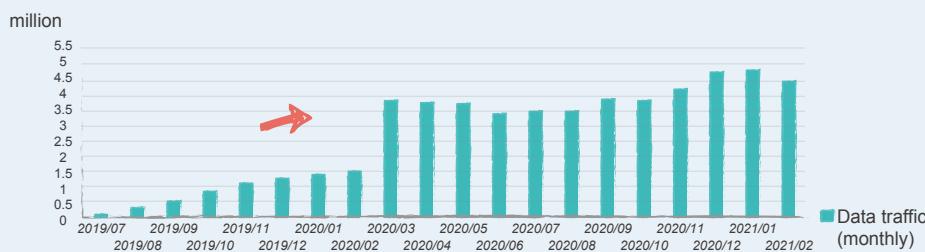
By totally leading and controlling the development technology, software and hardware specifications/framework and database servers, PSMC can properly protect its crucial intellectual properties and make real-time adjustments to the functions according to operational needs, thus gaining optimal adaptability and immediacy from the system.

In addition to the general collaboration functions for enterprises, Pteam also focuses on the information security management of mobile devices. Due to the COVID-19 outbreak in the beginning of 2020, Pteam made preparations ahead by launching online meeting, body temperature monitoring, remote work access, external collaboration, and other functions instantly, thus providing the best practicable solution for disease prevention measures.

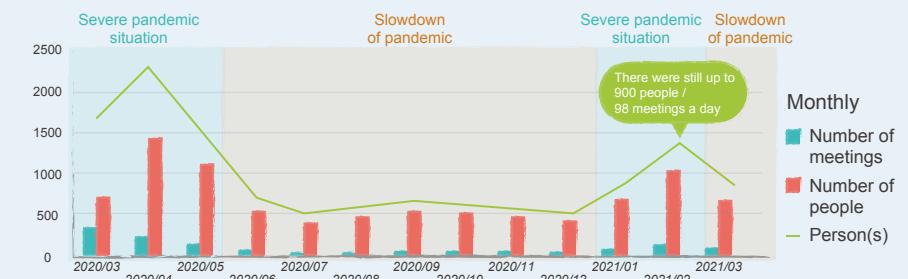
Seeing the external environment as ever changing, corporations must upgrade themselves in order to survive. Pteam is PSMC's response in this new era, and proves our determination in the pursuit of excellence.

Since the launch of Pteam, the use of communication and online meetings has grown substantially, which has reduced the impact on operational disruption due to the outbreak.

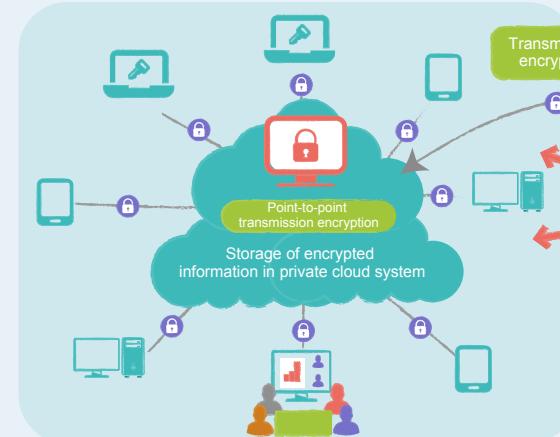
Data traffic (monthly)



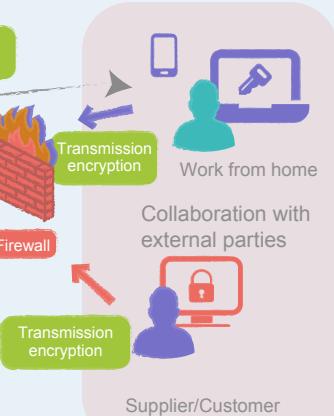
Pteam online meeting use status



PSMC offices



Remote work



◆ Instant messaging/voice communication, integration of internal systems, online (including external) meetings, temperature management, remote work, external collaboration, etc.

◆ Pandemic prevention: Reduce crowd gathering, and maintain indoor social distance of 1.5 meters. Use Pteam to facilitate online discussions.


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1.5 Information Security Control

Information Security Policies

To ensure the information security of the correspondence between the Company and its customers/partners, and thus protecting the interest of the Company and its stakeholders.

The Company is a technology-intensive company. We are well aware that our competitiveness is built on the security of our intellectual properties. As such, the Company has established the "Information Security Policies" and "Information Security Management Measures" to regulate relevant measures undertaken to protect important information, including trade secrets and intellectual properties, while protecting correspondences with our customers. All information and documents sent between the Company and customers are strictly controlled and documented under the internal system. The approval and activation of the access level of personnel are handled in accordance with the relevant operational procedures of the systems.

In terms of the implementation of information security management, it may be difficult to control the use of paper in practice. Due to a raising awareness of environmental protection in recent years, PSMC began to implement a plan to reduce paper use in February 2018, in hopes of replacing paper with electronic files, so as to improve the systemic operations (application/enquiry/reading), thereby reducing the use of paper, continuing to respond to environmental protection with practical actions, continuing to implement energy-saving and carbon reduction measures. This has also reduced the risk of paper documents in information security management more effectively.

According to the "Information Security Policies", the Information Security Committee is composed of the representatives appointed by all relevant units who are responsible for formulating and implementing the Company's security control operations. The Committee holds meetings regularly to discuss and resolve issues relating to information security, covering aspects on human resources, physical security, and information security. When major changes or an incident involving information security occurs, an emergency meeting is held. Each year, via training and internal announcements, the Company promotes and communicates the importance of information security to all its employees to implement its information security policy.

Since 2018, the Company has launched a trade secret control project: strengthening access control and monitoring information system access management and the storage and review on access logs, so as to strictly control personnel access and data access (such as prohibiting the use of private storage devices in the Company; installation of monitoring software on computers distributed by the Company, control software installed on personal mobile phone with cameras; security checks on personnel entering and leaving the company). We also avoid any improper storage, retrieval and tampering of company information; and also prevent theft or leakage of trade secrets and intellectual properties. In 2019, PSMC had no occurrence of "proven violation of customer privacy"

and "complaint on missing customer information" that would damage the interest of an external party. Moreover, all of our colleagues must participate in the training on "Information Security Management Measures" (including information security training for the orientation of new recruits) each year to strengthen their awareness on the issue, so as to ensure information security for the Company as a whole. During 2019, all employees of PSMC (not including expatriates) had completed the training on "Information Security Management Measures".

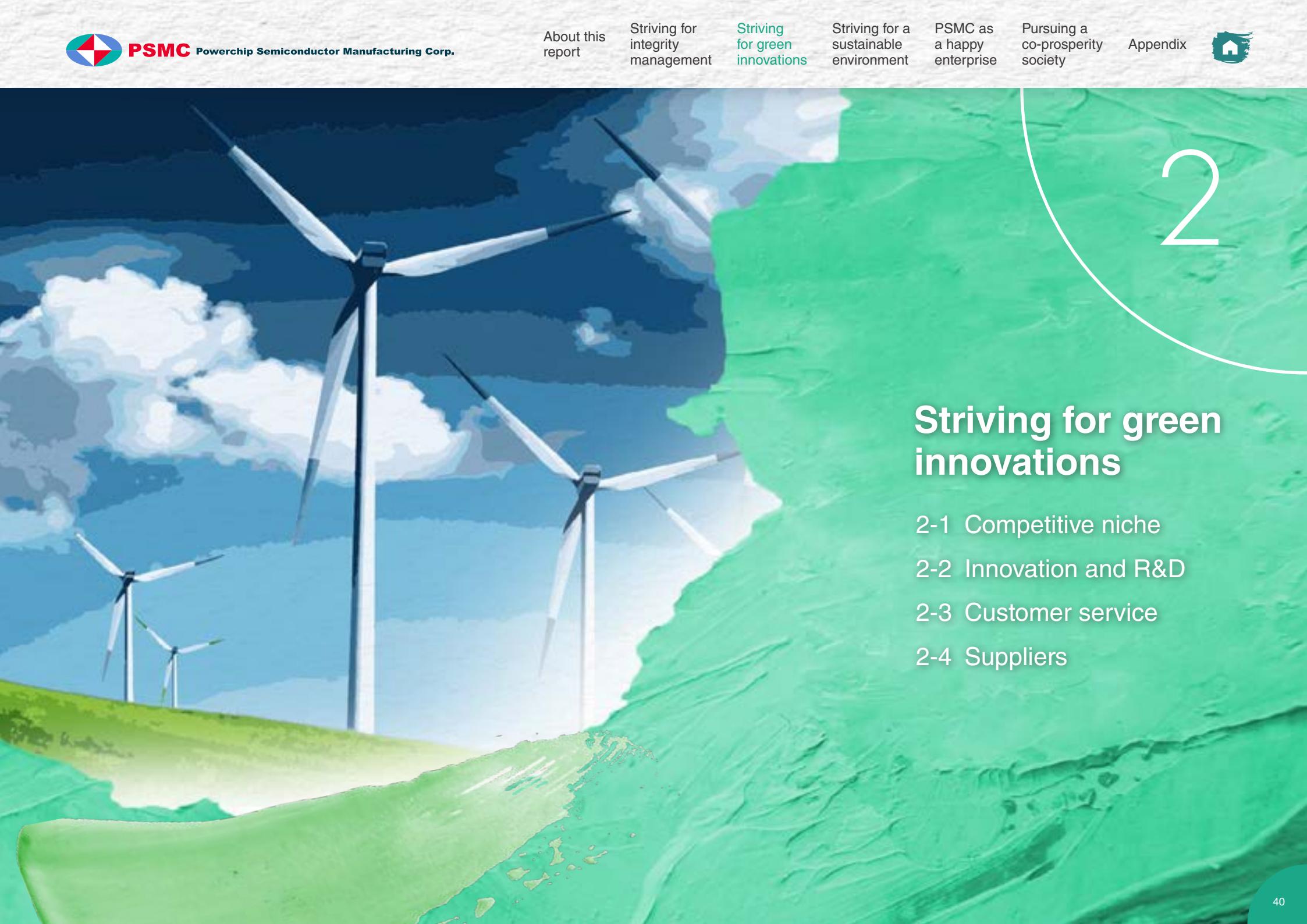


▲ The "Information Security Control Measures" course





2



Striving for green innovations

- 2-1 Competitive niche
- 2-2 Innovation and R&D
- 2-3 Customer service
- 2-4 Suppliers



Sustainable profitability and Management Policies

PSMC is in a high-tech industry where making a steady profit is a basic requirement for the sustainability of an enterprise. We are therefore committed to maximizing the Shareholders' and stakeholders' interests. As such, we strive to maintain technological advantages to create stable profits, as the sustainability of the Company is our most important goal.



◆ The Company conforms to the “Enterprise Patent System (E.P.S) and “Intellectual Property Management Measures.” Through patent research and development and technological innovation, we offer more advanced and comprehensive solutions to secure a stream of orders from customers.



Short-term goal:

- ◆ The number of patent applications by the entire company will exceed 100 in 2021.

Long-term goals:

- ◆ New product line layout - special memory, biochips, memory and logic integration technology (intra-chips/ 3D inter-chips), BSI image sensors, as well as GaN/SiGe power components and chips.
- ◆ Continuing the computing-in-memory technology platform development in the prior year, PSMC will incorporate more intellectual property designs in to AIM chips, to strengthen its performance and increase its application areas.
- ◆ PSMC has completed the development of the smallest NOR flash cell in the foundry industry and expects to begin to mass-produce products for customers in 2021. PSMC will complete the development of 3D Interchip and display samples at the end of 2022, and will produce in small quantities in 2023.

◆ Established an Intellectual Property Office that is responsible for the protection of intellectual properties. Through e-learning courses, the Company increased the employees' regulatory knowledge in intellectual property and secured its overall R&D results via the Intellectual Property Office.

◆ Established a reward system to encourage employee contribution to intellectual property .

◆ Established a Technology Development Center that is responsible for process technology R&D of various product lines, and promoted the “Open Foundry” operation model.

◆ Established a Strategy Planning Office that is responsible for formulating the direction of the Company's operations and customer development.

◆ By combining the strategic considerations and operational goals, the Company continued to improve its patent management system, optimized the patent portfolio, and planned its maintenance costs meticulously. The internal patent proposals were reviewed and selected by the Intellectual Property Review Committee, in which proposals that were innovative and practicable for industrial use were chosen for patent application.

◆ KPIs were set according to the existing technological development schedule. Regular meetings were held to monitor the progress.

◆ Business management and performance review meetings were held regularly to set the goals and the corresponding necessary measures to be taken for operation management.



Customer Trust and Management Policy

PSMC strives to ensure the production processes conform to international environmental protection, satisfy customers' requirements in product quality and environmental protection specifications, and select proper suppliers for a steady material provision. These efforts are to earn customer trust so that they will continue to place orders with PSMC and create greater profitability.





◆ 2.1 Competitive niche

2.2 Innovation and R&D

2.3 Customer service

2.4 Customer service

2.1 Competitive niche

According to the World Semiconductor Trade Statistics (WSTS), the global semiconductor market in 2020 reached US\$433 billion, an increase of 5.1% from the US\$412.3 billion in 2019, which was better than the expected growth of 3.3%, to which the growth was revised downward due to the impact of COVID-19. WSTS predicted that the growth of the global semiconductor market would accelerate in 2021. In 2021, the global semiconductor output value was expected to grow by around 8.4% on an annual basis, with main growth momentum coming from relevant products, such as sensors, logic chips, and memory. Gartner, a survey institute, also expected the semiconductor market would grow by 11.6% or more in 2021.

In recent years, major IDMs have increased their proportion of outsourcing under the consideration of capital expenditure and cost reduction which helps the revenue performance of foundries. According to Omdia, an international research institution, the market of foundry service itself in 2021 is expected to see a positive growth of 14%, which is better than the performance of the overall semiconductor industry.

Since the outbreak of COVID-19, the pandemic has since spread to every corner of the world. At present, it has not been able to be curbed effectively, and the China-US trade war has intensified, leading to various uncertainties in the market, which may have a deferred effect on end consumers' product demand. More observation is needed to see the impact it will have on the global economy.

From 2019 to 2020, countries around the world began giving their full support to 5G commercial operations. The leading countries include South Korea, the USA, Australia, the UK, and Mainland China. The world has formally embarked into the 5G era. More companies are going to launch 5G smartphones in 2021. The characteristics of 5G technology include high-speed transmission, low latency, and massive connectivity. In addition to business opportunities brought by the construction of 5G infrastructure, the upgrading of terminal equipment will also spark growth.

With the increase of computational capacity and data transmission speed, and the maturing networking and cloud data mining technology, the use of data to develop AI has become an important technological issue in recent years. It is expected that the AI application installed at terminal devices will develop in the following six directions: voice assistant, advanced photography, intuitive user interface, reduction in powerconsumption to prolong battery use, increase in networking quality, and increase in personal security protection. AI is gradually developing an all-round application for terminal devices, including smartphones, smart wear, drones, smart home, smart factory, smart driver assistance, smart mobile health services, public or security management or genome sequencing. These terminal devices are all connected to AI. When 5G commercial operation succeeds and the AI era arrives, connecting IoT, Internet of Vehicle (IoV), smart environment, portrait or voice recognition, other application scenarios, behaviors and habits, will bring massive changes and business opportunities to the semiconductor industry.

Meanwhile, with the advancement in AI technologies and its effectiveness, the maturing of IoT, and the construction of 5G mobile infrastructure, new forms of terminal devices will emerge; thus increasing the complexity in chip designing.

Apart from pursuing the consolidation of chip functions and low power consumption, giving more considerations in production efficiency and the microfabrication processes in semiconductor manufacturing must be taken into account. 12-inch fabs are the mainstream size for semiconductor supply. The entry barrier for new competitors has become relatively higher than before. Compounded by global major IDMs going Fab-lite*, this transformational trend is increasingly evident, gradually boosting the foundry service orders further. Taiwan's foundry industry is the largest beneficiary in this wave of transformation. The Company possesses ample capacity in advanced 12- inch wafer processes and focuses on niche production, attracting many international IDM businesses and fabless design companies to our foundry services.

* Fab-lite: Fab-lite model denotes minimal internal manufacturing, outsourcing more manufacturing tasks to foundries.





◆ 2.1 Competitive niche

2.2 Innovation and R&D

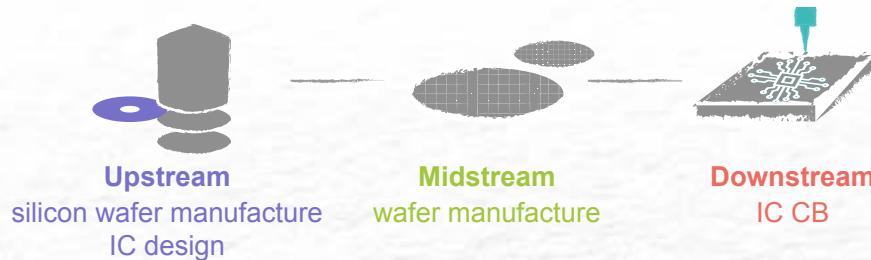
2.3 Customer service

2.4 Customer service

As the AI and 5G industries are maturing, in the future, the requirement for high speed and low power consumption in terminal devices will increase. In response to this trend, the Company actively develops specific logic and memory processes to better fulfill customers' requirements, thus providing foundry services with more competitive advantages for customers.

Looking back on 2020, the outbreak of the pandemic at the beginning of the year and the lockdown measures in many countries affected the economic growth of various countries with the increasing unemployment rate. However, the global semiconductor industry benefited from the pandemic.

This pandemic has forced people to switch from "physical to virtual", driving the growth of the stay-at-home economy. The demand for chips related to the stay-at-home economy remains relatively stable. TV set-top box (STB) chips, gaming personal computers (PCs), home game consoles were selling well, so were server chips that supported remote teaching and remote work, as well as security monitoring-related chips. In the second half of 2020, due to the intensification of the US-China trade war, the ban on Huawei's products has led to early orders of semiconductor products and other electronic components. With the gradual recovery of demand, and the anxiety of the re-escalating pandemic, the supply chain has become more active in preparing raw materials in advance, tightening the production capacity of upstream wafer foundries, with production capacity being in short supply. Looking ahead to 2021, 5G, AI, long-distance demand, and electric vehicles will still be the main driving forces for the growth of the industry, which will lead to an increasing demand for foundry services, IC design, Wi-Fi 6, silicon wafers, equipment materials, automotive electronics, DRAM, passive components, 5G equipment, etc. In 2021, the semiconductor industry will continue the tight supply and demand of 2020.



Promoting “Open Foundry” operation model – innovative services mindset

In addition to providing a full line foundry technology platform, PSMC uses its wafer manufacturing technology and experience accumulated over the years to develop a new collaborative mechanism, “Open Foundry”, in the industry. Through diversified collaboration in products, facilities, production management, and design services, the Company provides customers with product planning that transitions seamlessly from 8-inch to 12-inch wafers. The Company collaboratively develops its process technology and technology platform, and assists in chip designing and product improvement with customers according to their requirements, thus increasing cost competitiveness and strengthening working relationships.

	Product design	Process develop	Equipment	Operation Mgt.
Generic Foundry	●	▲	▲	▲
Open Foundry	▲ / ●	▲ / ● / ●	▲ / ●	▲

Current Open Foundry Technologies & Products

- Power Management IC (PMIC)
- CMOS Image Sensor (CIS)
- Integrated Memory Chip (IMC)
- Discrete Devices for IGBT and Power MOS
- LCD Driver IC
- SLC NAND Flash
- Low Power DRAM



Markets

The Company's 12-inch fab facility has stepped into the foundry business successfully since 2012. With world-class technology, international manufacturing standards, and strict quality control, we provide customers with satisfactory foundry services to create new peaks in business together. So far, we have developed different customers in the foundry business, and the scope of customers' application products covers application in a wide range of electronic products: computers, wireless communications, consumer electronics, and automotive electronics. The Company not only provides an advanced niche memory process for domestic and overseas customers, it is also the only 12-inch foundry that provides a comprehensive memory product line. We also provide a customized logic and special application foundry service, and therefore is the best collaborative partner for many international companies. After the integration of the Company's 12-inch and 8-inch fabs, we have provided customers with a more complete product line and better service quality.

Meanwhile, we have expanded our collaboration with global industry, government, and academic research institutions in the development of relevant process technologies, with the aim of keeping abreast of forward-looking technologies early, shortening the research and development timelines effectively, and reducing the cost of patents and technology transfer.

The development of IoT and AI has created a variety of demand for semiconductors, from cloud to edge* computing, providing a new long-term growth momentum for the semiconductor industry amid a maturing global smartphone market. In addition to a comprehensive memory designing service and manufacturing capability, the Company also possesses the production platform for DRAM/ NAND Flash and NOR Flash that can satisfy a wide range of customer requirements in memory products. We will continue to develop new generation memory production processes to maintain its competitive advantage in cost, while collaborating with OEM customers to provide diversified and high-quality memory products.

The compatible logic and memory production processes and capacity in foundry services of the Company are advantageous in the flexible allocation of production capacity amid a tumultuous economy, and conducive for increasing capacity utilization, allowing the Company to maintain better and stable profitability as opposed to our counterparts in the industry.

* Edge computing is a distributed computing paradigm, as opposed to cloud computing, whereby "data computation" occurs at the location closest to the user.

Item	Main products (services) item
Semiconductor wafer foundry services	<ol style="list-style-type: none"> Logic and special application foundry service: providing IC designing companies with foundry service for display driver IC, power management IC, discrete components, CMOS image sensors, and embedded nonvolatile memory. Memory products foundry service: providing IC designing companies with foundry service for DRAM and flash memory.
Packaging components	Memory chip products

The foundry services provided by the Company for terminal electronics applications can be divided into computers, communication, consumer, and automotive products; developing medical electronic application IC is also currently in process. The ubiquity of smartphones and the launching of AI-related products fuel the formation of the IoT industrial chain gradually and the upstream and downstream demand for components. To foundries, it has become ever more important to provide customized processes and development to customers to meet the requirement of "light, thin, durable and effective" for consumer end products.

The 12-inch and 8-inch wafer foundry services include logic and specific-application, and memory wafer foundry services:

(1) Logic and specific-application foundry service

After Moore's law in 28 nm nodes, the advancement of transistors has slowed down, proving advanced logic process is not the only direction in the market. The Company forgoes cash-burning advanced processes and turns to a more profitable market of specific-application products. With excellent logic process and technology, we provide more diversified and customized specific-application products (display driver IC, power management IC, discrete devices, CMOS image sensor, and embedded nonvolatile memory) and a diverse foundry collaborative model. Effectively shortening the customers' production process to increase their competitive advantage is the Company's competitive strategy. The 28 nm process still has a substantial mature market, including IoT, manufacturing, and automotive.

As opposed to the 12-inch standard logic foundries in the market which mainly use copper in the process, the Company can provide a low-cost 12-inch aluminum process platform.

Under the same process, the cost for the usual 8-inch wafer may be lowered by 30%, which will substantially increase the product competitiveness of customers.

The Company provides professional foundry services with advanced technology for customized logic and specific-application products, which mainly include TFT-LCD driver IC, power management IC, discrete devices, flash, image sensor IC, integrated memory chip, RF chip, and biotech chips.





The crucial functions of main logic and specific-application products made with foundry service are as follows:

- Display driver IC is mainly used on small, medium, and large size faceplates and monitor drivers of ePaper, which can be used in televisions, displays, smartphones, tablets, e-books, and electronic shelf labels (ESL).
- Power management IC and discrete devices produced by the foundry services of the Company are mainly applied in various computers and their peripheral products, hand-held mobile installations, telecommunication application products, and consumer and automotive electronics.
- Image sensor IC is mainly used in CMOS image sensors installed in security devices, mobile phones, computer cameras.
- Memory IC is mainly used in microcontroller unit (MCU), domestic appliances, remote controls, and smartcard products.

Short-term sales targets

The 55 nm high-voltage LCD driver IC has been successfully mass-produced. Further, the Company is striving to develop an active-matrix organic light-emitting diode (AMOLED) faceplate driver IC to cater to the smartphone market demand. Power semiconductor components are developing toward high-efficiency power field application into competitive processes. In other production lines, the Company actively seeks collaborations with international brands to develop a wider range of products.

Long-term sales targets

In addition to continuously developing advanced processes for logic and specific-application foundry service, the Company will establish a logic professional foundry platform and develop an intellectual property core to provide professional foundry services. In the meantime, using its excellent manufacturing capability, we seek to introduce proprietary technologies in its production for international brands.

At the same time, to cater to the ever-changing industry and maintain the flexibility, apart from providing commissioned services including production capacity, manufacturing and design, the Company will also provide the concept of diverse foundry mode (Open Foundry) as the operation management, creating a win-win with customers in the future. Currently, the 12-inch fabs' business is consolidating with 8-inch fabs. In the future, the Company will provide customers with product planning that transitions seamlessly from 8-inch to 12-inch wafers for better service quality and more competitive foundry products with better CP value.

(2) Memory Wafer Foundry Services

Process technology for DRAM

Considering end consumers' requirements for electronics are moving toward functional enhancement, smaller size, and power conservation, the design of chips focuses on function integration, low power consumption, enhanced efficiency, and other requirements. Currently, a 25 nm process has been used for the making of niche DRAM while the development of new processes below 25 nm is accelerating. Meanwhile, the development of AIM (in-memory computing; IMC) and a new type of memory that can be stacked with logic wafers (WoW), required for AI neural network computing systems to meet customers' needs for customized memory, is underway. This can highlight our position as the only foundry company that provides foundry services for memory products. We are working closely with customers or other major vendors to venture into the fast-growing semiconductor market for AI.

Process technology for NOR and NAND Flash

The Company targets mobile devices, consumer electronics, and industrial application markets for its Flash products which are low-power, energy-saving, and highly reliable. Due to a growing variety of functions in smartphones, low data storage NAND Flash coupled with low-power DRAM have become the main memory planning for entry wireless telecommunication products. Further, low data storage NAND Flash is often found in consumer electronics, telecommunication products, IoT, and industrial applications. Currently, the 28 nm NAND Flash process is used in the mass production stage.

In recent years, many new applications have created more demand for NOR Flash memory, such as True Wireless Stereo (TWS) or AMOLED faceplate or 5G base stations. All these applications and facilities require the use of NOR Flash memory. New demand in product applications has enabled the NOR flash memory market to bounce back to over US\$2 billion in global annual sales after hitting rock bottom.



◆ 2.1 Competitive niche

2.2 Innovation and R&D

2.3 Customer service

2.4 Customer service

The crucial functions of memory products made with foundry service are as follows:

- The application of DRAM products is mainly in computers, telecommunication and consumer electronics or automobiles, such as PCs, laptops, printers, mobile phones, digital cameras, digital TV, and wireless network products.
- NAND flash is mainly used in hand-held mobile devices, consumer electronics and industrial-use electronics, or smart home appliances and smart electronic watches.

Short-term sales targets

For niche DRAM foundry service, since the 30 nm process has been well-developed and used in mass production, and considering the requirements of terminal electronics are moving toward functional enhancement, smaller size and power conservation, the design of chips hence focuses on function integration, low power consumption, increased efficiency, and other complicated requirements, the Company has assisted customers in using a 25 nm process for production. Meanwhile, we will continue to improve our process technology and develop a process below 25nm to maintain our leading advantage in niche DRAM foundry service. In addition, to meet customers' needs for customization of different memory products, we have developed a new type of memory that can be stacked with logic wafers (WoW).

For flash memory products, the Company possesses advanced process technology and product design capability in NAND Flash. The main products are SLC flash memory products ranging from 1Gb to 4Gb. The application includes consumer electronics, wireless telecommunication, and industrial-grade products, or smart home appliances, smart electronic watches, and wireless connections. These application markets are growing steadily; it is expected that the market of SLC flash memory products will also grow steadily in the coming years. In the meantime, the Company has developed the 28 nm NAND flash, and it has gone into mass production. Because of the future global competition in the new memory product market, we should be able to maintain our competitive advantage. The Company is actively developing the new-generation 48 nm NOR flash process, which is estimated to go into mass production in 2021. The process will provide customers with high data storage, more competitiveness in cost while maintaining the quality requirement of flash products in terms of reliability.

Short-term sales targets

For DRAM foundry service, apart from continuing to provide advanced processes to strengthen competitiveness, the Company will collaborate with customers to produce customized products to increase the product life, and in turn seek a long-term steady growth. For NOR/NAND Flash, the Company will develop the next-generation advanced process technology to increase the competitive advantage of products.

Currently, the Company is striving to develop new markets and customers in Greater China to establish a long-term steady export.



2.1 Competitive niche

◆ 2.2 Innovation and R&D

2.3 Customer service

2.4 Customer service

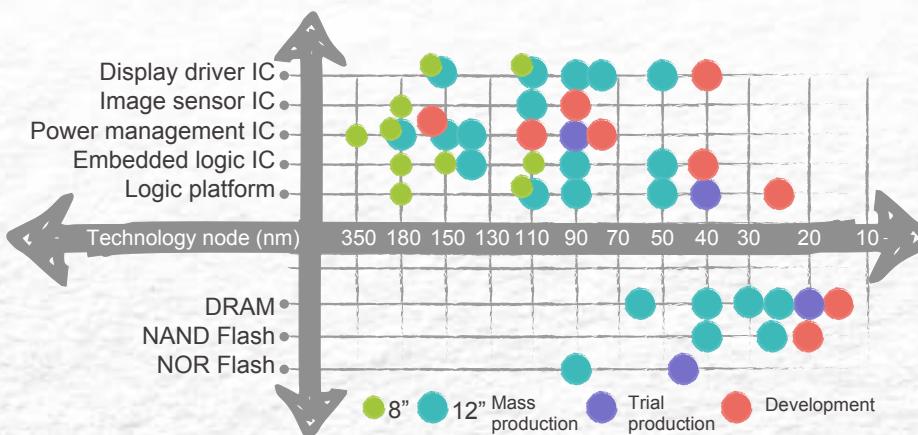
2.2 Innovation and R&D

In the global foundry service industry, PSMC is the only foundry with DRAM, NAND/NOR flash, and logic process technologies. To actively boost its R&D momentum, PSMC has established three Business Unit General Managers, in hopes of leading the Company in developing integrated technology for memory and system-on chip (SOC), and collaborate with OEM customers in effectively developing new product technology platform, and hence opening new application areas in the memory business for PSMC.

Product Development of PSMC



Technology Roadmap

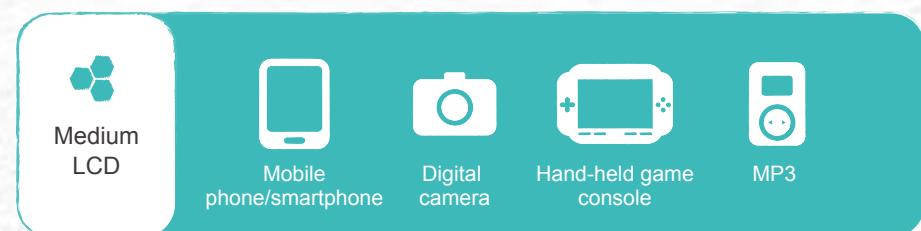


Future direction of R&D

Advanced and Green Electronics with Energy Efficiency

Usually, for semiconductor process technology to boost a new generation, the line width of IC must be shrunk by a certain percentage (70%), so that the chip surface area of products will grow smaller (0.5 times) and the power consumption of the electronics will also be lower.

PSMC provides a wide variety of comprehensive specific processes. With an excellent capability in integrating the early and later stages of the processes, the Company possesses competitive advantages in terms of power consumption, efficiency and chip size; producing more advanced, energysaving and eco-friendly products for customers; and lowering the impact on the environment caused by technological advancement.





2.1 Competitive niche

◆ **2.2 Innovation and R&D**

2.3 Customer service

2.4 Customer service

Environmental Contributions of PSMC's Professional IC Manufacturing Services

PSMC products with notable environmental and social contributions are as follows:

- ◆ DRAM
- ◆ FLASH
- ◆ Small/large panel display driver IC
- ◆ Low power consumption LED driver IC
- ◆ LED driver IC for indoor and outdoor solid-state lighting
- ◆ MOSFET is applied in battery protection, AC-DC transformers, battery chargers, machine tool batteries, servers, step motors, and 5G base stations.

Continuous development in new process technology to lower power consumption of chips and increase resource conservation.

◆ PSMC continues to develop semiconductor advanced process technology to manufacture advanced, energy-saving and eco-friendly products for customers and contribute to the sustainability of the planet. For example, the number of electronic components that the 80 nm chip can fit in is twice the amount of 110 nm. The power consumption of products with 80 nm IC in use or sleep mode is 70% of products with 110 nm IC. In other words, the efficiency of the unit surface has increased by 2.8 times. The goal of PSMC is to increase the development of 80 nm or more advanced process technology (e.g. 55 nm, 40 nm, 25 nm process technologies), and increase the percentage in sales revenue of 80 nm or more energy-saving processes, contributing to the growth of the Company and the sustainability of the planet.

◆ It is estimated that the optimization of the 2X nm DRAM process will be completed in 2021. Every wafer will have a 30% increase in DDR4^{Note} chip number.

Note Dual Data Rate 4 (DDR4) is the fourth generation double data rate synchronous dynamic random-access memory.

◆ As for energy conservation, we are committed to improving process technology continuously. In 2020, we launched the development of the 24nm NAND flash process. With the new design IP, the number of masks used was greatly reduced by 16% and processes by 9%, while the unit area production increase by 14%, reducing energy consumption in production effectively.

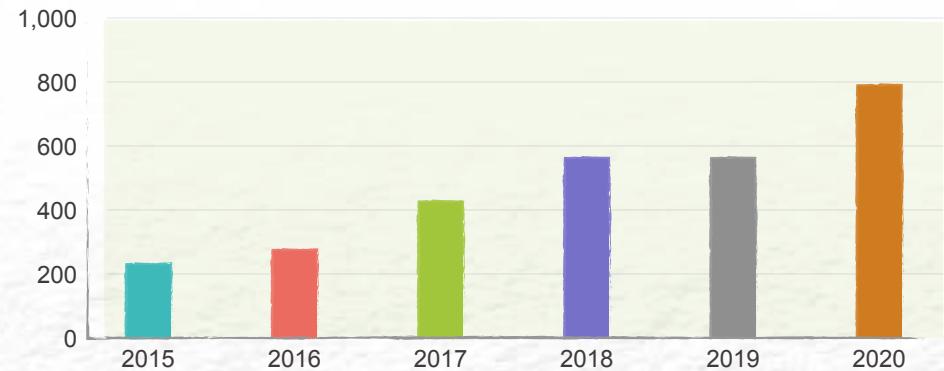
◆ Customers adopt the packaging technology of 3D Interchip. Compared with 2.5D or 2D packaging technology, it can not only increase the computing power in terms of system performance but also reduce the energy used under the same computing power.

Providing power management IC technology with the best power management efficiency

- ◆ PSMC successfully assists customers in designing and manufacturing green products. For example, the power management IC is the most iconic green product; it is the core component in the power consumption of all electronics. PSMC provides customers with a design platform with high energy efficiency. Customers can develop various energy-saving products via this platform.
- ◆ Currently, the R&D team of 8-inch and 12-inch foundries have developed process technologies of MOSFET, Bipolar-CMOS-DMOS (BCD), and ultra-highvoltage(UHV).
- ◆ Enable customers to produce high-quality power management ICs that can obtain a stable energy supply and reduce power consumption. The IC has since become ubiquitous in consumer electronics, telecommunication products, and computers. The BCD process of PSMC with a high CP value is the best process option for power management IC, LED driver IC, and LED driver IC for indoor and outdoor solid-state lighting.
- ◆ Further, the 700-volt UHV process that PSMC provides is the best choice for producing high conversion rate AC-DC transformers, indoor and outdoor solid-state LED lighting, high-efficiency BLDC motor, and other green product applications.
- ◆ Power management chips account for a very crucial proportion of the revenue among PSMC's industrial application products. From 2015 to 2020, we had shipped more than 2.86 million high-voltage metal-oxide-semiconductor field-effect transistor (MOSFET) wafers and power management IC (PMIC).

Annual shipments of high-voltage and power management ICs

Unit: In thousand units (8-inch wafers)



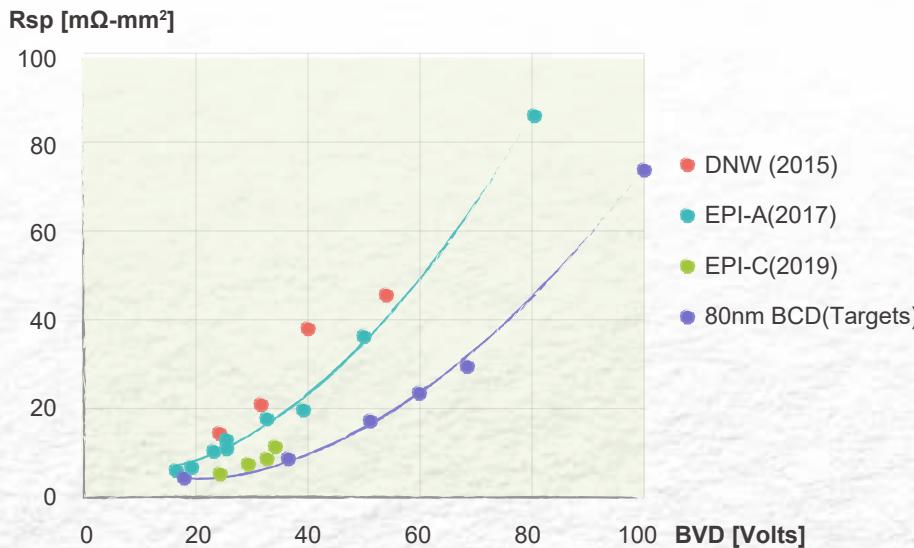


2.1 Competitive niche **2.2 Innovation and R&D** 2.3 Customer service 2.4 Customer service

0.18 micron BCD technology of PSMC

- ◆ BIPOLAR, CMOS and DMOS field-effect transistor (FET)
- ◆ Rsp denotes the spreading resistance. It is measured in $\text{m}\Omega\text{-mm}^2$. Usually, the lower the Rsp, the better the voltage conversion efficiency.
- ◆ In 2017, the first generation was made by the technology known as the Epi-A platform which used a silicon atomic layer of silicon substrate epi as a base. As opposed to Deep N-type Well (DNW) technology in 2015, it was able to provide more high voltage options.
- ◆ In 2019, the Company managed to develop the third generation Epi-C technology platform, in which the drain voltage (VD) of high voltage components working under 24 volt could further improve Rsp (approximately by 50%).
- ◆ We planned to develop an 80nm BCD technology platform in 2020, which will cover the EPI-C technology platform and expand the drain voltage (VD) to 100 volts; our goal is to further reduce Rsp to achieve world-class level.

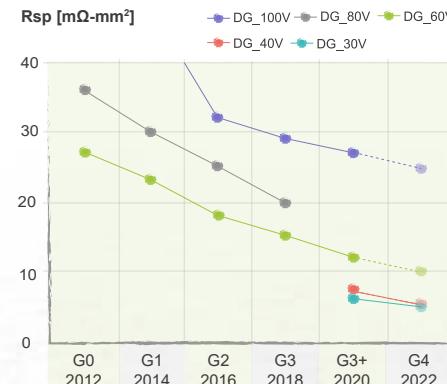
PSMC BCD Technology Platforms



PSMC Discrete MOSFET

- ◆ The lower the Rsp [$\text{m}\Omega\text{-mm}^2$], the better the voltage conversion efficiency.
- ◆ G1 represents the first generation process component, so on and so forth.
- ◆ SG = Single Poly Trench Gate MOSFET
- ◆ DG = Double Poly Trench Gate MOSFET

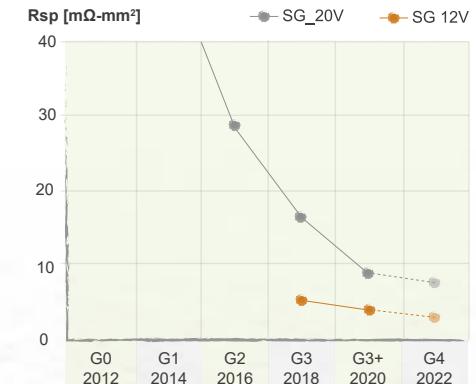
PSMC Double Gate MOSFET Technology



Note 1: MOSFET is an electronic component made with numerous MOSFET components of the same type and serves as the switch of the circuit. The BCD process uses IC to make various types of MOSFET components to form logic circuits to control the voltage or current of the power supply.

Note 2: To clearly express the Rsp roadmap of the MOSFET technology, the Trench Gate technology is then divided into two figures: Single Gate and Double Gate. The 2022 R&D targets are also put forth.

PSMC Single Gate MOSFET Technology



Technology innovation

Making use of the R&D and production experience in memory products, PSMC will strive to develop a variety of logic and memory chip integration, to become the foundry service provider with the most competitive advantages and stand out from its counterparts in the industry. The focus of future technological R&D will be based on the existing foundation. The Company will continue to develop different logic and memory foundry process technology platforms in order to provide customers with world-class foundry services in hopes of becoming one of the best manufacturers in logic foundry and memory foundry process technology globally.



2.1 Competitive niche

◆ 2.2 Innovation and R&D

2.3 Customer service

2.4 Customer service



Column: 3D WoW

To highlight PSMC's unique positioning, featuring both logic and memory foundry services, in the industry, we have adopted the integration of logic circuit and memory components as our future development path. PSMC and AP Memory Technology Corporation, for the first time, have successfully mass-produced the WoW solution for AI chips, mainly Google's TPU. This chip also represents AP Memory Technology Corporation's, PSMC's, and Taiwan Semiconductor Manufacturing Co., Ltd.'s (TSMC's) success in memory and logic integrated packaging technology, while ushering in a new era of WoW foundry packaging model.

3D Interchip WoW technology

The demand for high-performance computing applications in the AI era

As terminal electronic products have gradually incorporated 5G communication and AI-related applications, requirements for the computing speed of computers are getting higher, demands for more data-intensive applications, such as machine learning, artificial neural networks, and biological system, have also grown. These will generate a huge amount of data and thus derive requirements for storage and computing. The industry is striving hard in all aspects of design, CPU, memory, foundry, and packaging to meet the high-performance computing needs in the AI era. 3D packaging technology satisfies the needs of applications for high-performance computing while tackling the challenges of power delivery and thermal management, surpassing the current 2D process under Moore's Law.

3D Interchip features high performance, low power consumption, and high bandwidth

The SiP technology of chiplets is an emerging solution to the issue of high-performance computing by dicing IP modules in system-on-chip (SoC) into chips. The WoW technology in 3D packaging is different from the chiplet technology, and can satisfy system integrators' requirements through advanced packaging technology to provide an effective solution to the integration of hybrid chips. All major semiconductor companies, including TSMC, Samsung, and Intel, are committed to the

development of the WoW technology.

To highlight our unique positioning, which features both logic and memory foundry services, in the industry, we have adopted the integration of logic circuit and memory components as our future development path. Therefore, we have jointly developed 3D Interchip WoW technology with the design company AP Memory Technology Corporation to complete the vertical hybrid bonding process of logic chips and DRAM while developing a new DRAM architecture required for next-generation AI applications. We use 3D Interchip technology to reduce the complexity of customers' design to customize DRAM while strengthening the data communication interface between DRAM and logic chips, and lifting the restrictions on the bandwidth between DRAM and logic chip processors.

The breakthrough of 3D Interchip lies in the fact that the dies are nearly bonded and stacked vertically. The low-temperature, thin WoW bumpless technology has reduced the overall stacking height and increased the bonding density, thereby greatly shortening the internal conducting wire connection path; as such, the transmission speed between chips is faster and the noise is lower. Compared with traditional 2.5D packaging technology, it reduces parasitic resistance and capacitance effectively, achieves high bandwidth and low latency, high bonding density, high performance, and a smaller appearance size. Compared with 2.5D packaging technology, its speed can be increased by roughly tenfold, and the power consumption can be reduced by half.

As of June 30, 2021, patent applications regarding 3D Interchip-related technologies have been filed in many countries and are currently under review by the competent authorities.

The game changer for Moore's Law 2.0 with applications in AI, 5G edge and high-speed computing, and Ethereum mining

Logic chips and DRAMs are integrated by means of 3D Interchip technology, which can be applied to AIoT and edge computing chips, 5G high-speed computing, and Ethereum mining. The applications in sensors and biochips are also under development. The high-density 3D Interchip WoW technology and heterogeneous integration complement each other, surpassing the current processes under Moore's Law.

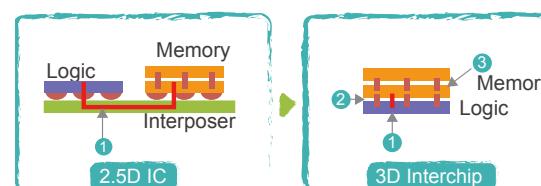
A collaborative business model between upstream and downstream businesses developed by PSMC features a high cost-effective advantage

3D Interchip technology integrates DRAM and logic chips from multiple companies. PSMC adopts 21nm to 38nm process technologies to produce DRAM wafers under an architecture redesigned by AP Memory Technology Corporation. We also work with different major logic chip foundries for logic chips due to their diverse applications and high complexity. After successful mass production in the future, our business scope will cover wafer manufacturing,

TSV, and stacking at different technology levels. Therefore, in addition to improving the new architecture of DRAM foundry process technology continuously, we will go all out to develop a collaborative business model between upstream and downstream businesses. We will complete the development of 3D Interchip and display samples at the end of 2022, and will start low quantity production in 2023.

Features of 3D Interchip technology

1. Lifts the restrictions on the bandwidth between DRAM and logic chip processors.
2. Provides customized stacked DRAM wafers to major logic foundries, including through-silicon via (TSV) middle technology.
3. Features multi-chip stacking Mini-HBM technology.
4. Has the advantages of reduced latency, high performance, low power consumption, and a smaller appearance size.



- ① Lifting restrictions on bandwidth
Reducing data transmission distance
- ② Standardizing DRAM stacking interface
- ③ Multi-wafer DRAM stacking



Column: AI Technology

In response to the increasing demand for AI edge computing in the 5G era, how to improve the computing efficiency of AIoT chips without increasing power consumption has become a critical problem in the IC design industry. PSMC's AIM technology is able to assist IC designers in developing a post-Von Neumann architecture memory processing method. Apart from increasing the data transmission bandwidth from CPU to DRAM substantially, it can even incorporate circuit control in the storage and retrieval of data in memory, and use non-sequential processes to read DRAM data at a high speed, thus increasing the execution efficiency of the AI computation.

Breaking through the bottlenecks in power consumption and transmission, and applying it in edge computing

The launching of the Computing in Memory technology platform has gathered the contributions of four companies in the Group, namely PSMC who is responsible for foundry services; AP Memory Technology who is responsible for re-designing and re-integration of memory products; Syntronix who is responsible for wireless telecommunication and MCU; and AI Memory Corporation who is responsible for software and systems. PSMC uses 25 nm to 38 nm process technology to complete the core AIM SOC of Computing in a Memory technology platform, which is applicable to high-speed edge computing for 5G and AI specific-applications. AIM chips will bring ultra-high CP value advantage for relevant installations and systems.

AIM SOC possesses many characteristics, including eliminating the input/output (I/O) of data and hence substantially lowering the data transfer workload between memory and CPU, increasing data transmission bandwidth by 10 to 100 times. The data is transmitted within a chip the size of one's thumbnail, and therefore the chip is very suitable for data-centric computation which is a new application concept- "Computing efficiency increases by 20 times while energy-saving efficiency increases by 10 times, truly a world-leading green chip."

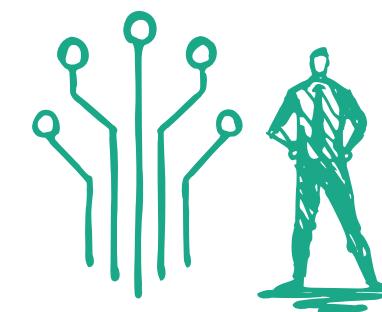
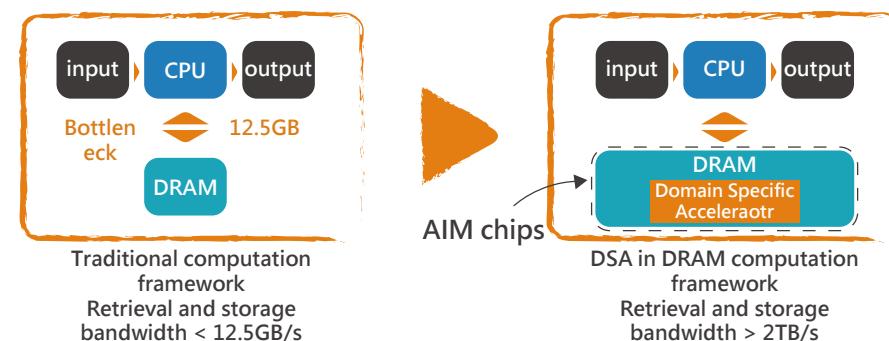
Contribution of AIM platform escalating technological advancement

The launching of the AIM platform can accelerate the development of ADAS, edge computing, medical technology, genome research, robotics, IoT, 5G telecommunication, and cryptocurrency." Our initial development goal is for more people to get to know and use this technology and kick start more innovations via promotion." The new product, which integrates logic circuits and DRAM into a single chip, was launched under the concept of AI Memory (AIM), and was officially shipped in 2020 to enter the emerging AI market.

As of June 30, 2021, pertaining to the patents of AIM chips, the Company had filed a total of 26 applications in many countries, and obtained eight patent certificates.

Properties of AIM chips:

1. Integrating logic and DRAM in to a single chip, and breaking through the memory limit of retrieval and storage.
2. Take into consideration the computational speed and power consumption combination, and thus possessing the best C/P value design.





2.1 Competitive niche

◆ 2.2 Innovation and R&D

2.3 Customer service

2.4 Customer service



Column: Special Logic Foundry Technology

PSMC specializes in the “mature 80nm-110nm processes”. We have developed an aluminum process technology for 12-inch wafer fabs independently. Therefore, our production cost is lower than that of our competitors while we continue to invest in R&D and innovation to establish a unique technology platform.



Strategy

- ◆ Continuing investment in R&D for an advanced process to create values.
- ◆ Patent protection: Continuing the patent layout. The number of patent applications must be in tandem with the R&D resources to secure the overall R&D results.



Sustainable Development Goals

- ◆ 80 nm technology platform, in the front-end process, integrates a 1.2-volt high-density logic circuit and 32-volt high-voltage components, along with the back-end lead process, for metal interconnects, for production of display driver ICs.
- ◆ The number of global patent applications grows 5% to 10% each year



Achievements in 2020

- ◆ The 80nm technology platform, with aluminum adopted as the back-end process, integrates 32/40-volt high-voltage components as a unique technology platform in the industry. It has been successfully put into mass production in 2020 and is currently adopted by many customers, with a yield rate of more than 90%.

Column for Special Logic Foundry Technology	
Special process technology	Application
Complementary metal-oxide-semiconductor image sensor (CIS)	New generation micrometer pixel fingerprint-on-display (FOD) sensory application in mobile devices and information security.
Power management IC/BCD technology	The Company's exclusive 80 nm BCD technology, the front-end process integrates 1.2-volt high density 80 nm logic circuit and 5 to 100-volt power supply components; as well as a back-end aluminum process for metal interconnects while embedding 5V one-time programmable (OTP) memory to further improve the cost-effectiveness of the technology. As such, we provide next-generation PMIC solutions that meet the needs of the industry through a highly cost-effective process.
LED Driver IC	The advanced UHV process can produce AC-DC transformers with high conversion rates, which saves energy and costs, providing various indoor and outdoor lighting options.

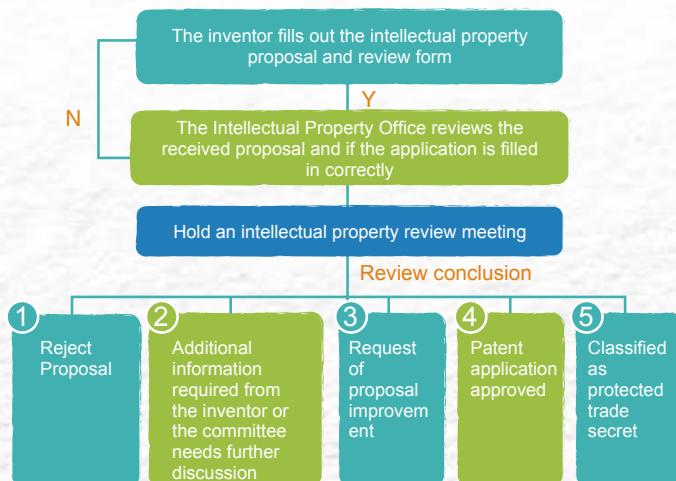
- 2015 ◆ With an innovative component framework, PSMC managed to develop 0.18-micron high-voltage BCD technology that was leading in efficiency, producing highly efficient, and low power consuming LED driver chips.
- 2016 ◆ With an innovative component framework, PSMC managed to develop 0.18-micron BCD technology that was leading in efficiency, catering to the demand for highly efficient and low energy consuming power management ICs.
- 2017 ◆ The second-generation 0.18 micron UHV BCD technology produced LED driver ICs with an even more highly efficient conversion rate and lower power consumption.
- 2018 ◆ The second-generation 0.18 micron BCD technology catered to the demand for highly efficient and lower energy consuming power management ICs.
- 2019 ◆ PSMC planned for a brand new component framework of 90 nm BCD technology, which integrated 1.2-volt high density 90 nm logic circuit and 9 to 100-volt power supply components, as well as a back-end aluminum process for metal interconnects. This process technology had a highly competitive advantage, which could provide more highly efficient and low energy consuming mobile PMIC solutions.
- 2020 ◆ Regarding the 80nm BCD technology of the new component architecture, PSMC has integrated 1.2-volt high-density 80nm logic circuits and 9-100-volt power components, along with the back-end aluminum process, for metal interconnects; the R&D of the relevant technologies has been completed 80%. This process technology has great advantages and can provide a mobile PMIC solution that features higher performance and lower power consumption.

Intellectual Property Management

PSMC operates in a high-tech industry that requires proprietary technologies to achieve operational freedom. As such, the Company secures its overall R&D results and strengthens its competitive advantage via patent applications. The Company has established an Intellectual Property Office to oversee matters regarding intellectual properties. The Office formulates strategic plans for managing the intellectual property capital based on the patent layout and combines the Company's strategy considerations and operation goals. The Office also continues to improve the intellectual property management system, optimize intellectual property portfolios, and carefully maintains costing to implement the output, management and application of intellectual properties to ensure the leading technological position of the Company. The intranet of the Company has established a section for "PSMC IP." The employees can submit a patent proposal, conduct training and share knowledge via this section.

To strengthen the management of intellectual property rights, the Company has specifically formulated the "Procedures for Intellectual Property Management" to encourage employees to contribute their ideas and make new invention proposals for relevant technologies in R&D, production and operations. Certain internal procedures will determine the patents, trademarks, trade secrets, or other intellectual property rights to be processed, to expand the Company's intellectual properties.

Procedure chart of intellectual property proposals:



The Company continues to invest in innovative R&D and patents, strengthening the powerful capital of knowledge. Recorded e-learning courses can increase the employees' regulatory knowledge of intellectual properties. The Company also encourages proposals on new technologies and new ideas from employees. The inventor will be given a bonus after the proposal has been approved and will be granted a reward after the patent is obtained. These measures will foster a culture that encourages internal innovation and R&D.

The Company also makes use of the Derwent Innovation patent database. The database includes the search platform for IP. Employees can make use of the product function provided by the database to do a smart search and analyze the global patent development trend for a particular technology, the level of innovation in patents, past cases of patents, and patent information of competitors.

In terms of the incentive and reward system, the Intellectual Property Management Measures stipulate the reward system clearly. For applicants making external patent applications, after obtaining an official application number, a reward of NT\$10,000 will be given; after obtaining the patent certification, a certification reward will be given according to the country granting the certification. For certifications granted by the US, Japan and the EU, a reward of NT\$40,000 will be given; for certifications granted by Taiwan, Mainland China and other countries, a reward of NT\$20,000 will be given per country.

Further, to increase the dynamics of patents, apart from various incentives and activities, researchers will form R&D teams to establish yearly targets for internal proposals and external applications to stimulate new ideas from one another and gather momentum for innovation. New technologies and ideas can then be used for making proposals. After approval, rewards will be granted.

The Intellectual Property Office uses the "Enterprise Patent System" to manage and control internal proposals and external application processes. A strict examination will be conducted by a technological panel to ensure optimal patent quality.



For internal patent proposals made in 2020, after a review by the Intellectual Property Review Committee, of all innovative proposals with potential for industrial use, 179 patent applications were made to increase the patent quality of PSMC and external competitiveness; also, the Company makes use of patent application systems of different countries to strategize its patent planning to provide the best protection for its new technologies. In 2020, the Company acquired 122 patent certificates. As of the end of 2020, a total of 1,468 patent certificates have been acquired.



2.1 Competitive niche

2.2 Innovation and R&D

◆ 2.3 Customer service

2.4 Customer service

2.3 Customer service

With our advanced technologies, we offer foundry services to our customers. In addition to the continuous improvement of manufacturing processes, we also strictly monitor our quality of production. Through implementing various management systems, we control each production with detail. Not only do we comply with international regulations, but we also ensure that the products and services meet customer needs.

System certification



Note: On August 6, 2020, ISO 45001:2018/CNS45001:2018 certification was completed.

Outstanding production and manufacturing control

Manufacturing service

Excellent manufacturing capabilities

PSMC provides professional and excellent process technology and strict quality control procedures. Through collaboration with international brands in Japan and other countries, we strive to enhance our product quality to create a win-win outcome with customers. The current process technologies and products provided by PSMC include memory products, LCD driver ICs, integrated memory chips, CMOS image sensors, discrete components, and power management.

◆ Best efficiency

Effective improvement in yield

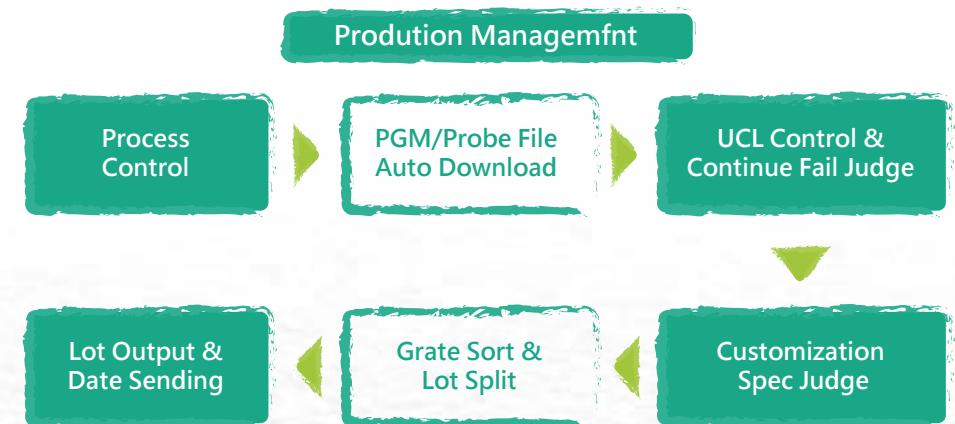
Effective shortening of the learning curve to increase yield is an important factor for PSMC when assisting customers in shortening their product launching schedule.

Optimal and flexible production scheduling management

We strive to keep improving our production management efficiency and optimizing the production procedures, in hopes of serving customers effectively and in the shortest time. The Company also caters to customers' needs for urgent orders through a flexible production scheduling.

On-time delivery

The Company has a fully automated production and a strict online monitoring system to supervise the input and output of product scheduling to deliver products as scheduled.





On-site 6S quality management

PSMC makes a concerted effort in the work environment. To implement the relevant policies, the Company raises the awareness of employees via numerous competitions and activities, encouraging employees to discover possible problems in the production processes during their daily operations, and hence improving the cleanliness of the FAB environment and the safety of the staff, making the workplace more comfortable and secure.

To effectively manage the product quality and production environment, the Company has established a 6S management promoting team to implement on-site 6S management according to the 6S management procedures and execution instructions. The Company has also established 6S competition procedures to increase the momentum of employee participation, as well as provide rewards as encouragement. The relevant content and performance of the execution are presented every quarter in the management review meeting, which is held along with the Environmental, Health and Safety unit, disclosing improvement results of various 6S participating departments.

Among other things, pertaining to various location points during the wafer transferring process, to increase the transferring quality and lower the risk of exterior damage, an anticollision design has been added to the transporting equipment. Not only does it have a visible effect in protecting employee safety, the protection of adjacent equipment also sees a notable difference. This has since deepened the safety awareness of the operators while taking into consideration the environmental maintenance using 6S.

In 2020, all competing departments met their targets while customers found no material deficiencies in their audits of our FAB facilities.



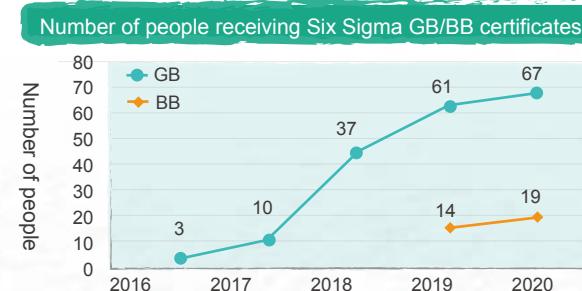
▲ The rankings of the fab 6S competition on the billboard

Continuous improvement process (CIP)

To strengthen the focus-on-quality culture of the Company, the Quality Engineering Division has been actively promoting the continuous improvement process (CIP). Through a series of training courses on quality control, these empower employees with problem-solving capabilities; establish case-based management and experience-sharing platform to facilitate knowledge sharing; also, CIP competition and grants awards are hosted to incentivize the employees.

Increase employees' problem-solving capabilities (quality control courses)

The Quality Division organized a series of Six Sigma courses to lead the Company in pursuing excellence. As of 2020, a total of 3,132 people have received the course training certificates.

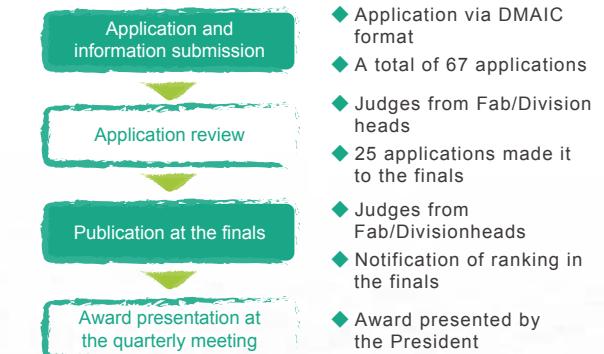


Note: Cultivating problem-solving experts - black belts (BB) and green belts (GB); establishing a common language for problem-solving - yellow belts (YB).

Encouraging employee participation (CIP competition)

To cultivate the habit and culture of the Company in making continuous improvements, the Quality Engineering Division had organized the CIP competition for 2019 and provided large cash prizes to encourage employee participation. The competition could strengthen the quality control awareness among the employees, foster teamwork spirit, hence heightening competitiveness and customer satisfaction.

CIP competition process





2.1 Competitive niche

2.2 Innovation and R&D

◆ 2.3 Customer service

2.4 Customer service

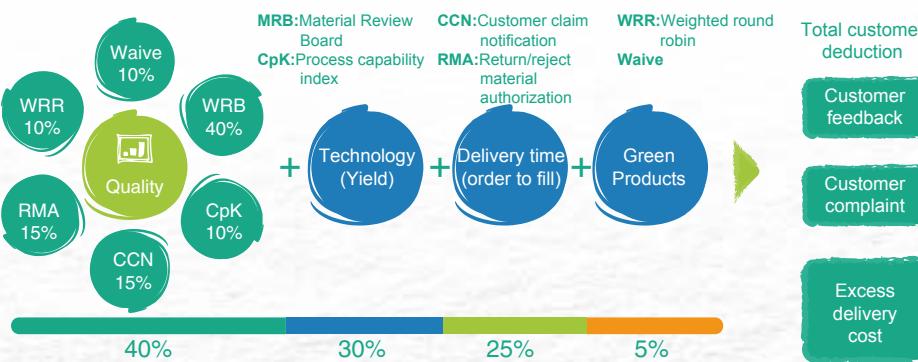
Customer Recognition

PSMC values the input from customers and is willing to collaborate with them in problemsolving. In addition to the designated department (designated personnel/hotline) keeping in contact with customers at all times, it will also hold meetings with customers regularly for a face-to-face discussion (due to the COVID-19 outbreak, the weekly and monthly faceto-face discussions in the past, including the audits by customers, have been conducted via teleconferencing to avoid crowding; the change in such practice allows the Company to maintain communication with customers, and have thus gained their approval.); meanwhile,questionnaires are distributed to facilitate the collection of customer feedback and to detect the problems they face in a timely manner to resolve the problems collaboratively within the shortest time possible. Relevant records will be forwarded to the performance review meeting to the Management as feedback.

The content and results of the 2020 customer satisfaction survey are as follows:

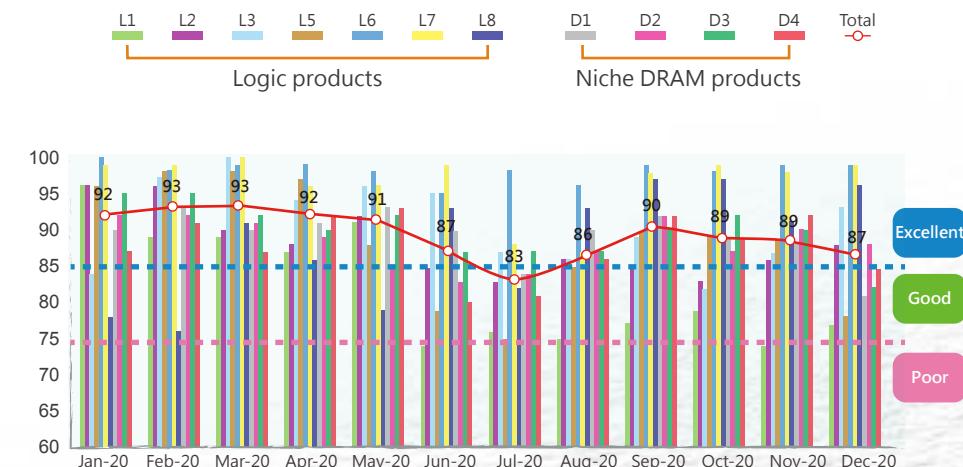
1. Target/product category/scoring item: Production for 12 main customers (monthly average production >2000 units); product categories include niche/standard DRAM and logic foundry products, such as driver ICs/power/CIS. Ratings were given for quality, technology, and delivery.
2. Survey method: Monthly self-evaluation; feedback from customers every six months.
3. The results and description of the 2020 survey: The overall average customer satisfaction was 89 points (decreased by seven points as compared to last year), which was in the "Good" category.
 - (1) The Material Review Board (MRB) cases increased by 4, with the score down by one point, as compared to last year.
 - (2) The order fill rate was six points lower than that last year as production capacity was full.

Scoring method:



Customer satisfaction

Customer satisfaction in 2020 was seven points lower than the previous year, mainly because the production capacity was full, and therefore the score for the order fill rate was not as good as expected.





Smart Fab

PSMC actively applies the concept of Industry 4.0 to build a “Smart FAB,” to develop automation, intellectualization, and information automation. Currently, the factory area of P3 is operating on the “Smart FAB” model. In the future, the “Smart FAB” model/installation will be introduced in new factory areas, increasing the production execution efficiency fully.



Can increase production efficiency and simplify operating processes, mainly in:

1. Full Automation (FA) An automated handling system increases production efficiency and quality, while reducing production cost.
2. Manufacturing Execution System (MES) The system is automated, simplifying the manual operating process, reducing human errors and irregularities from data copying.
3. Real-Time Dispatch (RTD) An automated dispatching process that effectively increases production efficiency and simplifies operating processes.
4. Live EQ Management System (LEMS) A real-time control and monitoring system for onsite machinery.



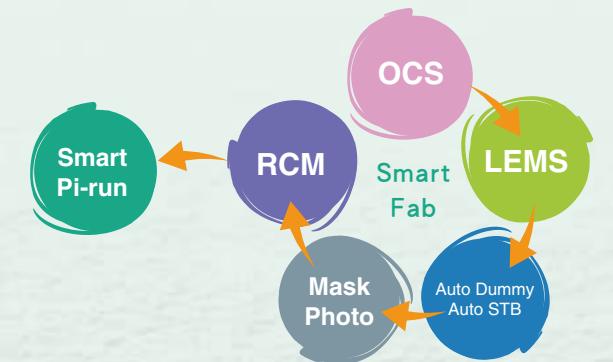
Can improve production, enhance product quality, mainly in:

1. Off route control system (OCS) Automatically measures and maintains machinery and production quality in a timely manner.
2. Auto Dummy/Auto STB An automated adjustment of conversion processes that reduces manual operation and masters conversion aging.
3. Smart pi-run/Mask inventory system Shortens conversion processes and photomask conversion aging.
4. Remote Control and Monitoring System (RCM) Control remotely, shorten the operating time by the staff. The production automated real-time monitoring technology allows the operation of the fab to have zero time lag.



Can increase management efficiency, mainly in:

1. Smart Digital Management Develop big data technology, increasing production efficiency and quality of services.
2. Smart Meeting Develop long-distance meetings. Staff can work from home and hence increase production efficiency.



▲ System Framework of Smart Fab





2.1 Competitive niche

2.2 Innovation and R&D

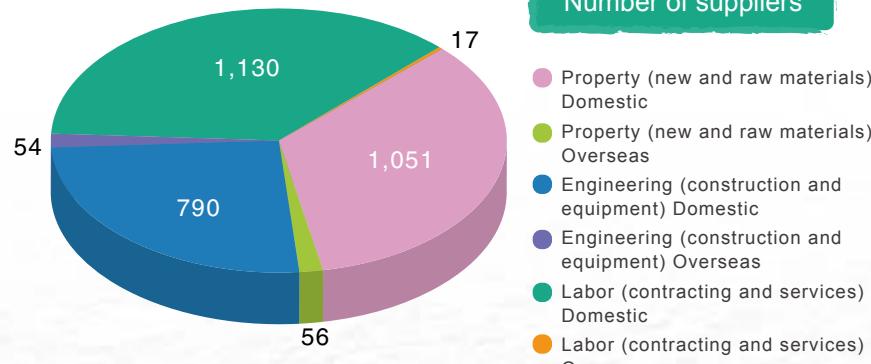
2.3 Customer service

◆ 2.4 Customer service

2.4 Suppliers

The Company's procurement is divided into three categories: labor, property, and engineering. Suppliers are mainly domestic ones, and the local procurement accounts for 82.60% of the total procurements (according to GRI standards, no international payment is involved for local suppliers).

Type of contract	Country	Number of suppliers
Property (new products and raw materials)	Domestic	1,051
	Overseas	56
Construction (buildings and equipment)	Domestic	790
	Overseas	54
Labor (contracting and services)	Domestic	1,130
	Overseas	17



Supply of main raw materials

Main raw materials	Suppliers	Procurement strategy
Silicon wafer	Company A Company B Company C Company D Company E	<ol style="list-style-type: none"> We strictly control and select the suppliers for crystal silicon wafers. The quality of the materials from the suppliers must go through our sampling evaluation procedures. After passing the evaluation of different departments, the suppliers will then be deemed qualified. The Company sources wafer from different regions in Asia and Europe to mitigate risk. We maintain a positive relationship with the suppliers and hence is offered competitive pricing and good wafer quality in the procurement process. We evaluate the pricing, quality, timely delivery, and relevant technology consulting services provided by the suppliers regularly, to determine the size of their orders. The Company conducts a performance review on the suppliers every six months to ensure the relevant management measures are properly implemented.
Photoresist	Company E Company F Company G Company H Company I Company J	<ol style="list-style-type: none"> The Company provides the photoresist quantity to the suppliers at the beginning of every month to allow the suppliers to prepare the inventory beforehand. 2.The Company monitors its inventory every month to ensure stable supplies. 3.The Company conducts a performance review on the suppliers every six months to ensure the relevant management measures are properly implemented.
Gases	Company K Company L Company M Company N Company O Company P	<ol style="list-style-type: none"> As the suppliers are competing with each other and have all fostered a supporting relationship with the Company, it is beneficial to the Company in obtaining competitive terms and security in supply when facing a shortage in materials. The Company monitors its inventory every month to ensure stable supplies. The Company conducts a performance review on the suppliers every six months to ensure the relevant management measures are properly implemented.
Chemicals	Company Q Company R Company S Company T Company U Company V	<ol style="list-style-type: none"> All suppliers have plants and inventory storage in Taiwan. As such, supply is stable and is beneficial to the Company in lowering our own inventory and ensuring quality. The Company conducts a performance review on the suppliers every six months to ensure the relevant management measures are properly implemented.



2.1 Competitive niche

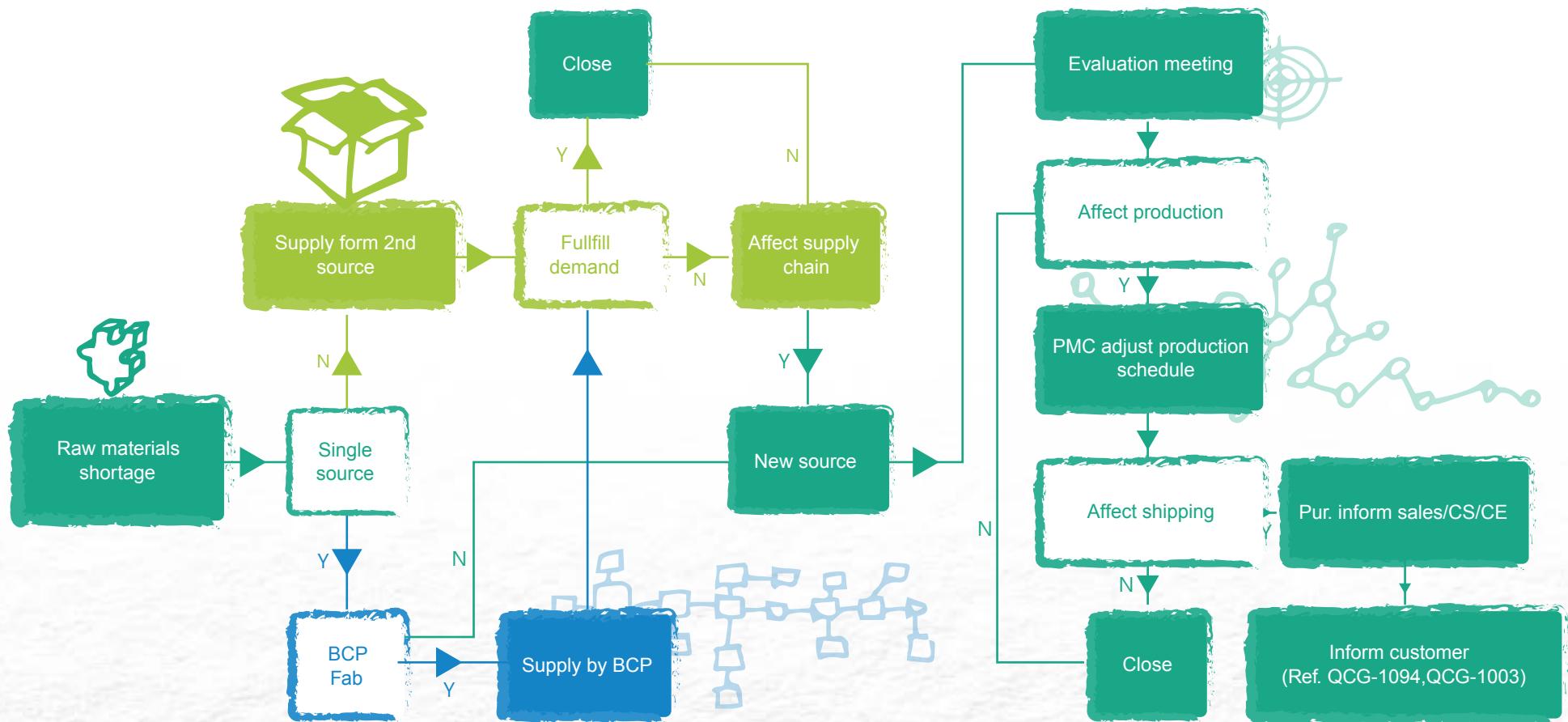
2.2 Innovation and R&D

2.3 Customer service

◆ 2.4 Customer service

Procurement - Emergency response for raw material

The Company has established the “Procedures for Emergency Response to Raw Material Shortage.” If there is a shortage of raw material, the procurement unit will, according to the procedures, hold cross-department evaluation meetings to initiate the subsequent emergency response.





2.1 Competitive niche

2.2 Innovation and R&D

2.3 Customer service

◆ 2.4 Customer service

Supplier audits

According to the Company's "Raw Materials, Parts, and Accessories/Supplier Management Regulations", new suppliers should fill out a preliminary selection survey, the selection items cover four aspects of procurement: quality, risk, environmental safety, and engineering. According to the Supplier Management Regulations and the Contractor Management Regulations, we evaluated the existing suppliers and contractors randomly based on their transaction frequency and amounts. We conduct random evaluation of suppliers semiannually and contractors annually.

Our Supplier Management Regulations is based on the "Code of Conduct of the RBA" (formerly known as EICC), specifying a statement on supplier code of conduct, requiring suppliers to duly comply with the code in terms of labor, health and safety, environment, business ethics, management systems, and other business conduct and to fully comply with the laws and regulations of the country/region where they operate. We also audit our suppliers in the annual audit, and their compliance with the code serves as one of the factors we take into account during the procurement evaluation and the decision-making process. Meanwhile, the "Contractor Management Regulations" stipulated that if a contractor has a major violation of the social or the environmental safety and health regulations, we will terminate the collaboration and remove it from the list.

In 2020, we evaluated a total of 121 suppliers and 58 contractors. They all passed the evaluations, and therefore we have maintained our collaboration.

To ensure the effectiveness of the supplier's quality system, the Company selects suppliers for audits based on the "Audit Instructions for Suppliers" and "Audit Instructions for Component Suppliers." An audit is carried out on production wafer suppliers at least once a year; an audit is carried out on suppliers on other production raw materials or key spare components at least once every 3 years. The supplier audit plan for the following year is proposed at the end of each year. The contents of the audit use the requirements of the ISO/IATF provisos and the special audit items of individual materials for reference, including properties of materials, abnormal events, the re-examination of previous weaknesses, and horizontal development, which are carried out by trained and qualified auditors. The relevant documentation and records of the entire audit plan and individual audits, including audit reports, improvement for weaknesses, and supporting documents and records, are handled by the Company's eAuditing system, which also serves as a two-way communication channel with the suppliers. Cases may only be closed after confirmation by the audit team.

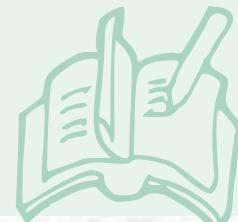


A. The evaluation and selection method of contractors

1. For contractors with yearly transaction value over NT\$20 million with a yearly repair/maintenance of over 36 times, select all.
2. For contractors with yearly transaction value between NT\$15 million and NT\$20 million with a yearly repair/maintenance of over 36 times, select two.
3. For contractors with yearly transaction value between NT\$10 million and NT\$15 million, with a yearly repair/maintenance of over 36 times, select two.

B. The evaluation and selection method of suppliers

1. Supplier with a risk grade changed to an A Grade.
2. Wafer suppliers.
3. Transaction value in 6 months exceeds NT\$5 million.





2.1 Competitive niche

2.2 Innovation and R&D

2.3 Customer service

◆ 2.4 Customer service

In accordance with the requirements of ISO 9001 and IATF 16949, PSMC audits the quality control system of the suppliers. Currently, the Company adopts an on-site audit and documentation review model to examine the quality systems.

The number of suppliers audited for quality control in 2020

Audit Type	Suppliers
On-site Audit	12
Paper Assessment	50

According to the results of the 2020 on-site audits of suppliers and document review, 62 suppliers were in compliance with the requirements of the ISO 9001 or IATF 16949 quality system.

Audit scope checklist for suppliers

◆ Context of the Organization	◆ Leadership
◆ Planning for the quality management system	◆ Performance evaluation
◆ Operations	◆ Support
◆ Improvement	

Conflict Minerals

All the suppliers of target materials and gases currently with business relationships with PSMC have 100% committed to not source conflict minerals provided by upstream suppliers or source countries, and we call for all our suppliers with business dealings with PSMC to join the campaign launched by the RBA: "Do not accept any metals from the areas of conflict minerals." We also require all the raw material suppliers to comply with the rules below:

- ◆ Suppliers must fulfill their social and environmental responsibilities.
- ◆ Suppliers must ensure that no products are made from the minerals extracted in the areas of Congo, or its neighboring countries that are in armed conflicts, or extracted in poor working conditions.
- ◆ Suppliers must disclose the source of the minerals, such as Ta, Sn, Au, and W; and complete investigation forms.
- ◆ Suppliers must convey PSMC's policy of "no conflict minerals" to their upstream suppliers and supply chains.





3

Striving for a sustainable environment

- 3-1 Climate change and carbon management
- 3-2 Risk management for water resources
- 3-3 Green production



Energy Resources and Management Policy

PSMC strives to ensure the production processes conform to international environmental protection, satisfy customers' requirements in product quality and environmental protection specifications, and select proper suppliers for a steady material provision. These efforts are to earn customer trust so that they will continue to place orders with PSMC and create greater profitability.



- ◆ PSMC is a professional foundry service provider. By establishing its energy policy, the Company continues to increase efficiency in energy and water resources, comply with domestic energy regulations, and follow the international energy conservation and carbon reduction trends to maintain the effectiveness of the management system. The concerted effort in reducing energy consumption and decreasing the impact of climate change demonstrates the Company's commitment to fulfilling its corporate social responsibility.
- ◆ The Company's environmental health and safety policy stipulates regulations that address issues regarding climate change and the adjustments made, as well as the use of sustainable resources to effectuate energy conservation and carbon reduction measures and thus facilitate resource use.
- ◆ The Company adopts ISO 50001, ISO 14001, ISO 14064-1, and other international management systems, and has established "Procedures for GHG Emission Reduction Management" and "Operational Instructions for GHG Emission Inspection and Verification" to implement management.
- ◆ According to the proposal for water use and commitment to the Environmental Impact Assessment, the Science Park Bureau requires the recycling rate for water used by foundries to exceed 85% and meet the 1% energy saving requirement for large energy users.

- ◆ Implement management and planning that comply with the energy-saving target for large energy users and continue the management goal of 1% energy saving, as well as conforming to the energy-saving targets and execution plans stipulated in the Energy Administration Act, Article 9.
- ◆ In response to the slowdown and adjustments due to climate change, the Company set a GHG reduction of 1% as the company-wide carbon reduction target.
- ◆ The Company strived to manage water saving so that it can meet its goal in producing the optimal benefit with the least water usage, allowing the Company to continue production under limited water resources. The Company also conformed to the public policy in ensuring a water reuse rate of at least 85%.
- ◆ All plant areas passing ISO 50001 Energy Management System certification.

- ◆ An energy management team was established to report on the energy consumption status of the plant to the plant manager regularly. It also makes a yearly submission on its energy consumption to the Bureau of Energy.
- ◆ Personnel were designated to manage plant affairs, monitor and control energy and water consumption, and make a monthly submission on water use to the Park Bureau.
- ◆ GHG inspection and the reduction management team had been established to monitor the GHG emission status.

- ◆ According to the internal management review procedures of ISO 14001, ISO 14064-1, and ISO 50001, the Company conducts effective evaluation using PDCA procedures.

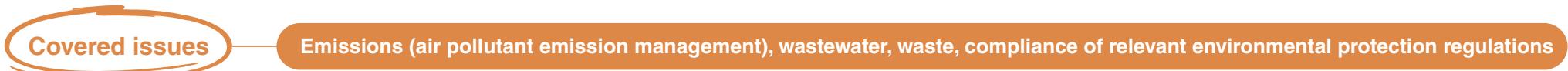




Pollution prevention and Management Policy

The Company sees environmental protection, green production, and CSR fulfillment as its management's duty. We believe that the risk level of the environment, health, and safety of the plant is deemed appropriate and compliant with the relevant regulations. We are committed to promoting improvement, pollution prevention, and environmental protection.

The Company fulfills its responsibility in air pollution management, wastewater discharge, and waste management; avoiding possible violations and fines to mitigate the external risks of the Company, and the cost and risk to the environment. The Company also increases its product competitiveness pertaining to sustainability to maintain a good image and customer trust, and achieve the ultimate goal of sustainable operation.


Norms

- ◆ The Company adopts ISO 14001 and other international management systems and established "Procedures for Environment, Safety and Health, and Fire Regulations Collection and Identification Management" and "Procedures for Prevention for Environmental Pollution of Plants" to implement management.
- ◆ The Company uses the best practicable control technology to ensure waste reduction at the source and reviews various recycling resources for reuse to ensure all operations comply with the environmental protection standards.
- ◆ The Company treats the waste and wastewater at the plants in accordance with the emission standard of the Science Park.


Targets

- ◆ Ensure business operations comply with the Environmental Protection Act.
- ◆ Ensure the capacity of the VOC treatment facility is better than the best practicable control technology standard.
- ◆ Set parameters to reduce chemical use and to monitor wastewater generated from the manufacturing process.
- ◆ Improve the efficiency of water recycling, treatment, and use, and reduce the discharge of waste water. The plant-wide discharge rate is 70% or lower.
- ◆ Ensure the reuse rate of waste reaches 85%.


Execution

- ◆ All plants were equipped with air pollution prevention equipment and wastewater treatment systems. Regular maintenance and relevant improvement were conducted to increase efficiency, and assigned personnel were to operate and monitor various pollution prevention measures.
- ◆ In response to the trend of demanding ammonia nitrogen reduction in wastewater, the Company selected a highly safe catalyst process, which generated zero waste but had a costly installation fee, as its environmental protection facility to reduce ammonia nitrogen.
- ◆ All plant areas had designated personnel, who are assisted by staff from plant affairs, general affairs, and property management units, for managing plant waste.
- ◆ The yearly waste disposal and recycling budget for 2020 was NT\$160 million.
- ◆ The Company held regular consultation and communication meetings with representatives from the environment, health and safety unit, and relevant training on environmental health and safety, and made training projects for different departments.
- ◆ The Company adopted the ISO 14001 management system, assessed its processes from time to time to see if they require additional or improvement on prevention equipment, and implemented improvements on relevant notable issues.


Management

- ◆ The efficiency of VOC removal facility of various plants exceeded the 90% level stipulated in the regulations.
- ◆ According to the internal management review procedures of ISO 14001, the Company conducts an efficient evaluation of PDCA on emissions management every quarter.
- ◆ For waste removal/treatment vendor evaluation, at least one visit is performed each year, and the relevant information regarding the visit is documented in the audit system of the plants.





◆ 3.1 Climate change and carbon management

3.2 Risk management for water resources

3.3 Risk management for water resources

3.1 Climate change and carbon management

To showcase our commitment to low-carbon green manufacturing and sustainable environmental development, PSMC jointly announced the Declaration of Voluntary Energy Conservation and Carbon Reduction by High-tech Industries with members such as TSMC, United Microelectronics Corporation, Advanced Semiconductor Engineering, Inc., and Micron Memory Taiwan Co., Ltd. at the High-tech Industry Energy Conservation and Carbon Reduction Forum hosted by the Taiwan Semiconductor Industry Association (TSIA), with the aim of establishing an energy management system (ISO 50001) to improve and reduce fluorine-containing greenhouse gas emissions, and collaborate with suppliers to develop energy-saving equipment to achieve our voluntary energy-saving and carbon reduction targets in a comprehensive manner.



▲ Joint “Declaration of Voluntary Energy Conservation and Carbon Reduction” at the “High-tech Industry Energy Conservation and Carbon Reduction Forum”



Energy and resource consumption

The statistics of the Company's energy consumption are shown in the table below. Although the consumption increases with the increase in production (in 2019, yearly maintenance conducted using diesel generator caused an increase in diesel use), the Company continues to improve consumption efficiency, striving to reduce the impact on the environment.

Plant	Energy resources	2018	2019	2020
12-inch	Electricity consumption (degrees/year)	867,091,072	862,449,877	880,319,632
	Diesel consumption (L/year)	27,667	200,779	23,911
	Natural gas consumption (m ³ / year)	8,712,301	8,374,129	8,585,664
8-inch	Electricity consumption (degrees/year)	195,401,621	239,923,299	255,136,483
	Diesel consumption (L/year)	9,632	30,293	12,451
	Natural gas consumption (m ³ / year)	2,331,727	3,825,077	3,985,201

Note: 1. For 8-inch fabs, due to the commencement of production of the 8B fab in 2019, the overall energy use for 2019 saw an increase.

2. The reason for the restatement of the information on diesel consumption for 8-inch fabs in 2019 lies in the change of the benchmark for trial calculation.





◆ 3.1 Climate change and carbon management

3.2 Risk management for water resources

3.3 Risk management for water resources

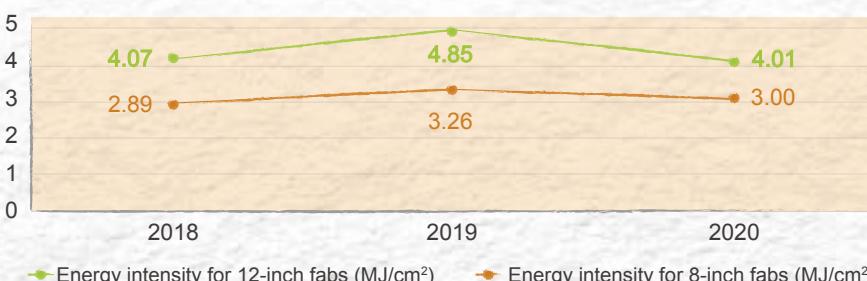
PSMC has adopted an energy management system (ISO 50001) into its management system in the 12-inch fabs since 2015. The system analyzes energy consumption efficiency and seeks effective use of energy, laying the foundation for building green plants. Via regular inspection of the system conducted by a bona fide third party, the verification of the administration system is updated, ensuring its effectiveness and that the performance and culture of energy administration of the Company can gradually grow. In the future, in accordance with the energy policy issued by the President of the Company, the energy administration system (ISO 50001) will be adopted into the 8-inch fabs to strengthen energy management equipment and optimize the effective use of energy, facilitating corporate sustainable management. In 2020, the energy intensity of both the 12-inch and the 8-inch fabs decreased by 17% and 10%, respectively, compared with 2019 due to an increase of production.

Plant	Year	Energy use (MJ) (electricity + diesel + natural gas)	Production quantity (cm ² /year)	Energy intensity (MJ/cm ²)
12-inch	2018	3,450,570,639	848,361,400	4.07
	2019	3,425,694,345	706,952,500	4.85
	2020	3,491,743,428	870,834,400	4.01
8-inch	2018	791,587,866	273,592,800	2.89
	2019	987,889,240	303,241,500	3.26
	2020	1,068,546,625	356,583,900	3.00

Note: 1. The reason for the restatement of the information on energy consumption in 2019 is due to different unit conversion methods, so energy intensity was also recalculated accordingly.

2. The heat value of 1L of diesel is 8,400kcal; the heat value of 1m³ of natural gas is 9,000kcal; 1 kWh is equivalent to 3,600 KJ; 1 kcal is equivalent to 4.184 J.

Energy intensity of each plant over the years



Energy Saving

To comply with the "Regulations on Setting Energy Conservation Objectives and Execution Plans for Energy Users" set by the Ministry of Economic Affairs, the Company executes various energy-saving measures such as making plans to renew old equipment and develop renewable energy, reviewing and reducing the electricity usage of production units, and setting the goal of saving electricity by 1% each year. The energy-saving statistics of each plant for 2020 are shown in the table below; all plants have achieved their annual energy saving targets.

Plants	Reduced energy amount (electricity + diesel + natural gas)	Energy saving rate
P1/2	32,853,890 MJ	1.573%
Energy Saving Measures	Uninstalled the lights in the CUB Building	Uninstalled spare fans in the warehouse building to improve energy-saving efficiency
	Uninstalled PV to switch to the energy-saving mode	Lowered the pressure of the CDA air compressor system
	Adopted energy-saving pumps for the outward air of air handling units	Installed chilled water pipelines for PCW board heat
	Adjusted 2B3T system (flow rate and rinse time)	Cleaned the evaporator of the chiller units regularly to improve the efficiency
	Turned off and replace AMHS OHT&OHS Controller EPLC	PCE cooling water chiller of DBT machine -> supplied by PCW in plan Affairs
	Replaced CLC flow controller with a new model to reduce power consumption	Replaced the T8 light tubes of FC3000 and Hugle machines with LED ones
	Replaced the screen of AMAT_eMax EPD with an LCD one	Lam UI Daul Monitor Close One
	Replaced the energy-saving pumps for DTA machines	Reduced power consumption of IPCs of two WAT TTC51
		Replaced the IAN high-voltage dangerous light tubes with LED ones



◆ 3.1 Climate change and carbon management

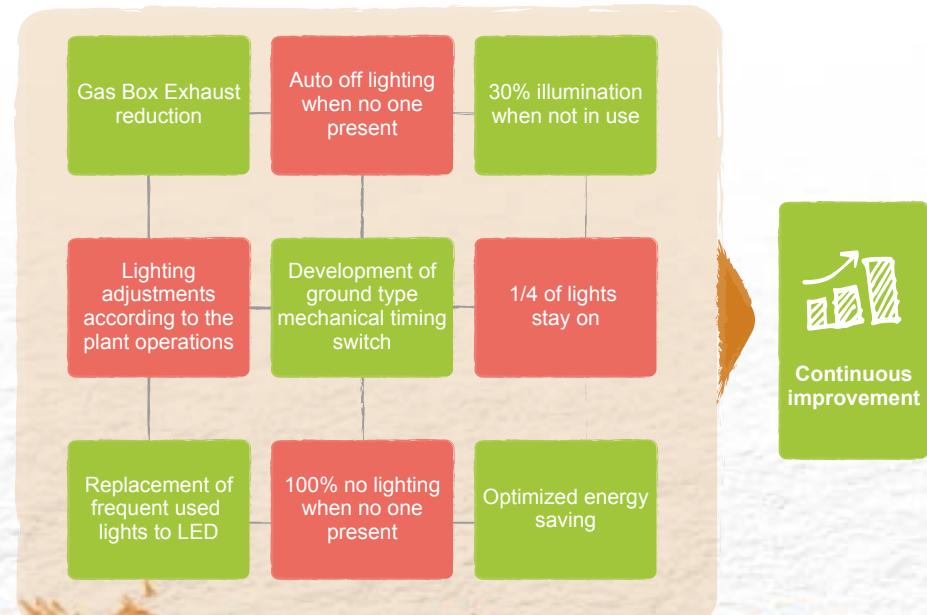
3.2 Risk management for water resources

3.3 Risk management for water resources

Plants		Reduced energy amount (electricity + diesel + natural gas)	Energy saving rate
P3		11,766,673 MJ	1.012%
Energy Saving Measures	Improved LED energy efficiency of the server room at the plant	Improved LED energy efficiency of the passenger/cargo elevators	Lowered the temperature of outward air of MAU by 1%
	Improved energy efficiency of general air-conditioning VAV system	Uninstalled DL fans	Increased the number of secondary chilled water pumps in operation (four units)
	Raised the air-conditioning temperature of office area on 7F by 1°C	Uninstalled the PAH air-handling unit on 4F of the FAB building	Reduced pressure supply of CDA
	Reduced the number of high pressure pumps of 2B3T_RO system in operation	Reduced the number of high pressure pumps of AWL_RO system in operation	Improve energy efficiency of track idle hot plate
	Reduced the number of intake fans in operation on 6F of the SUP building to save energy	Replaced IMP machine light tubes with LED ones	Turned BSGS steel cylinder plate and heating belt to energy-saving mode (supply was switched from cylinder to tank, and the heating was suspended)
	Reduced power for 25nm 1C.EEH10 RF	Implemented Hot N2 power reduction program	Improved energy efficiency of WT Prober CDA
8A		10,426,354 MJ	1.399%
Energy Saving Measures	Replaced ADP4F office T8 with LED lights	Replaced 250RT#2/#3 cooling pump with a high-efficiency motor	Replaced 1000RT NO.5 chilled/cooling water pumps
	Changed AT RO to low-pressure membrane and energy-saving pump	Suspended DP-102 to save energy	Replaced air compressor NO.5 with high-pressure rotor
	Improve energy conservation of Dry pump equipment		

Plants		Reduced energy amount (electricity + diesel + natural gas)	Energy saving rate
8B		3,912,659 MJ	1.616%
Energy Saving Measures	Replaced T8 lighting with LED energy-saving one	Lowered the temperature of the outward air of MAU air handling unit	Improved the best operating efficiency of chillers
	Lowered pressure of cooling tower water supply pump	Lowered pressure of IPA cooling water supply pump	

Basic energy saving plans





◆ 3.1 Climate change and carbon management

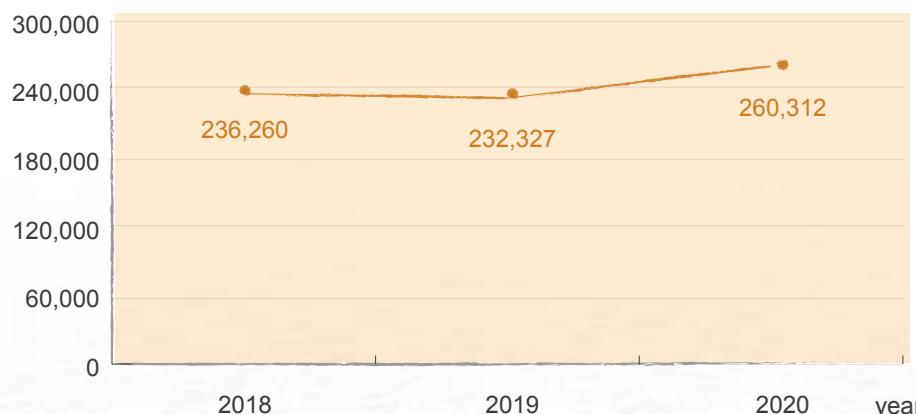
3.2 Risk management for water resources

3.3 Risk management for water resources

GHG Investigation and Reduction

For climate change mitigation and adaptation, the Company established a greenhouse gas inventory and reduction management team to collect greenhouse gas emission data every year, and set the greenhouse gas reduction target by 1% on an annual basis. The performance of reduction of GHG emissions for the FCs process in 2020 increased by 12% compared with 2019.

Reduction performance(ton CO₂e)



Note: 1. The types of such gases include hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride.

2. The scope of the reduction is direct (Scope 1).

3. The Tier 2b emission calculation method by the Intergovernmental Panel on Climate Change was adopted for calculation.

In 2020, each plant not only strove to increase production capacity and to expand the production lines of the 8B plant but implemented carbon reduction plans actively, and put forth plans that included the replacement of scrubbers and the expansion of the areas connected with the scrubbers, so emissions per unit of production remarkably decreased by 14.0% compared to the previous year.

Activity	2018	2019	2020
Direct emission (Scope 1) (ton CO ₂ e)	107,183	95,781	107,931
Indirect emission (Scope 2) (ton CO ₂ e)	552,566	548,034	565,108
Total emission (Scope 1 + Scope 2) (ton CO ₂ e)	659,748	643,815	673,040

Note: 1. In 2019, 8B fab formally commenced production and was included in the statistics.

2. In the GHG emission inspection of various plants, PSMC conducts the inspection in accordance with procedures stipulated in ISO 14064-1, and a third party certification is required; for the GHG emission factors, PSMC mainly refers to the Management Table for GHG Emission Factors Version 6.0.4 set by the EPA, in which the electricity factor of 0.509kgCO₂e/kWh serves as the scope 2 computation.

3. The global warming potential (GWP) that the table uses comes from the "IPCC Fourth Assessment Report (2007)".

4. The greenhouse gases include nitrous oxide (N₂O), methane (CH₄), carbon dioxide (CO₂), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), nitrogen trifluoride (NF₃), etc.

5. Method of consolidating GHG: Operational control.

6. Use of standard, methodology, hypothesis, and/or computational tools: the energy consumption data is from measurements in which a fee payment was required. The review table does not contain any estimation values. For the factors used, the Company mainly referred to the latest recommended factors released by the EPA, among which, the uncertainty data of the emission factors. For evaluating the uncertainty of the activity data, the Company used the Regulations Governing Verification and Inspection of Measuring Instruments as its evaluation basis.

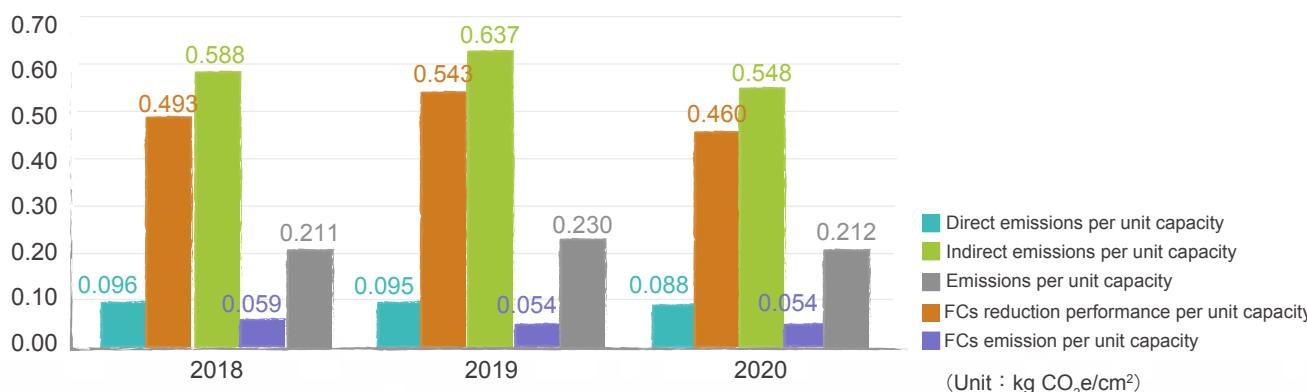


◆ 3.1 Climate change and carbon management

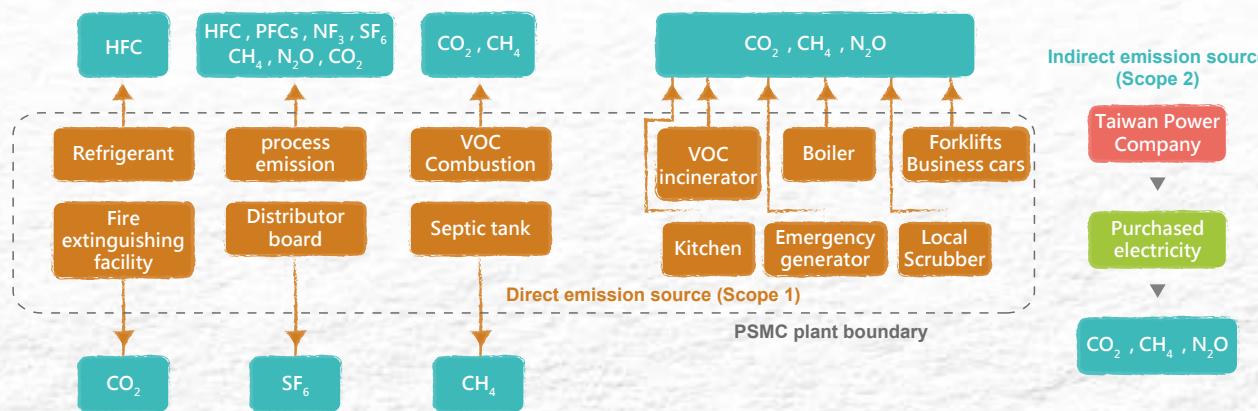
◆ 3.2 Risk management for water resources

3.3 Risk management for water resources

GHG emissions



PSMC GHG emission inventory scope



3.2 Risk management for water resource

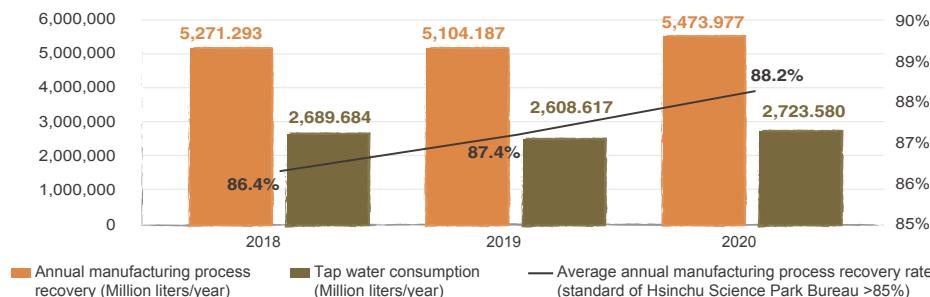
Water resource management

All of the Company's plants use tap water. The main water sources come from the Hsinchu Baoshan First and Second Reservoirs and the Miaoli Yongheshan Reservoir. According to the water stress map, the Hsinchu Science Park is at the low-medium level. In addition to the water used for the cleaning process, there is still water needed for air-conditioning to maintain the clean room operation, washing water for processing exhaust gas from the process, and the domestic water in the plant. As climate changes in recent years may have affected the normal water supply at the plant, we have continued to improve the water recycling rate and process water efficiency through technological improvement and investment in equipment as the first semiconductor plant in the park committed to achieving 85% or more of the process water recycling rate: the process water recycling rate at each plant all reached 85% or more.

In addition, to save water, we have controlled the water consumption of our 12-inch fab to below 95% of the permitted amount of water use. Since the establishment of the fab, we have upheld an excellent tradition of water conservation. The water-saving work through continuous technological improvements and investment in equipment have become our mission. In the past three years, for 8A fab, the use of ultra-pure water for every chip unit has decreased from 0.008 to 0.0071 (m³/cm²/wafer). We also promise that the entire company will use 1,050 CMD of recycled water (P1/2: 500CMD, P3: 250CMD, 8A: 300CMD) when the water reclamation plant is established in the park to respond to the government's policy of promoting the recycling and reuse of reclaimed water proactively.

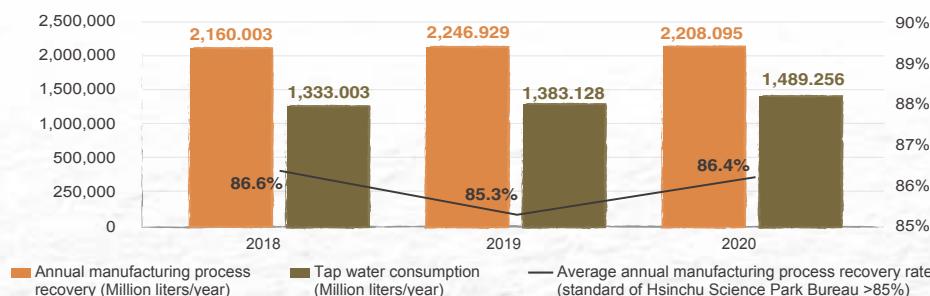

[3.1 Climate change and carbon management](#)
[◆ 3.2 Risk management for water resources](#)
[3.3 Risk management for water resources](#)

Summary of the past average annual recovery rate of the manufacturing process recovery plan of P1/2 fab



Note: In 2018 and 2019, the information was restated due to unit conversion.

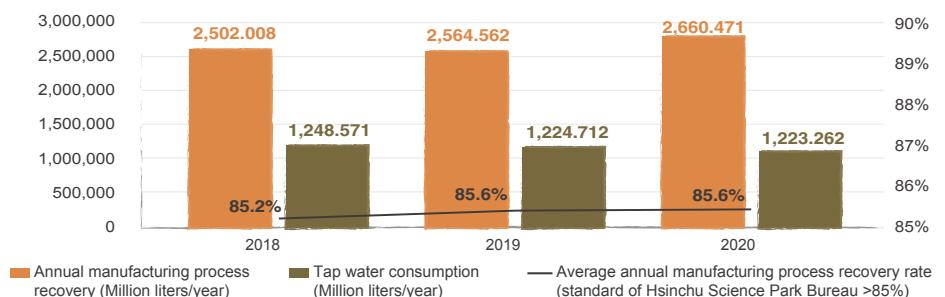
Summary of the past average annual recovery rate of the manufacturing process recovery plan of P3 fab



Note: 1. In 2018 and 2019, the information was restated due to unit conversion.

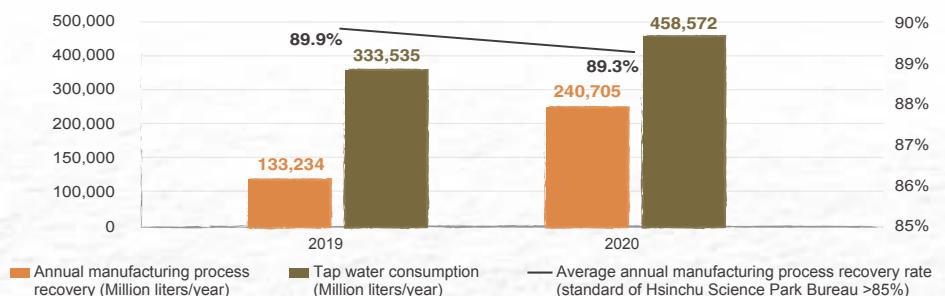
2. The change in the process caused the reuse rate to fall slightly in 2019 as compared to 2018. After improving the efficiency of the recycling system in 2020, the rate has since rebounded.

Summary of the past average annual recovery rate of the manufacturing process recovery plan of 8A fab



Note: In 2018 and 2019, the information was restated due to unit conversion.

Summary of the past average annual recovery rate of the manufacturing process recovery plan of 8B fab



Note: 1. In 2019, the information was restated due to unit conversion.

2. The 8B plant commenced production in 2019, hence no information from 2018 is available for disclosure.

When Hsinchu Science Park Bureau announced a water restriction policy, the Company conducted water rationing in 4 stages according to the directions of the Bureau: 10%, 20%, 50%, and 100% according to the rationing plan. The initial stage was to restrict public and daily use. The next stage was expanded to use of water in the manufacturing process. Lastly, priority was given to maintaining the operation of the cleanroom. Water trucks were contracted for transferring water to the Company at the announced water collection point to extend the water supply within the plants in case of insufficient water supply during the water restriction period.



3.1 Climate change and carbon management

◆ 3.2 Risk management for water resources

3.3 Risk management for water resources



Column-Water Resources Dispatch Platform

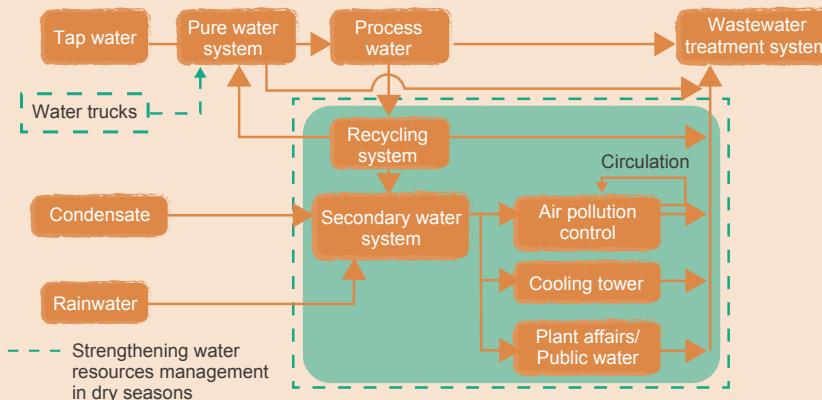
Water Resources Dispatch Platform

In response to the severe water shortage from 2020 to 2021 and the water rationing planned by the Water Resources Agency, the Company has established a water resource dispatch platform and holds meetings from time to time to discuss the feasible water-saving plans for each plant. We have established a communication and discussion platform between plant affairs and equipment departments through this mechanism to review the water-saving methods for plan affairs, and machinery and equipment. We also conducted a drill in the scenario where should the water rationing ratio increase, but the water-saving countermeasures implemented at the plant cannot meet the requirements of the increased water rationing ratio, each plant would use the water trucks to supplement the water.

The relevant implementation plans are listed below after assessments at meetings:

- A. Reduce water consumption of cooling towers.
- B. Reduce the amount of water used in the process that cannot recycle water discharge.
- C. Reduce the amount of backwash/reclaimed/RO concentrated water in the water treatment system.
- D. Include more types of water for recycling.
- E. Add a recovery and reuse mechanism for surplus secondary water in winter.
- F. Stop external wall cleaning and irrigation water.
- G. Schedule water trucks for water replenishment and drill plans, and nine water truck water replenishment drills were held.

PSMC Water Recycling Process



In such drills, the main water source was the RO equipment (reclaimed water) of the Hsinchu Ke-Ya Water Resources Recycling Center, and the water trucks that have signed the contract with the Company carried the water at the center and then transported it to the water unloading area of each plant to unload the water. As for the results of the drills, the water trucks spent 30 minutes to fill water (around 20 tons), took roughly 90 minutes to transport water, and unloading water at the plant took about 80 minutes. In total, each journey required approximately three hours. The above results can be used as reference for scheduling.



(1) Withdrawing water from water source

Location:
Water Resources Recycling Center

Time per trip:
40 minutes

Water withdrawal time:
30minutes

Water withdrawal:
20 tons
Total time spent:
70minutes

(2) Return / Water quality inspection

Location:
P1/2 Plant of PSMC (water unloading are of CUP Building)

Time per trip:
50 minutes

Operation time:
30 minutes (water quality inspection, and pipe connection)

Total time spent:
80 minutes
Water quality testing:
Conductivity 414s/cm; pH =7.41; TOC:232ppb;TOC:232ppb

(3) Water unloading

Location:
P1/2 Plant of PSMC (water unloading are of CUP Building)

Water unloading time:
30 minutes

Total time spent:
30 minutes

**Total time spent for the entire process: 3 hours
(in-plant operation time: 60 minutes)**



3.1 Climate change and carbon management

◆ 3.2 Risk management for water resources

3.3 Risk management for water resources

Wastewater treatment

All of the Company's wastewater has to go through the wastewater treatment facilities within the plants, and then flow to the similar facilities at the Park before it is discharged. To monitor the treatment effect for different compositions, the Company distinguishes the wastewater into 20 different types of reusable and non-reusable water treatment based on the type, concentration, and conductivity of the liquid discarded from the processes. In addition to increasing the water reuse rate, recycling some waste liquid acid (phosphoric acid/copper sulfate/sulfuric acid/hydrofluoric acid) and organic waste liquid (IPA/PGMEA/TMAC) has generated economic values. Single split-flow reduces not only the dosage for chemicals treating the wastewater but also the difficulty for treating the wastewater in the subsequent process, hence alleviating the environmental impact.

To continuously increase the amount of recycled water and reduce the volume of water discharge, the Company is equipped with pH and Fion testing instruments for effluents, and the administration of the park will sample the quality of the effluents twice a month to control the effluents from the plants strictly. In recent years, the annual average values of the effluents from our plants have all met the management standards of the park.

Reuse and discharge planning of wastewater



Water resources information of each plant over the years

Plants	Activity	Unit	2018	2019	2020
12-inch (P1/2)	Total water intake	Million liters/year	2,823.707	2,759.324	2,856.737
	Total emission of wastewater	Million liters/year	1,899.268	1,793.100	1,839.691
	Water consumption	Million liters/year	924.439	966.224	1,017.046
	NH ₃ -N (<50)	mg/L	20.6	20.9	19.8
	Chemical Oxygen Demand (COD<500)	mg/L	114.6	83.2	110.2
	Suspended solids (SS<300)	mg/L	18.7	26.8	35.5
12-inch (P3)	Total water intake	Million liters/year	1,453.443	1,494.078	1,574.999
	Total emission of wastewater	Million liters/year	925.903	962.678	1,031.749
	Water consumption	Million liters/year	527.540	531.400	543.250
	NH ₃ -N (<50)	mg/L	10.1	6.3	5.2
	Chemical Oxygen Demand (COD<500)	mg/L	45.2	54.7	40.0
	Suspended solids (SS<300)	mg/L	21.9	27.7	23.3



3.1 Climate change and carbon management

◆ 3.2 Risk management for water resources

3.3 Risk management for water resources

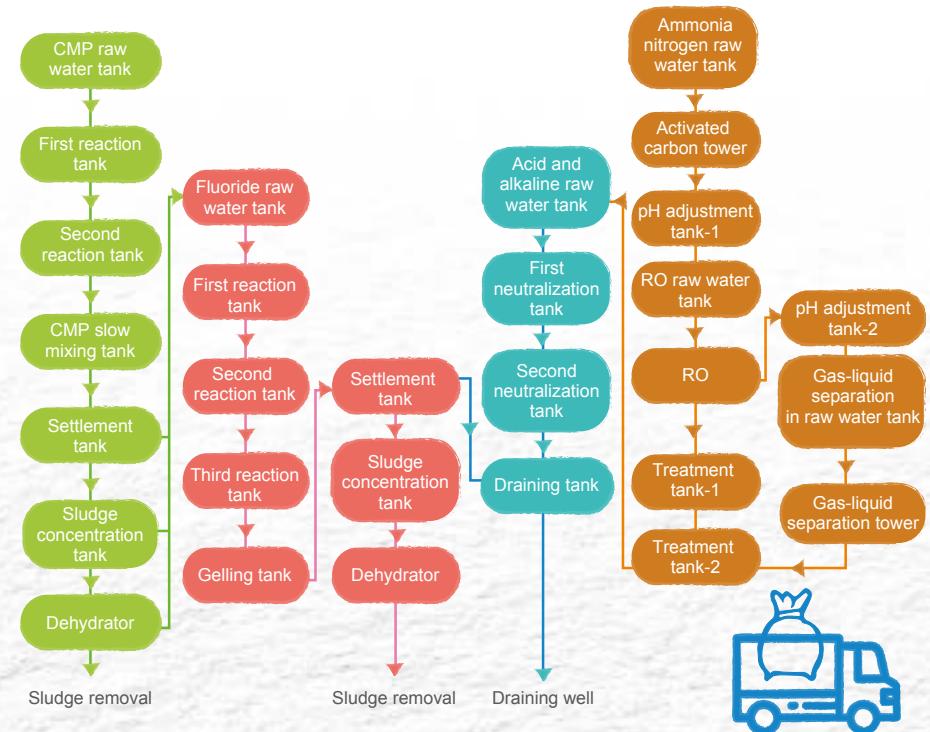
Plants	Activity	Unit	2018	2019	2020
8-inch (8A)	Total water intake	Million liters/year	1,295.318	1,266.945	1,223.262
	Total emission of wastewater	Million liters/year	792.113	813.411	833.846
	Water consumption	Million liters/year	503.205	453.534	432.091
	NH ₃ -N (<50)	mg/L	14.4	12.4	12.6
	Chemical Oxygen Demand (COD<500)	mg/L	90	88.5	103.7
	Suspended solids (SS<300)	mg/L	15.4	18.5	18.8
8-inch (8B)	Total water intake	Million liters/year	NA	333.535	458.572
	Total emission of wastewater	Million liters/year	NA	233.603	306.620
	Water consumption	Million liters/year	NA	99.932	151.952
	NH ₃ -N (<50)	mg/L	NA	NA	NA
	Chemical Oxygen Demand (COD<500)	mg/L	NA	42.3	42.6
	Suspended solids (SS<300)	mg/L	NA	36.2	20.3

Note : 1. Total water intake = Tap water + condensed water + rainwater.

2. The wastewater discharge is the actual measurement of effluent in the plant going through the flowmeter.
3. The measurements of various pollution indices are yearly average measurements taken by the Park Bureau twice every month.
4. 8B fab commenced production in 2019. As such, only 2019 information was disclosed.
5. The NH₃-N value of the 8B plant is not monitored by the park where the fab is located, and therefore, there is no monitoring data; the value in the 2019 report was monitored by ourselves and is not included for reference.

The recycled water generated from processes is treated with the appropriate recycling water system treatment before returning to the pure water system for reuse, which will increase the recovery rate. The unrecyclable and highly concentrated wastewater is discharged into the wastewater treatment systems (including: acid-base/fluoric acid/milling/ammonia nitrogen wastewater treatment system). After treatment, it will be diverted into the Park's sewage treatment plant for subsequent treatment and discharge. Therefore, the Company's effluents are not discharged into the rivers directly, having no direct impact on the water body and surrounding habitats. All plants of the Company have not had serious wastewater leakage incidents nor been imposed a major fine over the years.

Wastewater treatment process





3.1 Climate change and carbon management

◆ 3.2 Risk management for water resources

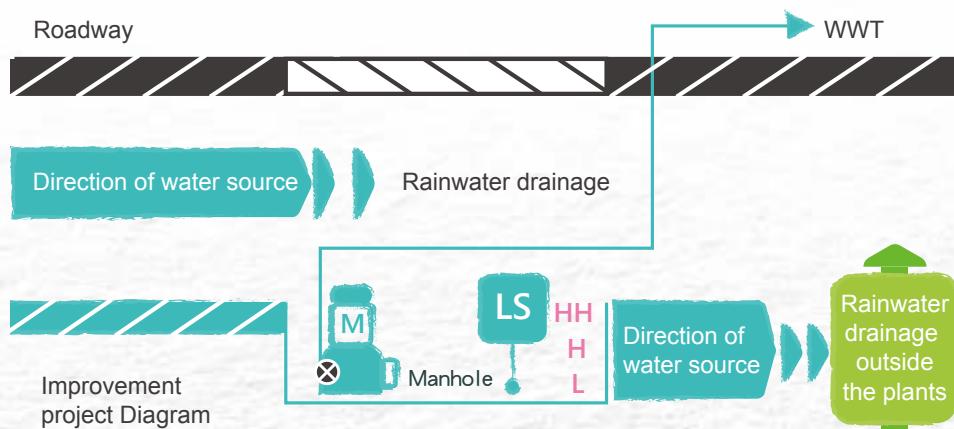
3.3 Risk management for water resources

The wastewater treatment facilities in the plants are surrounded by jetty and flood pumps. The bottom story of various buildings also have flood pumps installed. In case of an abnormal leakage, heavy rain or flood, the flood pumps will transfer the water to the wastewater treatment facilities before discharging to the sewage of the Park. The relevant process is undertaken according to the treatment protocol for rainwater.

Further, the filling areas of chemical tankers also have been installed with jetties. In case of a leaking accident during a chemical refill, the chemicals can be effectively blocked and collected for subsequent treatment, and an environmental disaster can be avoided.

Because of an incident whereby hydrant water from a fellow plant in Pingzhen District contaminated the adjacent river in 2018, the Company has also installed flood pumps in the rainwater drainage at high-risk areas in case of abnormal incidents. The water can then be diverted back into the wastewater treatment facilities in the plants, avoiding similar contamination by hydrant water flowing into the rainwater sewage.

Rainwater treatment system



Since 2015, the Hsinchu Science Park's management standards have included ammonia nitrogen indicators. Our P1/2 and P3's treatment of ammonia nitrogen wastewater through air stripping and catalyst has been awarded the High Distinction Award for Ammonia Nitrogen Wastewater Reduction. We have collaborated with other companies in the same industry in the park to promote this system multiple times in cooperation with the administration and other units of the park. In the 2020 Emerging Wastewater Treatment Technology Seminar held by the Environmental Protection Administration, Executive Yuan, we shared our experience in the treatment of ammonia nitrogen wastewater with the businesses under monitor due to the stricter effluent standards under the Water Pollution Control Act in 2021 as a reference for these companies in various industries to plan their treatment systems based on their scales.



▲ Awarded at the 2020 Emerging Wastewater Treatment Technology Seminar and Innovative Water Technology Exhibition.




[3.1 Climate change and carbon management](#)
[3.2 Risk management for water resources](#)
◆ [3.3 Risk management for water resources](#)

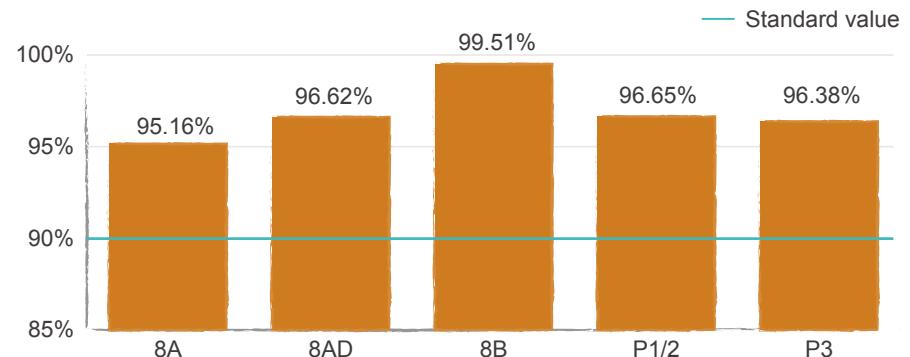
3.3 Green production

The plants of the Company are all located in the jurisdiction of Hsinchu Science Park. All business operations must be reported to and are under the purview of the Park Bureau. Any environment evaluation and environment monitoring will be conducted under the supervision of the Park Bureau, which has not caused a direct impact on the community. The environmental protection, and health and safety aspects have always been prioritized in the operations within the plants, to maintain certain environmental health and safety standards. The Company consistently strengthens its interaction and exchange with the Hsinchu Science Park Bureau, such as participating in seminars regarding environmental protection and health and safety; and holding activities in conjunction with the Industrial Safety and Environmental Protection Month, to continuously review the awareness campaign in these regards and establish a comprehensive environmental health and safety system within the plants, thus providing a hygienic, safe and comfortable workplace for the employees. In 2020, the Company did not receive any disciplinary action from the environmental protection authorities. The Company is a part of the Environmental Supervision Team of the Park and regularly communicates with local residents to understand their expectations on the manufacturers operating in the Park in regard to matters concerning environmental protection, and health and safety, and thus strengthening the management mechanism of the manufacturers in the environment, health and safety aspects.

Air pollutant emissions

To maintain the quality of the environment, the Company strictly controls its pollutant emission. The emission of the Company over the years has been compliant with the regulations, in which, the acidic and alkaline waste gases produced by the Company's manufacturing process are only discharged after being treated by a scrubbing tower; organic waste gases are absorbed by a zeolite absorbent wheel, and then desorbed with hot air which will then be incinerated in a burner before emission. In 2020, the VOC removal efficiency in all plants was far better than the stipulated 90% in the "Air Pollution Control and Emissions Standards for the Semiconductor Industry" – the removal efficiency of all the plants exceeds 95%!

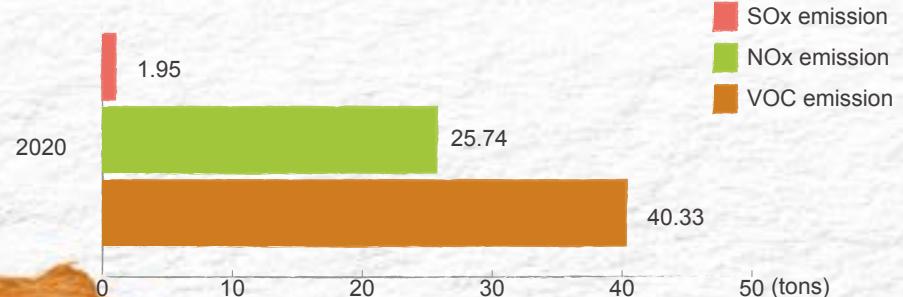
VOC Reduction Rate



Note: X-axis represents the plant areas, y-axis represents VOC reduction rate, blue line denotes the target value (90%).

With increasing production capacity, while new manufacturing processes progresses, the total emission also increases correspondingly. The Company, therefore, opts for source recycling, and the most advanced and suitable pollution reduction technology. As such, the air pollution prevention equipment, treatment facilities, and monitoring equipment are all compliant with the relevant regulations. Further, the continuous R&D on the best practicable technology has enhanced the effectiveness of existing control facilities. According to the actual test results over the years, the concentration of air pollutants emitted is lower than the emission standards stipulated by the competent authority.

Air Pollutant Emission for 2020





3.1 Climate change and carbon management

3.2 Risk management for water resources

◆ 3.3 Risk management for water resources

To effectively manage the emission of air pollutants, the Company has adopted the ISO 14001 management system and strives to meet its goals in reducing the emission of pollutants and improving the best practicable technologies. In addition to strengthening measures in treating the possible pollutants within the plants, the Company collaborates with other companies within the Park to work on notable pollution issues. From time to time, the Company will evaluate whether to add and improve prevention facilities pertaining to the manufacturing processes and make improvements to tackle notable pollution issues, such as improving odor and white smoke emissions. The following improvements are made according to schedule: optimization of L/S, verification of the efficiency of L/S, verification of the efficiency of M/S and C/S, increase in the efficiency of C/S, addition or replacement of prevention facilities and improvement on white smoke emission.

Main results of improvement:

NO.1

Improvement plans

Improve the performance of membrane of the P2 SEX2-7 (A507) scrubber.

Improvement benefit

Improve the efficiency of treatment facilities and lower emission concentration.

Results

Testing results showed the efficiency of TSP treatment increased by 86.7% with a significant reduction of smoke.



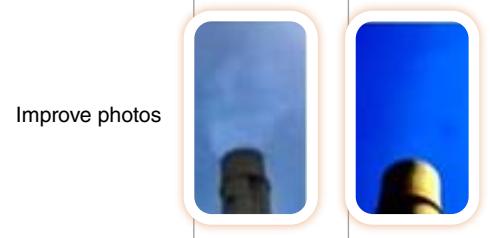
Wet filter



Spray device

	Before	After
TSP concentration ($\mu\text{g}/\text{Nm}^3$)	18,220	2417
Water change(CMD)	25~35	30~70
Differential pressure (Pa)	200	300~400

Improve photos



NO.2

Improvement plans

Replace P2 VOC2-3 zeolite rotating wheel.

Improvement benefit

Improve the treatment efficiency of the zeolite rotating wheel and maintain the availability of equipment to improve the VOC removal efficiency.

Results

Completed the replacement on March 18, 2021, and the VOC removal efficiency was increased from 98.3% to 98.8%.



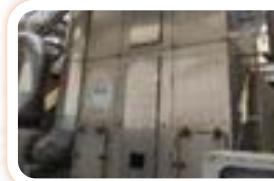
▲ Rotating wheel wear



▲ Replaced and removed old rotating wheel



▲ Completed repair of rotating wheel



▲ Installed rotating wheel



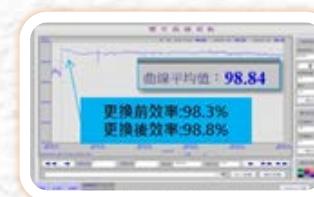
▲ Installed and adjusted rotating wheel



▲ Completed repair of rotating wheel



▲ Efficiency before replacement of rotating wheel





3.1 Climate change and carbon management

3.2 Risk management for water resources

◆ 3.3 Risk management for water resources

NO.3

Improvement plans

Strengthen the airtight negative pressure environment of the connecting pipelines of P2 VOC2-1/2-2 (A512/A514)

Improvement benefit

Increase the airtight negative pressure of the connecting pipelines to prevent gas leakages.

Results

The modification was completed on February 17, 2020, the actual concentration tested was 0ppm, and it was confirmed that no gas was leaked.



NO.4

Improvement plans

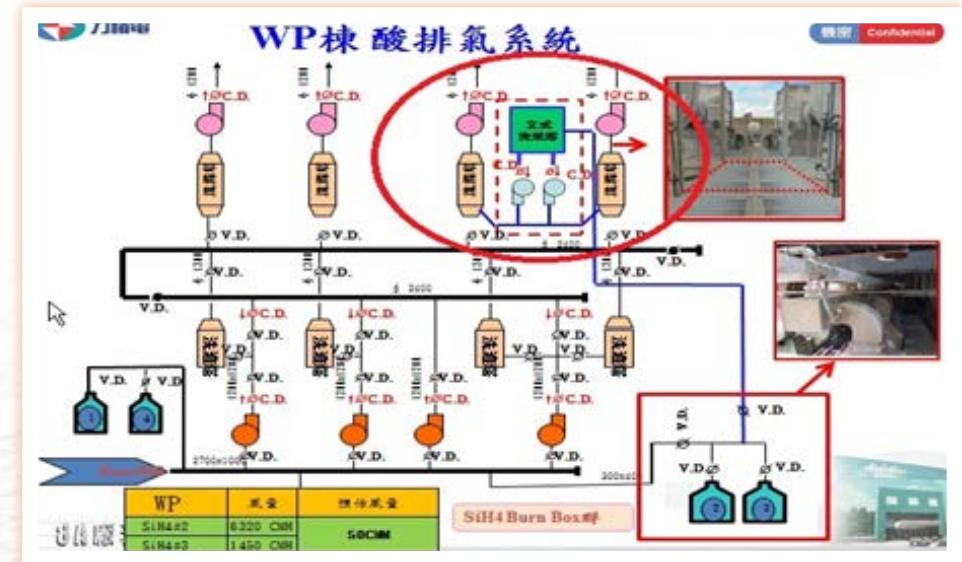
8A WP SiH₄ Burn Boxis equipped with a Venturi scrubber on the back.

Improvement benefit

Reduce the smoke from the smokestack effectively.

Results

TSP removal efficiency was 85.27%; it could even reach 90.26% for particles particularly with a size of > 2.5um,.





3.1 Climate change and carbon management

3.2 Risk management for water resources

◆ 3.3 Risk management for water resources

Waste treatment

Designated personnel in different plants have been assigned to take charge of the waste management and will be assisted by personnel from plant affairs, general affairs, and property management units. In 2020, the Company's budget for waste removal amounts to approximately NT\$160 million. The Company adopts a life cycle circulation of waste management to continuously promote these goals: (1) A reduction from the source (2) Improving the reuse value of waste (3) Proper treatment of waste and waste tracking.

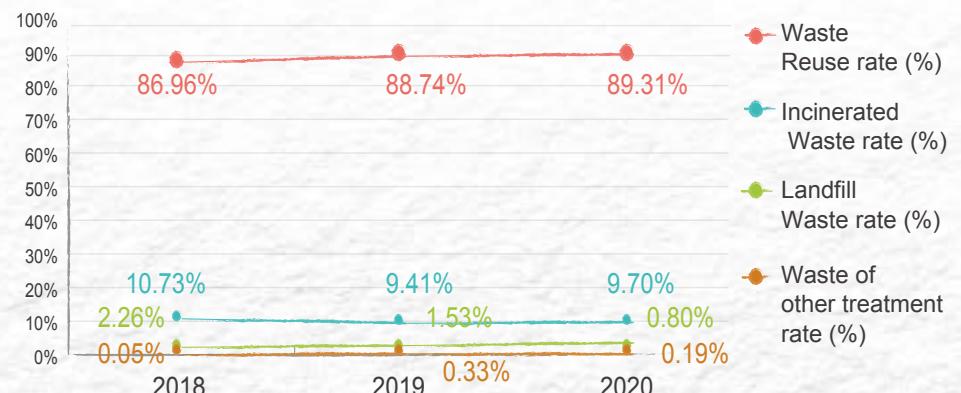
Waste production flow chart



Through the improvement of process technology; reduction of raw materials; an inspection of waste solvents and other management measures at source; as well as the monitoring, examination and replacement of machinery, and circuit and pump components to reduce waste, the overall reduction of waste was achieved. In 2020, due to an increase of around 22% in total output, the overall waste per unit of output decreased by around 5.7% compared with 2019.

- ◆ In 2020, the total waste was around 17,182 metric tons, of which 89.31% was reused, around 9.70% was treated by incineration, and around 0.80 % was for landfill.
- ◆ The hazardous waste generated in 2020 was 6,246 metric tons (approximately 36.36% of total waste), of which 80.87% was reused around 19.03% was treated by incineration, and around 0.1% was for other treatment methods.

	2018	2019	2020
Total waste(tons)	14,800.34	14,994.18	17,181.77
Unit waste output(kg/cm ²)	0.0132	0.01484	0.01400




[3.1 Climate change and carbon management](#)
[3.2 Risk management for water resources](#)
◆ 3.3 Risk management for water resources

Activity	Treatment method	Weight (tons) For 2018	Weight (tons) For 2019	Weight (tons) For 2020
General business waste	General – reuse (tons)	9,199	9,218	10,294
	General – incineration (tons)	863	686	478
	General – landfill (tons)	306	154	138
	General – other (tons)	8	48	27
Harmful business waste	General – reuse (tons)	3,671	4,087	5,052
	General – incineration (tons)	725	725	1,189
	General – landfill (tons)	29	74	0
	General – other (tons)	0	2	6

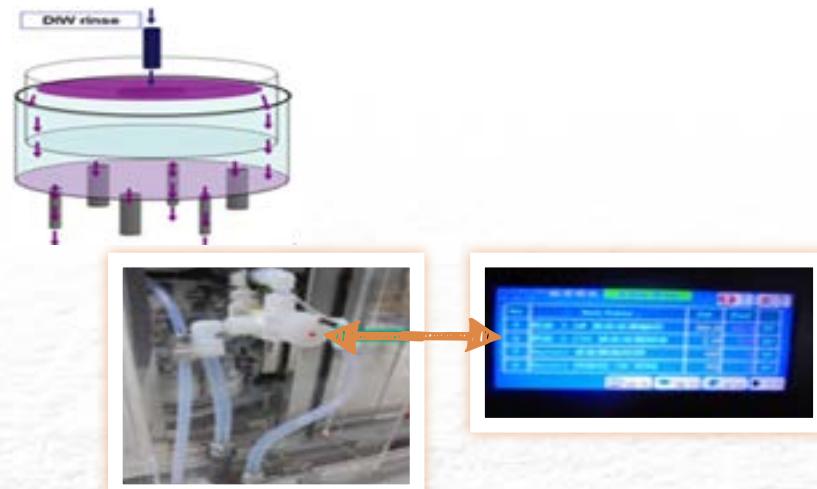
- Note: 1. Reuse: Adopted the reuse option set by the EPA or the reuse method among the common treatment options.
 2. Incineration: Waste treated by incineration (Z05) does not include organic waste liquid with low heat value.
 3. Landfill: Waste (X01) sent to landfill.
 4. Others: Waste that was not treated by the aforementioned methods. Such as solidification treatment, off-shore treatment, or intermediary treatment which had not changed the form of the waste.
 5. The Company has filed reports on waste treated in accordance with the requirements of laws and regulations.

Source Reduction

Implementation of effective sorting and water conservation:

For non-reusable waste solvents, a machine using a split-flowing design is installed; selector pumps are put in place on the discharging piping for switching discharge pipelines, effectively reducing the emission of waste solvents. The remaining wastewater can be diverted to the wastewater treatment or the recovery facilities for recycled water processing.

The correct selector recycling settings will divert the machinery DI rinse time to the wastewater treatment system, which can relatively reduce the waste solvents requiring treatment and increase water resources.



IPA concentration reuse:

To reduce the treatment costs for waste solvents and the usage of raw material, the Company has installed an isopropyl alcohol (IPA) inline recycling equipment, and waste liquid sorting and collection equipment at 8A fab, which will sort and select waste IPA of a higher concentration, before diverting to the inline recycling system for re-purification and the IPA supply system at the manufacturing process for reuse. In 2020, the yearly saving of IPA usage amounted to 171,131 liters; therefore, the use of raw IPA and the waste solvent for IPA dropped correspondingly.




[3.1 Climate change and carbon management](#)
[3.2 Risk management for water resources](#)
◆ [3.3 Risk management for water resources](#)

Improve the reuse value of waste

The waste produced by the Company is mainly solvents, acids, and sludge. By strengthening sorting from the front end and consistently improving the values of waste, the Company works with vendors to evaluate the feasibility of reusing the waste to ensure the final waste is properly handled. In 2020, the actual reuse rate increased to 89.31%, which was in alignment with the Company's short-term target. After the corporate restructuring was completed in 2019, part of the waste from the 8-inch fabs has been switched to recycling. Therefore, the Company's overall recycling and reuse rate should continue to increase. At present, each plant evaluates the suitable recycling and reuse method according to its production characteristics of the process as shown in the table below.

Types of waste	Recovery rate	Plants	Re-use method
Waste barrels	100%	P1/2 P3 8A 8B 8AD	Recycled and reused; made into plastic and glass raw materials after cleaning/breaking by suppliers
Sulfuric acid waste	100%	P1/2 P3 8B	Recycled in the plant and supplied to the AC and water treatment with acid; made into industrial grade sulfuric acid after being purified by suppliers
Copper sulfate waste	100%	P1/2	The manufacturer refines it into copper sulfate powder or copper recovery in acid solution.
Activated carbon	100%	P1/2 P3 8A 8B 8AD	Has secondary use after desorption regeneration by the manufacturer.
Inorganic sludge	100%	P1/2 P3 8A 8B	Recovered by the manufacturer then is made into artificial granulated stones, cement raw materials and artificial fluorite.
Phosphoric acid waste	100%	P1/2 P3	Purified and then made into industrial grade phosphoric acid by suppliers.
Slurry residue	100%	P1/2 P3	Chemicals are added and then made into potassium silicate raw materials by suppliers for reuse.
TMAH Sulfate waste	100%	P1/2 P3	Recovered by the manufacturer then is made into TMAH for panel manufacturers.
Diluent waste	100%	P1/2 P3 8A 8B 8AD	Purified by the manufacturer then is made into photoelectric grade EBR/ raw materials of paints.
Ammonium sulphate waste	100%	8A 8B 8AD	The vendor purifies it to reproduce solid ammonium sulphate.
Mercury lights waste	100%	P1/2 P3 8A	Extracted and reused after being dismantled by suppliers.
Hydrofluoric acid waste	100%	P3	Made into fluorite by suppliers for reuse.
Ammonium fluoride	100%	P1/2 8B	Made into fluorite by suppliers for reuse.



3.1 Climate change and carbon management

3.2 Risk management for water resources

◆ 3.3 Risk management for water resources

Proper treatment and tracking of waste

We take environmental issues very seriously. The wastes we produce are meticulously classified and disposed of by qualified waste manufacturers for reuse. We strictly demand that the disposal of waste must comply with the Waste Disposal Act and other international regulations (such as the Basel Convention). There was no waste imported or exported in 2020.

Bearing in mind that the earth is shared by all beings, the Company sets reducing, recycling, and re-using waste as its core ideology. The Company always monitors its waste output closely and evaluates the appropriateness of the waste disposal market. The Safety, Health and Environmental Committee of the plants compares the reasonableness of the waste output (the comparison between raw materials and waste) that is produced every quarter. According to the internal management review procedures of ISO 14001, the Company conducts a PDCA evaluation on the effectiveness of emission management every quarter.

To ensure the relevant audits are truly effective, a complete audit proposal for waste treatment vendors is prepared each year. Collaborating with the associations/unions and the plants on the inspection schedules, the Company visits the waste removal business unit/treatment vendors regularly. The conformity to regulations and the legality and appropriateness of waste treatment serve as the main auditing targets. In 2020, PSMC conducted audits on a total of 39 waste treatment vendors (including the common-interest association) and noted 41 weaknesses that required improvements. Via the electronic auditing system of the Company, E-Auditing, the reports were generated and improvement tracing was undertaken. The Company also demanded vendors to strengthen their management in the environment, safety and health, and firefighting aspects, to ensure the collaborating vendors did not violate any regulation.

In addition to conducting regular audits and yearly evaluation on waste treatment vendors at the end of 2019, the scoring covers five management areas: (1) the audit on PSMC internal waste removal operation within the plants; (2) the audit on tracing of removal/treatment; (3) the audit conducted by the competent authority; (4) the operational status of the management system; (5) addition and deduction of the vendors' score. After a scoring analysis, in 2020, excellent vendors amounted to 31% (more than 85 points); passing vendors amounted to 69% (between 70 to 85 points). There were no vendors that required improvements or had failed (less than 70 points). The yearly evaluation results will be taken into consideration for vendor distribution of procurement in the coming year.

PSMC facilitates the waste treatment and the overall reuse process and makes proper documentation for the destination of the waste so that they can be subjected to effective review to ensure no occurrence of violation or pollution. PSMC also signed on to the "Convention on Waste Treatment and Self-Control in the High-Tech Industry" initiated by Taiwan Semiconductor Industry Association (TSIA). In 2020, PSMC collaborated with TSIA to execute the "Guidance and Evaluation Promotion Project for Waste Treatment Vendors," where a third party (Industrial Technology Research Institute) was appointed to conduct audits on waste treatment vendors to ensure their operational management met the requirements of the convention. The Company has been conforming to the environmental protection regulations faithfully and set reducing pollutant emissions for improving the environmental protection operation of all plants as its primary goal. In recent years, the Company has not received any penalty or been fined for any pollution incident. Further, since incorporation, the Company has never been involved in any dispute regarding a pollution incident.



 In accordance with the "Waste Disposal Act, Article 30, Paragraph 1" and the "Regulations Governing Determination of Reasonable Due Care Obligations of Enterprises Commissioning Waste Clearance", the owners must fulfill their management responsibilities. [The law requires conducting at least one audit \(including ASIP/TSIA audits\) for waste disposal/reuse manufacturers, which is also in line with the company's specifications.](#)





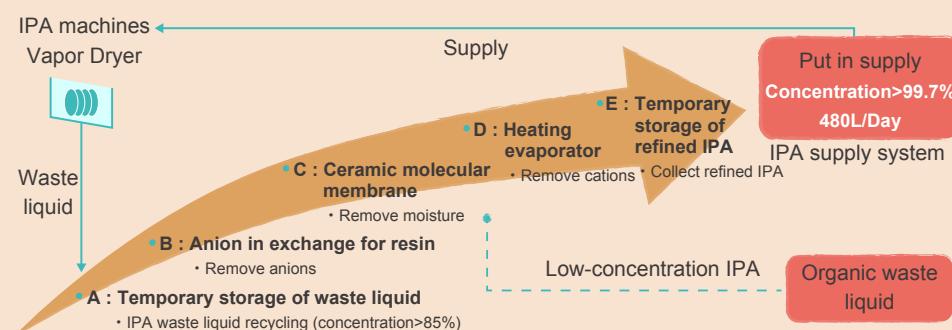
Column - Waste Reduction and Circular Economy



▲ The head of the Department of Risk Management received the award on behalf of the Company at the 40th anniversary international forum titled "Embracing Legacy to Create a Better Future" of the Hsinchu Science Park.

(1) Recycling of isopropyl alcohol (IPA) on the production line .

We set up IPA recycling equipment (IPRS) on the production line to sort the higher concentration of IPA waste to the recycling system on the production line for re-purification, and then the treated IPA would be reused in the IPA supply system of the process. The annual IPA raw materials saved also led to a reduction of the quantity of such raw materials purchased and the amount of waste solvents processed.



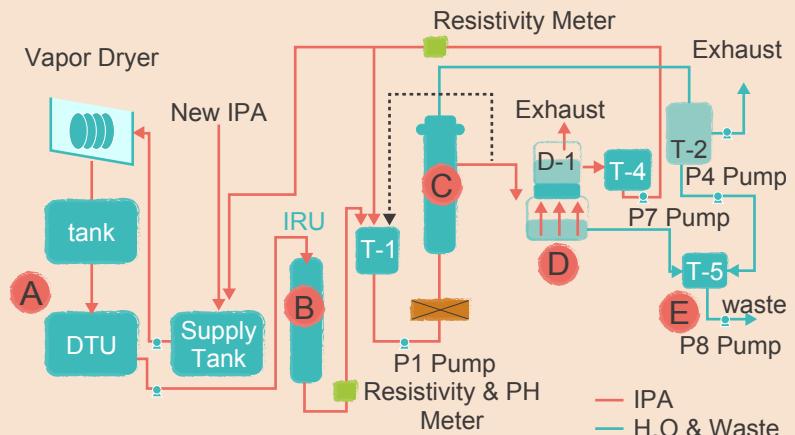
Waste Reduction and Circular Economy

PSMC adheres to the goal of "reduction from the source, reduction of emissions from processes, and energy conservation and carbon reduction", and continues to make improvement in this regard. We not only set targets for waste reduction or increase of recycling rates every year, but each department also sets targets for various industrial waste reduction and sustainable use of resources based on their operating characteristics and duly implements them to achieve an innovative and sustainable environment. In 2020, PSMC's 8A plant participated in the Hsinchu Science Park Waste Reduction and Circular Economy Evaluation and won the High Distinction Award in group A. The circular economy measures of "reduction from the source" and its results of are described below:

(2) Separate recycling of solvent waste on the production line.

Solvent waste was recycled separately by machines; selector pumps were put in place on the discharging piping for switching discharging courses to effectively reduce the discharge of solvent waste. The remaining wastewater was diverted to the wastewater treatment site or the recycling facilities for recycling and reuse. The correct recycling settings by adjusting the DI rines time of the machine, wastewater can be recycled to the wastewater recycling system, which relatively reduced the waste solvents while increasing water resources.

IPRS system



◀ IPRS system





3.1 Climate change and carbon management

3.2 Risk management for water resources

♦ 3.3 Risk management for water resources

Green Products

Becoming a green enterprise is one of PSMC's goals. The Company conforms to the hazardous substance management policy, from obeying the law to mitigating risks, in hopes of improving its Hazardous Substance Process Management (HSPM) and satisfying the needs and expectations of its stakeholders. As such, the Company has attained the certification of IECQ QC080000 and on the existing basis of ISO9001, constructed the technological management process of QC080000 to control hazardous substances. These measures ensure legal compliance and satisfy its customers, proving its priority and commitment to the systematic management of hazardous substances. In the second quarter of 2020, all five plants of the Company passed the IECQ QC080000 certification.



8A



8AD



8B



P1/2



P3

PSMC is committed in its social responsibility in environmental protection, thus pledges that its manufacturing facility and process has complied with international standards and regulations on environmental protection issues, which means it meets customer requirements on environmental protection specifications for products without the expense on the environment. Since 2003, PSMC has been actively promoting green design, green procurement, green manufacturing, and green packaging. Also, the Company has been approved by all customers and has obtained the certification of SONY to become a Green Partner. In March 2020, the certification was renewed.



SONY Green Partner





3.1 Climate change and carbon management

3.2 Risk management for water resources

♦ 3.3 Risk management for water resources

Management evaluation of suppliers

The Company adopts the management mechanism on hazardous substance control of its vendors mainly to generate letters of commitment and testing reports on non-use of hazardous substances in hopes of distinguishing the hazardous substances that are currently in use. 100% of our vendors have signed the letter of commitment not to use hazardous substances and have submitted test reports on the green material they provide.

We provided a total of 198 testing reports and declarations throughout the year, achieving the requirement "100% of green product testing report/commitment of raw materials for production are submitted" of the hazardous substance management target.



In accordance with the control of the QC080000 system on the input of materials, the Company has constructed the raw material ICP test report/declaration database in its e-Supplier system. When the IQC review is conducted on the input of materials, the Company will check if the materials are compliant with the requirements of the hazardous substance management (HSF), and if the test report and declaration provided by the vendors are valid. Such measures will strengthen the automated checking function on the input of materials.

The improvement results were:

1. Automated raw material management HSF IQC ensures compliance.
2. Report and statement of effective management and review reduce the misuse risk of hazardous substances.

Meanwhile, the international regulation (Reach) demands the PFOA reduction planning (PFOA will be banned from July 2020 onward). The replaced material has been evaluated by all the plants and is in use.



PSMC as a happy enterprise

- 4-1 Human resources
- 4-2 Employee welfare
- 4-3 Competency development
- 4-4 Occupational health and safety



Friendly Workplace and Management Policy

Material topics: Employer-employee relations, labor-management relations, training and education, employee competency management

Covered issues

Employer-employee relations, labor-management relations, training and education, employee occupational competency management

Employees are regarded as the Company's most important assets. A good interaction between the labor and management can enhance the corporate culture and organizational atmosphere, and facilitate the harmony between the labor and management. The Company and employees can thus strive for a stable growth together.

Via building the employee competency system to develop the training program, the Company imparts the knowledge, skills and work ethics that employees require to perform their assignments, thus improving the performance of the employees and the efficiency of the Company's operations.



Norms

- ◆ The Company has established "Code of Practice" and "Regulations for Establishing Measures of Prevention, Correction, Complaint and Punishment of Sexual Harassment in the Workplace" to provide a comprehensive communication channel.
- ◆ According to the "Regulations for Implementing Labor-Management Meeting" set by the Ministry of Labor, the Company holds regular labor-management meetings with labor representatives from all fabs, where the attendees of the meetings can voice their opinion.
- ◆ The Company plans the yearly training in accordance with "Procedures for Education and Training" and "SOP for Employee Education and Training."



Targets

- ◆ Reach an achievement rate of 80% for the training programs
- ◆ Reach a response rate of 90% for "Feedback Corner," the employee communication platform.



Execution

- ◆ Feedback Corner; 2. Employee Wellness Site; 3. 885 e-mail address and 4. Employee counseling.
- ◆ A total of 18 labor-management meetings and elections for labor representative were held in different fabs.
- ◆ Labor-management meetings and elections for labor representative have been held and conducted in accordance with the "Regulations for Implementing Labor-Management Meeting" on a regular basis.
- ◆ The prevention and treatment for unlawful workplace conducts have been handled in accordance with the following management procedures: "Administrative Measures of the Prevention of Unlawful Conducts when Performing Duties," "Regulations for Establishing Measures of Prevention, Correction, Complaint and Punishment of Sexual



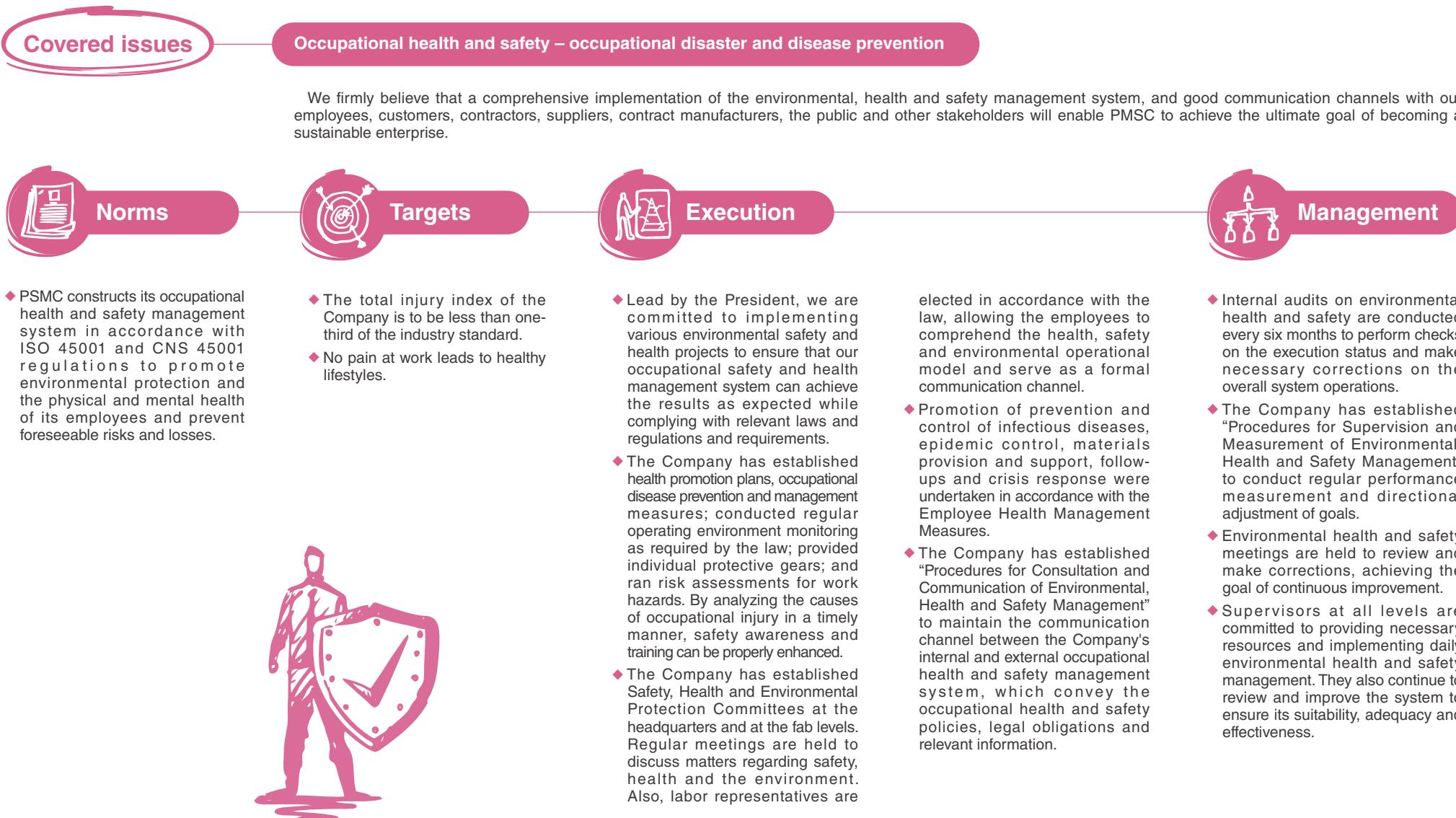
Management

- ◆ "Feedback Corner," the employee communication platform response rate is reviewed regularly by the Quality Management Review Committee.
- ◆ The Company regularly held labor-management meetings to discuss work hours, leave and welfare.
- ◆ The Training Development Department and the departmental supervisors listed the job scope for different positions. The training courses that the employees needed according to the job scopes were identified. Training programs have been tailored to the needs of the employees.
- ◆ If it is necessary to extend a worker's working hours, after workers agree to work overtime, they must submit an application so that supervisors and workers can double check the overtime hours in the system, and they will be paid based on the overtime hours. When overtime has exceed the standard as prescribed by law, a warning will show on the screen of the system, and the pre-overtime work order will not be allowed to send.
- ◆ The Quality Control and Review Committee would review the execution status of the training and education every six months.



Safe Environment and Management Policy

Material topics: Occupational safety and health - occupational injury prevention and absence rate/ health promotion





◆ 4.1 Human resources

4.2 Employee welfare

4.3 Competency development

4.4 Occupational health and safety

4.1 Human resources

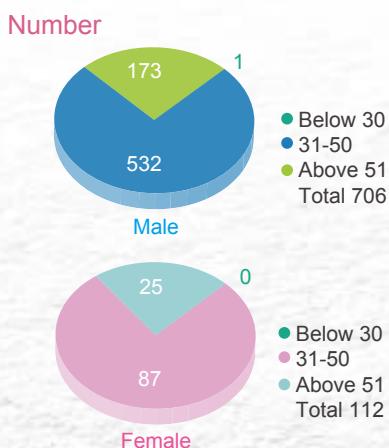
PSMC conforms to the law to protect the human rights and privacy of employees. Discrimination is strictly forbidden. For recruitment, the Company adopts the principles of fairness, justice and honesty. Recruitment, selection and employment are all in compliance with government regulations. There will be no difference in treatment in terms of race, skin color, gender, sexual orientation, religion, marital status, age, nationality or physical and mental disabilities. Moreover, the Company is also dedicated to having preventive measures on sexual harassment. In addition to orientation training for new recruits, a hotline has been established to handle any sexual harassment complaints. If a complaint is received, privacy protection for the complainant is the ultimate governing principle, so that a workplace free of sexual harassment can be created for all.

The security personnel of the Company are required to attend human rights training each year. The content of the course includes the relevant law and regulations such as personal rights, labor freedom, wages, holidays, working hours, prohibition of discrimination, freedom of assembly and related cases to ensure that the security personnel are also compliant with the social convention.

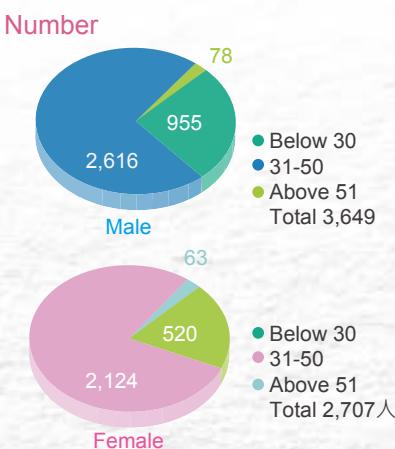
Employee Information

For the percentage of Taiwanese employees in the Company in 2020, Taiwanese employees accounted for 95.79% while foreign employees accounted for 4.21%; For the 26 supervisors above the assistant manager rank, Taiwanese supervisors accounted for 92.31% (There were 24 Taiwanese supervisors and 1 foreign supervisor), employees with disabilities had exceeded the stipulated 1%. The operating activities within the fabs are mainly undertaken by company employees. The employee statistics of this report are actual figures provided by the HR Division.

Manager^{Note 1}



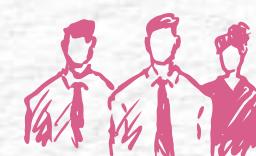
Employee



Employment status

	Male	Female	Percentage
Full-time	4,355	2,819	100.0%
Part-time ^{Note 2}	0	0	0%

Total: 7,174, Average seniority: 9.88 years



Note 1: Managers are personnel above section managers.

Note 2: Full-time staff only, no part-time staff.

Note 3: Excluding 31 contract staff (male: 15; female: 16).



◆ 4.1 Human resources

4.2 Employee welfare

4.3 Competency development

4.4 Occupational health and safety

Diversity of employees

By maintaining good interaction between labor and management, corporate culture and organizational atmosphere are naturally reinforced and the harmony between labor-management relations is facilitated. In addition to offering diverse communication platforms, we also organize labor-management meetings on a regular basis. Through the communication between the labor and management, relevant matters regarding work hours, leave and welfare issues can be discussed to protect employee rights.

1. Labor-management meetings were held regularly.

Fab/ Meeting date	P1/2 fab	P3 fab	8A fab	8B fab	8AD fab
First quarter	March 11	March 11	March 12	March 12	March 12
Second quarter	June 10	June 10	June 11	June 11	June 11
Third quarter	September 18	September 18	September 24	September 24	September 24
Fourth quarter	December 9	December 9	December 17	December 17	December 17

※Summary of major issues of the year:

1. Explanation of labor trend
2. Production plans and business overview.
3. Explanation of matters related to the hiring of overseas workers (type II foreign workers).
4. In response to the COVID-19 epidemic prevention measures, each meeting may be conducted by video

※Handling of other labor-management meetings

1.By-election of labor representatives of the 8AD factory

The human resources division has an Employee Relations Department that offers assistance and a referral service for counseling to the employees to relieve their stress and improve work performance. Apart from the communication platform "Feedback Corner", the Employee Relations Department has also set up complaint channels including the "Employee Wellness Site" and "Unlawful Conducts in the Workplace" to address various types of complaints via communication and responses, providing employees with a fair working environment that is free from discrimination. In 2020, we received one complaint about illegal harm in the workplace, completed the investigation, and came to a conclusion through a resolution while completing relevant procedures and handling it properly.

Since the establishment of the Company, the labor-management relationship has been harmonious. There has been no union established and no occurrence of labor-management disputes that could give rise to losses. The shortest notice regarding operational changes is processed in accordance with Article 16 of the Labor Standards Act. The Company offers various communication channels including making a direct report regarding the issues in question to the manager. If one was treated unreasonably, the employee could file a correction or complaint via a complaint channel. In 2020, we were not imposed with any penalty imposed by the competent authority for violations of freedom of association or collective bargaining.

2020 "Feedback Corner" Statistics



1. Performance indicators are reviewed by the Quality Management Review Committee, Response rate of 2019: 100 %

2. Smooth internal communication channels and harmonious development of labor-management relations

In 2020, there were no occurrences of child or forced labor incidences. As such, there was no penalty imposed by the competent authority. The Company complies with laws and regulations, and protects the rights of its employees. Therefore, the Company has established labor and human rights policies to protect the mental and physical development of children and does not employ child workers under the age of 16. The employment of foreign workers has to also conform to the age requirement of the exporting country. No laborer under the age of 18 (young workers) engages in any work that may endanger the health and safety or violates the moral standard, including overtime or night shifts.

In 2020, there were no occurrences of child or forced labor incidences. As such, we were not imposed with any penalty imposed by the competent authority. Work conditions do not differ in terms of race, religion, gender, age, marital status or political preference. The Company does not recruit workers by force, threat, imprisonment, debt settlement, human trafficking or other illegal activities, including but not limited to forced labor or related coercive actions, corporal punishment, intimidation or other verbal abuse, withholding workers' finances, identity documents, etc.

If it is necessary to extend a worker's working hours, after workers agree to work overtime, they must submit an application so that supervisors and workers can double check the overtime hours in the system, and they will be paid based on the overtime hours. When overtime has exceed the standard as prescribed by law, a warning will show on the screen of the system, and the pre-overtime work order will not be allowed to send.

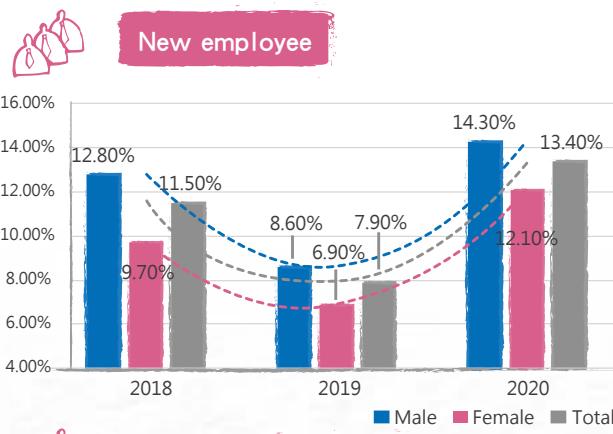

◆ 4.1 Human resources ◆ 4.2 Employee welfare

[4.3 Competency development](#)
[4.4 Occupational health and safety](#)

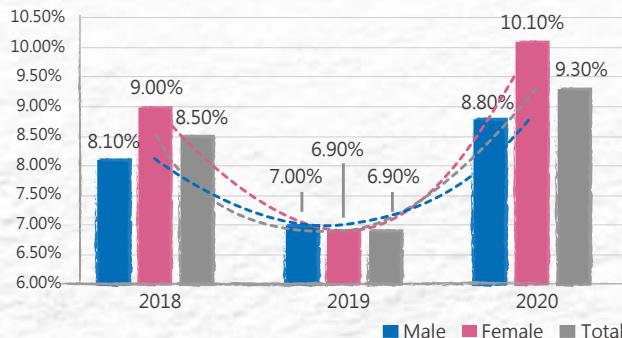
4.2 Employee welfare

Employee turnover

In 2020, the turnover rate for new employees was 13.4%, the Resigned (incl. retired) was 9.3%, proving the employee turnover rate was stable and the operating status was steady.



Resigned (incl. retired)



	Male	Female
Below 30	448	209
31-50	170	131
Above 51	6	0
Total	624	340

	Male	Female
Below 30	190	112
31-50	180	171
Above 51	12	3
Total	382	286

Employee welfare and rights

To look after the employees and secure their standard of living, we offer excellent wages and benefits. The starting wage of personnel holding entry-level position does not differ base on gender. An Employee Welfare Committee has been established to provide or sponsor various welfare programs. In addition to providing labor insurance and National Health Insurance to employees, we also offer free or self-paying group insurance, which not only insures the employee, but also their spouses and children, shielding both our employees and their families.

Salary system

In the Company's remuneration system, based on the principle of fairness and reasonableness, our salaries are higher than the minimum wage set by the government, and we have an incentive bonus program based on performance in place, regardless of race, socioeconomic status, language, ideology, religion, party affiliation, native place, place of birth, gender, sexual orientation, age, marital status, appearance, facial features, disability, zodiac signs, blood type, or previous union membership. All our employees who have served for at least three months in 2020 received regular performance evaluation.

Retirement regulations are in place for all full-time employees, and pension is contributed in accordance with the law. In the old pension system, we contribute 2% of the employees' total monthly salary to the account in the name of the Supervisory Committee of Labor Retirement Reserve with the Bank of Taiwan according to the Labor Standards Act. If the estimated balance of the account is insufficient for the pension paid to the employees who are qualified to retire conditions in the following year before the end of the year, we will make up for the amount before the end of March of the following year. In the new pension system, we contribute 6% of the employees' monthly salary to the individual labor pension account established by the Bureau of Labor Insurance in accordance with the Labor Pension Act. As of the end of 2020, the fair value of our plan assets was NT\$1,190 million, and the amount of NT\$1,522 million is to be contributed in the future has been accounted for under pension liabilities.

Item	Content	Employees who are a part of the retirement plans
Retirement funds of the old system by Labor Standards Act	Employer: based on the monthly salary, 2% is reserved for labor retirement funds.	100%
Retirement funds of the new system of the retirement regulations	Employer: 6% of the labor's monthly salary Labor: 0-6% of the monthly salary	100%



4.1 Human resources

◆ 4.2 Employee welfare

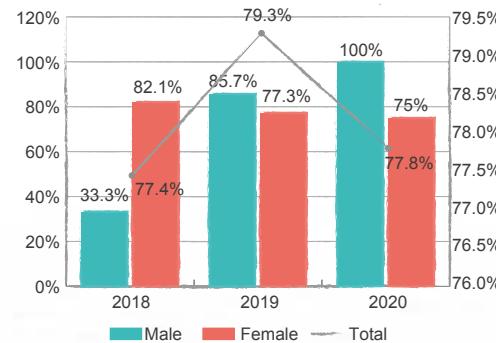
4.3 Competency development

4.4 Occupational health and safety

Unpaid parental leave for raising children

The Company has established "Procedures for Unpaid Parental Leave Application." For employees who have served in the Company for more than 6 months and have a child below the age of 3, they may apply for unpaid parental leave for raising their children. Both the reinstatement and retention rates have been stable.

Number of employees re-instated



2018

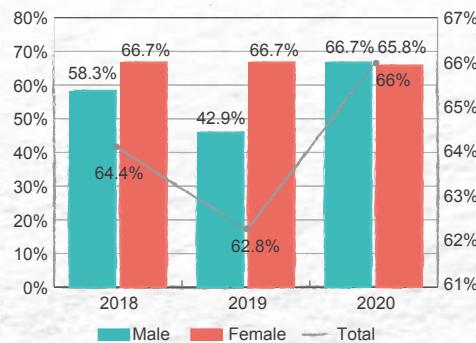
Number of people to be reinstated
Actual number of reinstatement
Number of non-rein statement
Actual number of reinstates in 2017
Number of people who will remain in office for 1 year after reinstatement
The number of people eligible for childcare leave without pay

	Male	Female	Total
Number of people to be reinstated	12	33	45
Actual number of reinstatement	7	22	29
Number of non-rein statement	5	11	16
Actual number of reinstates in 2017	3	28	31
Number of people who will remain in office for 1 year after reinstatement	1	23	24
The number of people eligible for childcare leave without pay	654	395	1,049

2020

	Male	Female	Total
Number of people to be reinstated	9	38	47
Actual number of reinstatement	6	25	31
Number of non-rein statement	3	13	16
Actual number of reinstates in 2019	3	24	27
Number of people who will remain in office for 1 year after reinstatement	3	18	21
The number of people eligible for childcare leave without pay	510	259	769

Re-instatement rate



2019

Number of people to be reinstated
Actual number of reinstatement
Number of non-rein statement
Actual number of reinstates in 2018
Number of people who will remain in office for 1 year after reinstatement
The number of people eligible for childcare leave without pay

	Male	Female	Total
Number of people to be reinstated	7	36	43
Actual number of reinstatement	3	34	27
Number of non-rein statement	4	12	16
Actual number of reinstates in 2018	7	22	29
Number of people who will remain in office for 1 year after reinstatement	16	17	23
The number of people eligible for childcare leave without pay	505	261	766

Formula:

Number of employees re-instated = Number of expected re-instated employees in the current year due to unpaid parental leave

Re-instatement rate = Actual number of reinstated employees / expected number of re-instated employees

Number of employees retained in 2020 = actual number of re-instated employees in 2019 and still in service as of December 31, 2020

Retention rate in 2020 = number of employees retained in 2020/actual number of re-instated employees in 2019

Note:

Number of qualified employees: Males = Number of male employees under parental leave between January 1, 2018

and December 31, 2020, Female = Number of female employees under maternity leave between January 1, 2018 and December 31, 2020



4.1 Human resources

♦ 4.2 Employee welfare

4.3 Competency development

4.4 Occupational health and safety

Basic amenities for employees



Delicious food

The Company has convenience stores, cafes and employee canteens which provide different types of food including buffets, fast food and noodles. Lunches, dinners and suppers are subsidized by the Company. Employees can enjoy good food for a small fee.



Accommodation

To help technicians who live afar, the Company offers comfortable dormitories with water, electricity and AC.



Free transportation

For employees who live nearby, such as Hsinchu, Zhudong, Zhubei, Hukou, Tufen and Miaoli, the Company offers free transportation.



4.1 Human resources

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Happy Workplace

Talents are the most important assets of the Company. Happy employees make an enterprise efficient and effective. As such, PSMC strives to provide a happy workplace for its employees. With a generous, fun and healthy spirit, the Company enables employees to nurture their innovation and energy whilst having a balanced work life through diverse welfare facilities and well-planned activities. For basic welfare, in addition to the three-festival and birthday gifts and vouchers, the Company also gives subsidies and allowances of various amounts for marriage, childbirth, hospital admission and scholarships for children of employees.

To facilitate work-life balance, the Company has established a variety of clubs that provide a wide range of choices in courses, which encourages employees to expand their social circle, cultivate interests and improve their health while broadening their networking. To help employees alleviate their stress and improve their health, the Company frequently holds numerous all-inclusive activities for the employees such as watching stage plays, hosting cultural and art activities, Family Day, and Christmas activities, providing care to the families of the employees and fostering a sense of belonging for PSMC.

Recreational facilities and services

Engaging in sports is good for one's mental and physical health. PSMC cares about the work-life balance of its employees. The ninth floor of the P1/2 fab has a multi-purpose sports hall which includes a basketball court, tennis court, volleyball court, pool tables and table tennis tables; the fifth floor has a gymnasium, dance room and karaoke lounge and media room; at different fabs (P3 8A 8B), there are gyms, dance rooms and other facilities as well. These facilities are provided to encourage employees to cultivate a sporting habit. During lunch breaks or after work, many employees have been making use of these facilities.



▲ Gymnasium



▲ Sports hall

Social activities and departmental competitions

PSMC encourages its employees to establish clubs and societies to organize social activities that foster a common interest among co-workers and expand networking. The inclination and willingness to take part in these clubs and societies are rising every year. At the moment, the established clubs are: badminton club, table tennis club, tennis club, volleyball club, pool club, basketball club, bowling club, softball club, aerobics club, video and music club, cycling club, running club, health club, gardening club and language appreciation club, totaling 15 clubs. The Company encourages its employees to expand their social lives and develop more interests to have an enriched life. The Welfare Committee has provided subsidies to the clubs and societies. Further, when they represent the Company in external competitions and win, they will receive extra allowances. In the 2020 Park Cup, we won the first runner-up in men's table tennis, the second runner-up in the men's basketball, the second runner-up in women's table tennis, the second runner-up in men's volleyball, and the fourth place in softball. We also won the fourth place in the Dream Cup, and the fourth place in badminton of the Taiwan Cooperative Bank Cup.



▲ Softball competition



▲ Basketball competition



▲ Table tennis competition



▲ Volleyball competition



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Cultural and art appreciation

PSMC organizes a wide variety of cultural and art appreciation activities each year, including parent-child theaters and talks given by celebrities. However, due to COVID-19, we did not hold private theater activities with more than 1,000 people, but continued to hold art and cultural lectures in the Company last year. Our lectures held in 2020 included Hsiao Chien-Hua's Unbeatable Reed, Yang Cheng-Hua's Healthy Diet and Exercises to Cut Fat, Shen Chien-Hung's Beating stress for a Good Mood, Wang Chin-Hsin's Tapping Your Meridians for Health. The contents contained inspirational thoughts, and health information, to enable our employees to work happily and to live healthily.



▲ Unbeatable reed



▲ Tapping Your Meridians for Health

Christmas Thanksgiving Activity

Christmas is a festival of gratitude, so for Christmas 2020, we gave each employee an NT\$200 convenience store gift certificate, a total of about 7,200 certificates were given, to allow them to enjoy Christmas.

Festival Welfare

During important festivals, to show appreciation for the hard work of the employees, the Company gave out New Year gift boxes for the Lunar New Year, 12 choices of gift sets for Labor Day, northern and southern flavor rice dumplings, vegetarian rice dumplings and crystal rice dumplings for the Dragon Boat Festival to employees. As for the Mid-Autumn Festival, a moon cake gift box of airline catering were given out to employees as celebration gifts. For the Lantern and Winter Solstice Festivals, rice balls were distributed to the employees as well.



▲ Labor Day - choosing one out of twelve



▲ Dragon Boat Festival



▲ Mid-Autumn Festival



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4.3 Competency development

We believe that talents are crucial to maintaining enduring and competitive advantages for a company. Therefore, we are dedicated to creating a healthy learning environment to provide comprehensive education and training courses. We developed systemic training programs to enhance the knowledge and skills needed for the workplace, as well as a positive work attitude in order to increase the performances of employees and operation efficiency of the Company, enabling the employees to grow with the Company.



Structure of Educational Training

The structures of educational training include "New Employee Orientation Training", "Functional Training" and "Knowledge Inspiration". These are comprehensive and systemic training courses needed for employees to plan their career development. We build a learning map for our employees to further extend their lifelong experiences as well as self-development.



New employee orientation training

Courses that enable new hires to quickly understand the company's rules, provide safety and environment so they can fit into the corporate culture.

Functional training

Professional core ability training according to the functional planning of each unit's and comply with management and general courses required by the Company's business strategy and organizational level.

Knowledge inspiration

Includes on-the-job training and self-development to encourage our colleagues to continue to research and learn in order to develop their own personal blueprint of personal potential and gain diversified expertise.



Career Development Training

Based on the difference in background from education and experiences, job types and professional abilities, different further training courses are co-planned between managers and our colleagues, providing colleagues with the most up-to-date and suitable training assistance plans.

Category	Course content
Professional	Provides two types of professional courses: operation technology and administrative management to improve the professional skills of our employees.
Management	Provides phased management skills to supervisors/successors of different levels, working their way up to being great managers.
General	Provides diverse, conceptual courses (such as time management, personal interaction) to nurture potentials.



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Diverse Learning Channels

By utilizing training resources inside and outside the Company to plan exclusive training WebPages, we provide our colleagues access to the latest information to learn quickly via diverse learning channels.



After hiring new employees, the Company quickly conducts training courses regarding human rights such as employee rights, environmental safety, information security and Labor Standards Act. In the process of talent development and nurture, we explore organizational and personnel needs persistently. Gender discrimination is not tolerated. The Company consistently makes reviews and gradually develops various training courses to improve the knowledge and skills that the employees need for their career development.

In order for employees to comply with ethical standards when conducting business and for our stakeholders understand the Company's ethical standards, PSMC has specially formulated the "Professional Rules" and "Code for Business Gifts and Hospitality". We explain the integrity principles to the new recruits when we carry out the training before they start work with us. They should faithfully execute all Company business and are forbidden to have any improper engagement with

other manufacturers. Emails and the Company's website are used to promote anti-corruption and integrity business. These rules are what help the Company fulfill social responsibilities and operate with integrity.

The achieving rate of this year's training program was 99.3%, and the satisfaction with our in-person courses was 94%. Due to the impact of the pandemic, we offered fewer training courses, so the average training hours were lower than the previous year.

Year		2018			2019			2020		
Item /Gender		Total	Total training hours	Average training hours	Total	Total training hours	Average training hours	Total	Total training hours	Average training hours
Management	Male	647	19,805	30.6	681	20,831	30.6	706	19,076	27.0
	Female	112	3,296	29.4	113	2,330	20.6	112	2,453	21.9
Full-time	Male	3,474	180,166	51.9	3,432	166,738	48.6	3,649	153,459	42.1
	Female	2,702	79,513	29.4	2,652	61,246	23.1	2,707	62,894	23.2

Note: 1. Managers refer to personnel above section managers.

2. The total hours of training courses include E-Learning.

3. Computation formula: Average training hours = Total hours of training/total persons.





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4.4 Occupational health and safety

To enable the employees to understand that physical and mental health is the key to a happy life, in addition to providing the relevant information from time to time on counseling, emotion and stress management, improvement of communication to strengthen the employees' awareness on mental health, the Employee Relations Department has also established an employee caring and issued a response mechanism to provide the mental support and assistance that the employees need.

Occupational mental health campaign for 2020	
Content of campaign	Number of times
Information from Employee Wellness Site	35 cases
Seed employee training - "Employee care and assistance"	395 member
training for manager (including prevention on workplace law lecture).	178 member
training for new recruits (including prevention on workplace bullying).	20 session
Promoting on-line learning for "Prevention of Workplace Violence and Sexual Harassment"	54 member

Employee counseling and referral service for counseling

The Company has established employee care and counseling mechanism. When employees encounter psychological, social and communication, or response management issues, they can seek out their supervisors and the Employee Relations Department for assistance or a referral service for counseling. Each year, every PSMC employee is entitled to five free counseling sessions. In 2020, a total of 139 employee sought counseling.

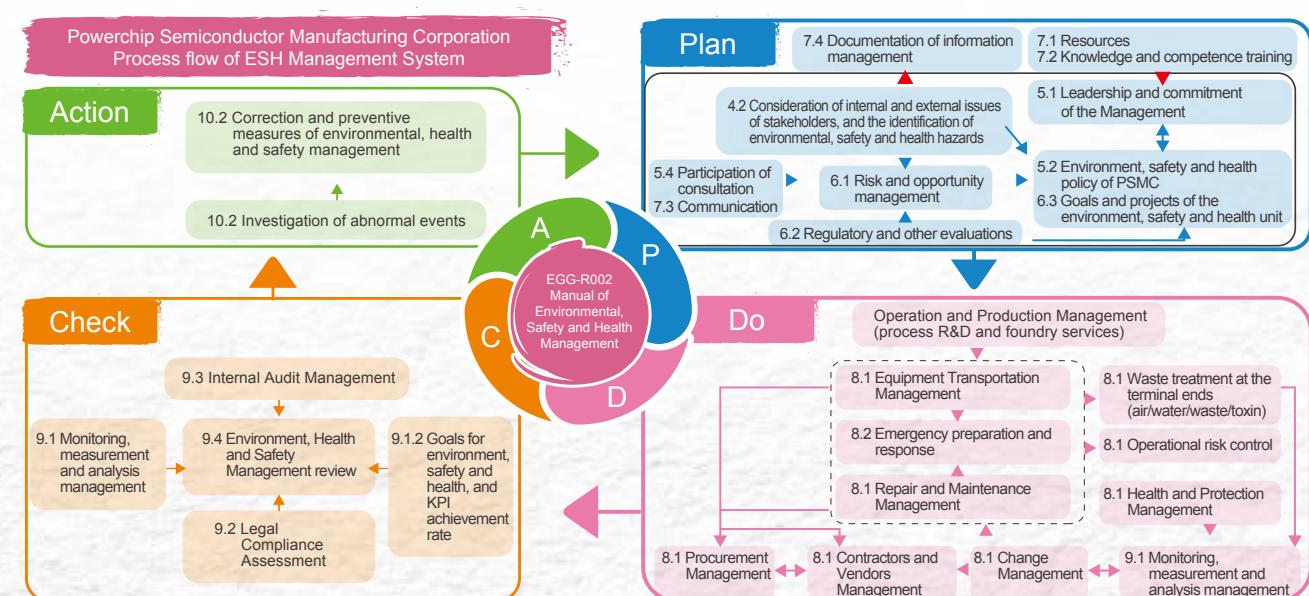
In 2020, there were no incidences of violations involving rights of indigenous peoples' occurring in the Company. The total number of hours of the three training courses on human rights protection was 4.3 with a total of 6,687 participants, accounting for 85.07% of the total. We will continue to monitor human rights issue closely and promote the education and training in this regard to raise awareness in human rights protection.

§ The operations and management of the environment, health and safety

Since 1998, PSMC has managed to complete the certification of ISO 14001 and ISO45001. Further, since 2003, the management system has been integrated into one internal ESH Management System to promote the environmental management and other relevant management activities for occupational safety and health, hence consistently enhancing and aligning PSMC's occupational safety and health level with the international standards.

The operations of the ESH Management System of PSMC is run in accordance with the environmental, health and safety policy released by the Vice President. The environmental, health and safety unit is responsible for the planning and execution of the activities, enabling the Company to live up to the motto "Safety and hygiene are not extras but are an important part of everyone's work." Every year, the President establishes the measures for tackling the environmental, health and safety issues for the year, and each department will, according to their risk and opportunity assessment results, prepare for their concrete and practicable working targets.

We review the achievement rate of the execution of the environmental safety and health goals quarterly; perform internal audits of environmental safety and health every six months; and appoint Lowe's Companies, Inc. to certify that the operation and implementation records of PSMC's overall environmental safety and health management system comply with the provisions. The President and the committee members work together to review and make corrections, thus achieving the goal of making consistent improvements.





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◆ 4.4 Occupational health and safety

List of performance in occupational health and safety management

Item	Performance
Main performance of environmental, health and safety management	Achievement rate for the goals for environment, safety and health in 2019 amounted to 99.6%.
Number of company participating in training and activities relating to occupational safety and health	Occupational Safety and Health Excellent company Award of Hsinchu Science Park 2020 - Special Excellent Award
Number of people participating in training and activities relating to occupational safety and health	Occupational Safety and Health Excellent Individual Award of Hsinchu Science Park 2019 - 8A fab. Huang Yuling
Application for performance verification of occupational safety and health management system	The headquarters and P3 fab obtained certification for three years from the Ministry of Labor in 2020.
Health activity	Participation in National Occupational Safety and Health Week 2020



▲ Occupational Safety and Health Excellent Company Award of Hsinchu Science Park - Special Excellent Award



▲ Performance verification of occupational safety and health management system obtained.



▲ Prize of Occupational Safety and Health Excellent Company Award of Hsinchu Science Park - Special Excellent Award



▲ Participation Certificate in National Occupational Safety and Health Week

The Department of Risk Management is set up to lead the implementation of the Company's safety, health, and environmental protection business. Its organization and operations are as follows:



PSMC has established Safety, Health and Environmental Protection Committees at the headquarters and at the fab levels. Regular meetings are held to discuss matters regarding safety, health and the environmental protection. Also, labor representatives are elected in accordance with the law, allowing the employees to get to know the health, safety and environmental operational model and serve as a formal communication channel. The proportion of labor representatives to the Company's Safety, Health and Environmental Protection Committee at each plant is as follows:

Plants	Headquarters	P1/2plant	P3plant	8Aplant	8Bplant
Number of labor representatives	28	10	7	16	9
Total number of people in the Committee	70	26	20	31	20
Proportion ^{Note}	40%	38%	35%	52%	45%

Note: The statistics above is calculated until 2019/07/31. The calculation formula is: Number of labor representatives/ Total number of people in the Committee*100%.



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◆ 4.4 Occupational health and safety

Environmental Safety Risk and Improvement Measures

For various business operations, customer service and products, PSMC takes the environmental, occupational injury and health factors into consideration. PSMC gathers a wide variety of issues that internal and external stakeholders are concerned with; identifies the environmental, health and safety risks and opportunities to prepare for the corresponding measures; and establishes the environmental, health and safety policies and goals for the employees to comply with.

Employees who are exposed to significant environmental, health and safety risks are required to obtain the qualification and experience and complete the training so that they are equipped to identify the hazards and avoid severe immediate danger before assuming their positions. If there are any concerns of immediate danger during the execution of duties, the operation must be stopped and personnel must retreat to a safe place without jeopardizing the safety of other workers. Affected staff must report to their direct supervisor at once. In addition to providing a safe, healthy working environment, in accordance with "Administrative Measures of the Prevention of Unlawful Conducts when Performing Duties," PSMC regularly tries to identify internal or external bullying behavior, as we vow to end workplace violence or bullying and mold a conducive work environment for all.

In accordance with "Operating Procedures for HSE Risk Evaluations," "Procedures for Environment, Safety and Health, and Fire Regulations Collection and Identification Management," "Operational Instructions for the Investigation of Abnormal Incidents," "Procedures for Internal Audit on Environment, Safety and Health," "Procedures for Consultation and Communication of Environmental, Health and Safety Management" and "Procedures for Environmental, Safety and Health Management Review," PSMC identifies the risks and opportunities in environment, safety and health.

In accordance with "Operating Procedures for HSE Risk Evaluations", PSMC conforms to the regulations of ISO 14001:2015, and takes into consideration the product life cycle. PSMC firstly identifies activities that are controllable or can be influenced, environmental factors of products and services, and then subsequently conducts environmental risk assessment. In the occupational safety and health aspect, the Company adopts the regulations of ISO 45001:2018. In addition to the general safety, chemical, physical, biological and human factors, hazards that threaten the externality of the Company, workload, working hours, violence, harassment and bullying are also in the purview of our identification.

The results of the environmental, health and safety risk assessment are categorized into four risk levels. If after risk mitigation, the risk level falls to Grade A and B (risks and opportunities arising from the overall consideration of the environment, and risks not acceptable), the authority department should consider processes involving canceling/ replacing/controlling by engineering measures/management by scheduling or providing personal protection equipment to eradicate risks and reduce occupational health and safety risk. After assessing the improvement measures, the Company will make use of the establishment of environmental, health and safety goals/planning at the departmental level and track the improvements made. At the environmental health and safety meetings, the establishment of improvement measures and execution progress will be reviewed and assessed. In 2020, there were five cases of unacceptable risks in which planning for countermeasures had taken place and budgeting for improvement is ongoing.

For other controlled risks at Grade C and D, the departments involved should establish their own operating procedures (including protective measures, emergency response procedures,

review initiation, relevant education training that is automatically checked for and completed, and documentation of management records) and impose supervision and control consistently to avoid high risk level hazards from taking place. Grade 4 risks, with a high probability (F) and severity (S), will be a prioritized supervision item for the departments involved.

When adding new, on-site chemicals, in construction, changing layout, or adding production/supporting equipment that are deemed by Operating Instructions for Management in Change of Environment, Safety and Health as projects with high environmental, health and safety risk, the assessment procedures for the environmental, health and safety risk impact will be initiated to re-identify the hazards and risks involved. Further, in the process of reviewing organizational background, pertaining to the internal and external issues, such as the management systems, compliance obligation, risk management procedures, external communication, operational environment and resources of offices, health management, business operations and operational control, we will also evaluate the risks and opportunities that PSMC is exposed to, and develop corresponding strategies and actions.

Post-control risk control model

Grades A and B

- ◆ Risks and opportunities arising from the overall consideration of the environment, and risks not acceptable.
- ◆ In accordance with the establishment of environmental, health and safety goals/planning at the departmental level, and track the improvements made.
- ◆ At the environmental health and safety meetings, the establishment of improvement measures and execution progress will be reviewed and assessed.

- Grades C and D**
- ◆ Imposing supervision and control consistently in accordance with the operating procedures established by departments involved.
 - ◆ Operating procedures: Automatically review and complete the managing of records of training and documentation on protective measures and emergency response procedures.



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◆ **4.4 Occupational health and safety**

When an incident involving pollution, occupational and health disaster/hazard occurs, in accordance with "Operating Instructions for Investigation of Abnormal Incidents," accident investigators will find out the cause of the accident with the stakeholders, analyze the fundamental reasons of the accident and make recommendations on improvement measures. They will handle and investigate the possible and confirmed non-compliant circumstances to reduce the impact in environmental, safety and health. Parallel investigations conducted and corrective and preventive measures undertaken by various fabs will also enhance the operational safety and efficiency in environmental, safety and health management of the Company.

When an incident involving pollution, occupational and health disaster/hazard occurs, in accordance with "Operating Instructions for Investigation of Abnormal Incidents," accident investigators will find out the causes of the accident with the stakeholders, analyze the fundamental reasons of the accident and make recommendations on improvement measures. They will handle and investigate the possible and confirmed non-compliant circumstances to reduce the impact on the environmental, safety and health aspect. Parallel investigations conducted and corrective and preventive measures undertaken by various fabs will also enhance the operational safety and efficiency in environmental, safety and health management of the Company. Four abnormal accidents occurred in 2020, and we have already completed the basic cause analysis, and put forth corrective and improvement measures



Management mechanism on contractors

The five plants under PSMC are three 8-inch plants (8A/8B/8AD) and two 12-inch plants (P1/2&P3). They all adopt the access control measure of "one contractor certificate, one permit" to control the access of such personnel at our plants. After passing the test of our courses for contractors, each contractor will have an exclusive work permit and access control magnetic card, along with the contractor's work permit approved by the responsible unit of PSMC. They can only swipe the card to enter the plant area and their applicable operating area. With the dual control of the work permit and the access control magnetic card, we can control plant activities more effectively. In 2020, due to operational changes, including capacity adjustments and expansions, the expansion or repair of plan supply facilities, production machines, operation support equipment, as well as regular maintenance and routine operations, the total number of contractors entering and leaving each plant was about 257,868.

PSMC provides statistical analysis data to the supervisors in charge of various business activities every month, and they formulate measures to strengthen management based on the results, and guide the contractors to have better self-management. We conduct quarterly reviews at the meeting of the Safety, Health and Environmental Protection Committee. Contractors' violation records during operations in the plant are listed as an important basis and indicator for contractors' evaluation. In 2020, our contractors' violation points and fines greatly decreased compared with the previous two years. We review procurement and contractor-related management regulations regularly, and have integrated contractors and the access control system to improve operational safety management while confirming hazard alerts before operation and implementing audits of high-risk operations, to ensure that every contractor in the plant works safely at PSMC.

Management information on contractors

item/year	2018	2019	2020
Number of contractors that entered PSMC	195,417	253,188	257,868
Violation points	933	1,116	827
Violation amount	635,500	1047,000	469,000



4.1 Human resources

4.2 Employee welfare

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◆ **4.4 Occupational health and safety**

PSMC has always paid close attention to occupational safety and health, and environmental protection. To conform to governmental regulations, ensure the safety and health of workers, and reduce the impact on the environment and energy conservation, the Company not only has established a comprehensive safety and health system and environmental protection organization, along with designated personnel, but also has a comprehensive system and regulatory requirements in place.

The employees of the Company and contractors have to comply with PSMC's procedures. For example, per the Environmental Regulations of Safety and Health for Contractors established, before contracting projects, the procurement department will forward the "Environmental Regulations of Safety and Health for Contractors" to potential contractors and ask them to sign and stamp on "Letter of Commitment to Comply With Environmental, Safety and Health Regulations for Contractors" and "Notification for Designated Environmental, Safety and Health Personnel," as well as the information needed for the collaborative meetings. Without the proper documentation, the contractors should not be allowed to bid. The ultimate goal is to enable the employees of the contractors to understand the environmental, safety and health regulations before they start work.

To implement the compliance and collaboration of contractor management, for example, yearly assessment of contractors in the collaborative meetings, confirmation of contractors' qualification by the undertaking department before commencement of projects, fulfillment of qualification requirements, sufficient routine response training and training system are conducted. Further, according to the nature and content of the contracting work, contractors are required to coordinate with the undertaking departments to conduct drills, so that the contractors are equipped with the capabilities in responding to various situations and evacuations.

The Company regularly reports on the operating status at the Safety, Health and Environmental Protection Committee meetings and the quarterly collaborative meetings, so that different undertaking departments are clear about the safety behavior condition of the contractors.



▲ Equipment and Factory Coordination Council Meeting for Contractor Assessment 2020

Meanwhile, to ensure various suppliers, contract manufacturers and contractors fully comprehend the operating regulations and the execution requirements for the environmental, safety and health aspect, the Risk, Safety and Environmental Protection Department will, in accordance with the content of the Environmental, Safety and Health Assessment List and matters regarding the environmental, safety and health audit on vendors, request the contractors to make clarifications on issues that have arisen. The department will check on the improvement measures provided by the contractors in the following audit.

Audit information on contractors(suppliers, components, new suppliers) over the years

Type	2019	2020
Suppliers/New suppliers	2	23
Components	8	5

Via the contractor management system, the Company has established a uniform contractor assessment. Once the yearly transaction volume and amount of the procurement department reach a certain level, a standard supervision is then warranted. The Risk, Safety and Environmental Protection Department will regularly conduct a fair, transparent and objective evaluation on contractors in charge of plant affair projects, equipment repair and cleaning. Contractors of various areas with outstanding performance will be selected; the quality of the contractors' service fulfills the requirements of the undertaking department and the regulations in environmental, safety and health aspects are ensured. The results of the assessment will also serve as a reference for future contracts.

Audit information on contractors (equipment repair and cleaning) over the

type	2019	2020
Hook-up	29	49
Repair and maintenance	10	10



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◆ 4.4 Occupational health and safety

Full Promotion of Occupational Safety

PSMC has established the "Manual on ESH Management" to govern the local activities of the fabs, products and services, and the internal and external environmental, safety and health issues of the fabs. Stakeholders include all employees, customers, contractors, suppliers, contract manufacturers, the competent authority of the environment, safety and health and NGOs.

The President leads and is committed to various environmental, safety and health operations to ensure the ESH Management System can achieve its expected performance. Supervisors at different levels provide sufficient resources and support, encourage their departments to actively participate, offer improvement measures and training, and take part in discussions. Their initiation is pro-active, prompt, and increases a high level of alertness toward personal well-being, the environment, the machinery, products and construction; thus strengthening the attention to the overall environmental, safety and health aspect for themselves, their colleagues, vendors and visitors.

According to "Procedures for Environmental, Safety and Health Management Review" and "Operating Instructions for Investigation of Abnormal Incidents," the designated management and stakeholders are required to review the compliance of the EHS Management System on a quarterly basis and establish the operating procedures for investigations of abnormal incidents (e.g., occupational hazards (including road traffic accidents), abnormal accidents, hazard identification, safety patrol, on-site audit, etc.), to find out the actual causes of the incidents, make corrections and provide preventive strategy for future occurrences.



▲ The environmental safety and health management system regular review meeting



▲ Example of statistical analysis of abnormal events and audits at each plant



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◆ **4.4 Occupational health and safety**

Work environment monitoring

To gain perspective on the actual working environment of employees and assess the exposure to hazard factors, both of which serve as the basis for working environment improvement measures, in accordance with regulations, PSMC appoints a qualified operating environment monitoring institution to survey the fabs every six months. Over the years, the test results of chemical detection in the work environment obtained by monitoring personnel are lower than the national and international permitted level of exposure. Further, pertaining to the operation type, regular monitoring is also conducted on the laser machinery and central ventilation system. The results show both are compliant with the regulations.

Monitored items and results of external institution in 2020

Monitoring item	Passing rate for the first half of 2020	Passing rate for the second half of 2020	Remarks and description
Chemical factor	100%	100%	
Physical factor	100%	100%	Wearing earplugs and earmuffs at areas with high-frequency noise
Ventilation air	100%	100%	
Examination of laser machinery		100%	

Protective equipment use

To ensure the safety and health of employees and reduce their exposure to hazard factors during hazardous operations, such as collision, chemical exposure, high noise environment, exposure to high temperature, falling from height, we provide workers with pre-operation assessment, and require them to put on appropriate personal protective equipment before performing hazardous work to prevent themselves from direct exposure to hazards. We have also formulated examples of suggested use of personal protective equipment for all types of operations, so that employees can follow them to avoid occupational injuries during operations.

Example of Suggested Use of Personal Protection Equipment for All Types of Operations

Serial Number	Types of Operations	Applicable Group	Protection Area	Injury Prevention	Basic Protective Equipment
1	Operators who work in the pump area/ air return area/ construction area	Equipment and Facility	Head	Collision	Safety helmet
			Foot	Crush/Collision	Safety helmet
2	Those who are at risk of inhaling or exposed to highly hazardous toxic, corrosive or irritating gases	Equipment, plant affairs, and labs	Eyes	Eye irritation/ corrosion	<ul style="list-style-type: none"> Full face protection mask and half-face canister breathing apparatus Full-face canister breathing apparatus Full breathing apparatus and Air-Line Self-contained breathing apparatus (SCBA)
			Breathing	Irritation/ corrosion/ poisoning	
			Torso/Foot	Skin corrosion/ irritation and absorption poisoning	Class C chemical protective clothing and safety footwear with footwear covers
3	Operators who work in high noise areas (higher than 85dBA)	Equipment and plant affairs	Hearing	Hearing loss due to long-term exposure	Earplugs, earmuffs
4	Exposure to high-temperature parts/ ovens	Equipment and plant affairs	Hand	Burns	Aluminum platinum heat resistant gloves (400 °C)
5	Operations at a height of more than 2 meters above the ground	Equipment, plant affairs, and automation	Torso	Falling	Safety harnesses



▲ Types of personal protection equipment and how to wear them



4.1 Human resources

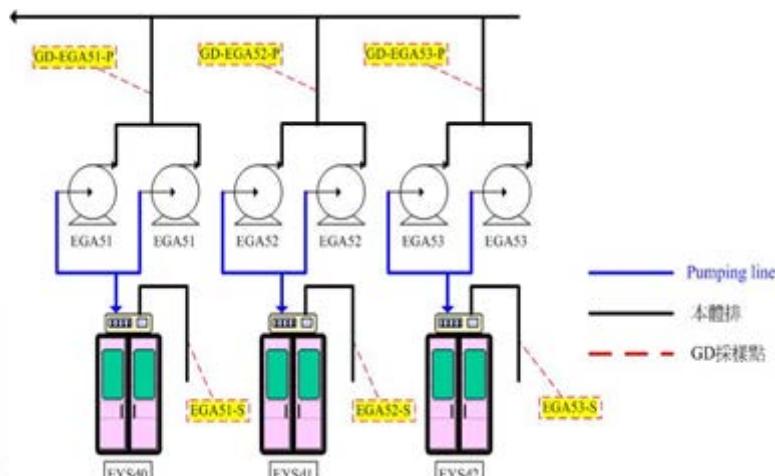
4.2 Employee welfare

4.3 Competency development

◆ 4.4 Occupational health and safety

Gas detectors

Gas detectors are widely installed in high-tech foundries. Its main function is to detect gas concentration within a short period of time and prevent chemical hazards. To comply with the relevant regulations, the Company has installed a gas detector system in the chemical storage area, equipment supply and manufacturing equipment areas to prevent chemical hazards.



▲ Diagram: equipment pump/scrubber GD

Special health examination Prevention of occupational diseases

In accordance with the relevant occupational safety and health regulations, employees who engage in special operations including noise operation, ionizing radiation, chromatization treatment, and employees who are exposed to dimethyl formamide, arsenic and indium compounds are subjected to special medical examinations every year. Medical professionals and specialists will be arranged on a regular basis to go to the sites and collaborate with supervisors, employees, nurses and safety and health personnel to assess the relevance between the work on-site and health of the employees engaging in special operations; they are required to undertake preventive measures or make assessments regarding the competence of the employees depending on circumstances. In 2020, a total of 619 people participated in the special health examination, and eight people needed consultation with occupational physicians based on the results. There were no cases of occupational diseases. A total of 575 people participated in health seminars. According to the results, no occurrence of occupational diseases for the year. Via medical examination follow-ups, care for individual health, environmental monitoring and other mechanisms, the Company can effectively prevent occupational diseases.

Environmental, safety and health training

In accordance with "Instructions on Environmental, Safety and Health Training" and "SOP for Employee Education and Training," PSMC imparts the relevant knowledge and skill on the ESH Management System to employees. The goal of the environmental, safety and health training is to effectively enhance their professionalism and capability in crisis response.

The environmental, safety and health training can be divided into three categories, namely ESH Management System, regulations and certifications, and operational control. Furthermore, the Company promoted the "Parallel Investigation on Abnormal Accidents Within and Outside the Fabs" activity, with the intention of reviewing the causes of abnormal accidents, strengthening relevant control and finding out the risks and opportunities of improvement measures. Pertaining to the possible impact of environmental, safety and health performance and assessment on the competence of personnel who has an obligation in legal compliance, various departments planned for the training required and prepared the "Environmental, Safety and Health Training Plan for Department." The environmental, safety and health training system was used for updating and querying the training results of various departments, which made the control and review of the training more effective and efficient.

Further, to ensure that the contractors were equipped with professional capability and knowledge, and had received comprehensive training as required by the regulations, verification of their capabilities was conducted before they entered the fabs to protect the safety of personnel involved. Via the establishment of the capability verification system, the Company confirmed the hazard identification capability of the operating personnel and thus reduced occupational hazards.

When an emergency occurs, to familiarize the Emergency Response Team (ERT) with the emergency equipment so that they can correctly and effectively use it and avoid injury during the rescue operation, the ERT regularly receives training on how to wear protective equipment and use the emergency equipment. The training includes orientation training for new recruits and training for ERT. After completing the first-aid certification and professional training at a fire station, the ERT members will receive certification stickers. The certification is promoted to various departments so that they are able to recognize the conception and role of ERT.

Team	Color of sticker	Name of training course	Content of training course
Rescue team		ERT certificate-basic level	Basic protective equipment <ul style="list-style-type: none"> • SCBA • Firefighting suit <ul style="list-style-type: none"> • Level A suit • Level C suit
		Hsinchu City Fire Training Facility training	Turbo nozzle operation training <ul style="list-style-type: none"> • Hose deployment and use training • Air breathing apparatus training room <ul style="list-style-type: none"> • Tunnel/darkroom search training • Fire training room

▲ ERT certification stickers



4.1 Human resources

4.2 Employee welfare

4.3 Competency development

◆ **4.4 Occupational health and safety**

The operational sites in the park are adjacent to each other. In the event of an emergency, it may affect the companies nearby. Therefore, in addition to the 24-hour operation of the security system and monitoring in the plants, we need to strengthen our emergency response capabilities. We participated in the Hsinchu City Hazardous Chemical Disaster Joint Defense Organization and the Hsinchu Science Park Joint Defense Organization. When a disaster occurs, we can launch a joint defense mechanism as soon as possible to assist the companies nearby. In addition to providing adequate emergency response equipment, we are also able to provide some equipment to support disaster rescue efforts outside the Company.

Our regular training aims to improve our personnel's response ability and to improve the efficiency of notification and support so they will become familiar with disaster response skills and improve such skills to avoid the expansion of disasters. Therefore, in addition to regular drills regarding notification for support between plants, the Administration and the Environmental Protection Bureau hold large disaster emergency response drills to allow the joint defense teams to train.



▲ Emergency drill for pandemic prevention and response in the park in 2020



Occupational diseases

The Company provides an excellent and safe working environment and mechanical equipment in accordance with the relevant laws, and heads toward achieving the "zero industrial injury" target. Protection of employee safety and health is the goal that the Company strives to achieve.

The Industry Total Injury Index for the past three years is shown in Table 1. In 2020, the total working hours of PSMC amounted to 15,447,792 hours and there were 34 cases of loss of working hours due to occupational hazard. The incidents were mainly traffic accidents (33 cases, totaling loss of 2,512 working hours) and falling (one cases, total loss of 72 working days). Analysis of the causes of the incidents, and review of operating procedures and preventive measures were carried out in parallel at all the fabs to avoid similar occurrence. In 2020, the Industry Total Injury Index of PSMC amounted to 0.00, which was far lower than the semiconductor industry average of 0.11. The fatality rate of non-employee, severity rate and injury rate were zero.

Industry total injury index (excluding traffic accidents)

Year	Plants	(FR) Disabling Injury Frequency Rate(FR)	Disabling Severity Rate(SR)	Industry Total Injury Index (FSI)	Industry-wide Industry Total Injury Index
2020	PSMC's fabs (Total)	0.06	0	0.00	0.11
2019	PSMC's fabs (Total)	0.13	1	0.01	0.07
2018	12-inch fabs	0.00	0	0.00	0.09
	8-inch fabs	0.79	2	0.03	

Note: Calculated based on the occupational injury statistics format of the Occupational Safety and Health Administration, Ministry of Labor



4.1 Human resources

4.2 Employee welfare

4.3 Competency development

◆ 4.4 Occupational health and safety

Analysis of work-related injuries of PSMC (excluding traffic accidents to and from work)

Type	Item	2018	2019	2020
Total working hours	Total working hours for 8-inch fabs	3,787,380	3,352,224	3,677,224
	Total working hours for 12-inch fabs	10,532,856	11,059,680	11,770,568
	Total working hours	14,320,236	14,411,904	15,447,792
Total fatalities due to occupational hazards	Number of fatalities for 8-inch fabs	0	0	0
	Number of fatalities for 12-inch fabs	0	0	0
	Total number of fatalities	0	0	0
Fatality rate of occupational injury		0	0	0
Number of severe occupational injuries (excluding fatalities)	Number of severe occupational injuries for 8-inch fabs	0	0	0
	Number of severe occupational injuries for 12-inch fabs	0	0	0
	Total number of severe occupational injuries	0	0	0
Severity injury rate		0	0	0
Documentable occupational injuries (including number of fatalities and severe injuries)	Number of occupational injuries for 8-inch fabs	3	2	1
	Number of occupational injuries for 12-inch fabs	0	0	0
	Total number of occupational injuries	3	2	1
Description of injury type (e.g., fracture, laceration, contusion, etc.)	Description of each occupational injury type	Two laceration cases due to pinching or being pulled in One fracture case due to falling	Two injury cases due to falling	One falling cases due to physical factors
Normal injury rate	Disability injury frequency (FR)	0.20	0.13	0.06

Note: 1. Severe occupational injury refers to loss of working hours of over six months.

2. The aforementioned data do not include traffic accidents.

3. Disability injury frequency (FR)=(Number of occupational injuries/Total working hours) *1,000,000



4.1 Human resources

4.2 Employee welfare

4.3 Competency development

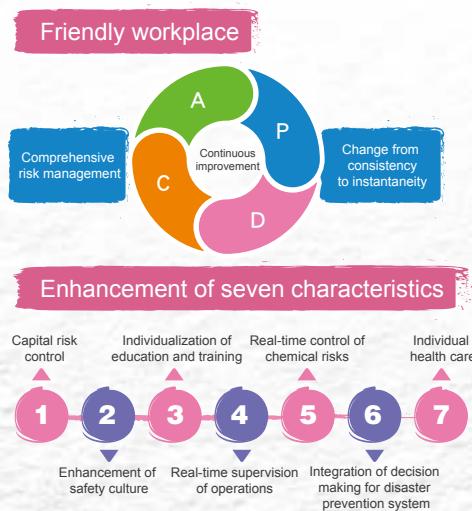
◆ 4.4 Occupational health and safety

Friendly workplace

PSMC creates a friendly workplace while holding a comprehensive risk perception. The risk management of the Company is consistently assessed and improved upon in seven major themes. Using a computer system for a comprehensive health management model and multiple resources, the Company looks after its employees' health. Under a three-stage five-level preventive medicine conception, the Company adopts the PDCA execution model (preparing a plan → executing the plan → tracing and managing → continuously improving) to plan for comprehensive medical examinations and health promotion activities, enabling the employees to foster a "healthy body and mind" mentality through participating in these activities and caring for the health of the PSMC family.

In recent years, in addition to actively promoting health within the organization, the Company is always keen to participate in the health promotion activities held by the Ministry of Health and Welfare, Public Health Bureau of Hsinchu City, Ministry of Labor and Hsinchu Science Park Bureau. As such, the Company has received multiple accolades.

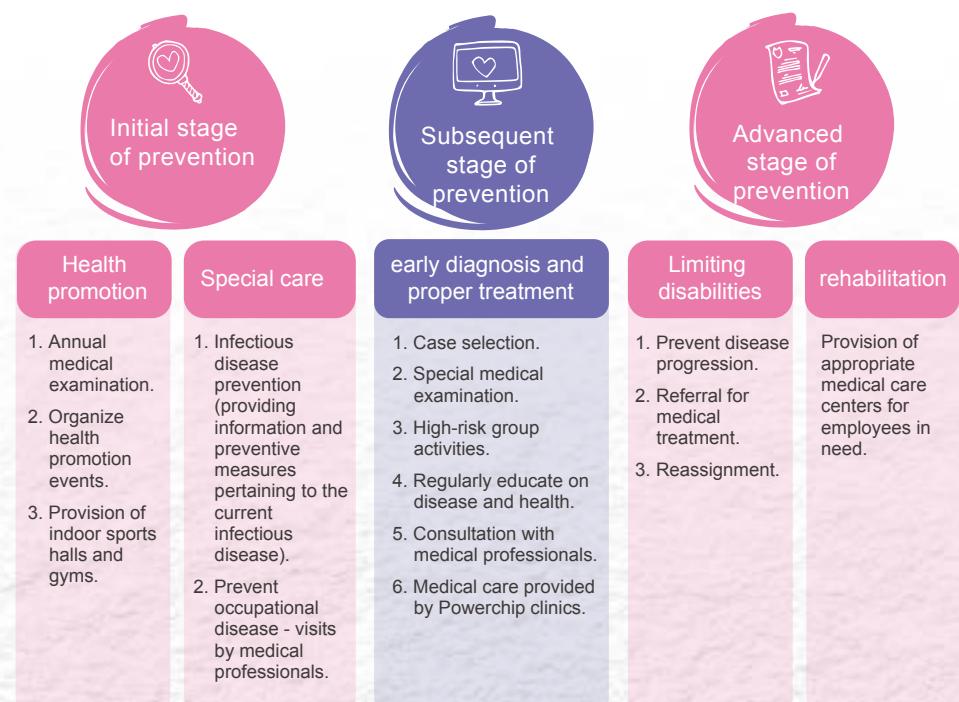
Via comprehensive health management procedures, the Company is able to actively facilitate the health of its employees in a consistent manner. There is no finish line in this regard but to persistently push forward. We have made caring for the health of the employees part of our job and are striving to achieve the "Win-win for work and health" target.



Comprehensive care for health

Since the employees are an important asset to the Company, PSMC takes care of their health. From planning comprehensive medical examinations to hosting a series of tailored health promotion activities, the Company has established a complete professional health management organization. Using a three-stage five-level preventive medicine conception as its main management axis, along with an all-inclusive informationalized health management system, the Company proceeds to achieve the comprehensive care target in the workplace. To enhance the welfare for employee health care, the Company has consistently increased its health management budget year after year. Even during a period of operational setbacks, the Company still carried on with the execution despite much hardship. We aim to let all who work at PSMC to receive comprehensive health care to achieve the goal of "win-win for work and health", thereby strengthening the Company's overall competitiveness.

A three-stage five-level preventive medicine conception



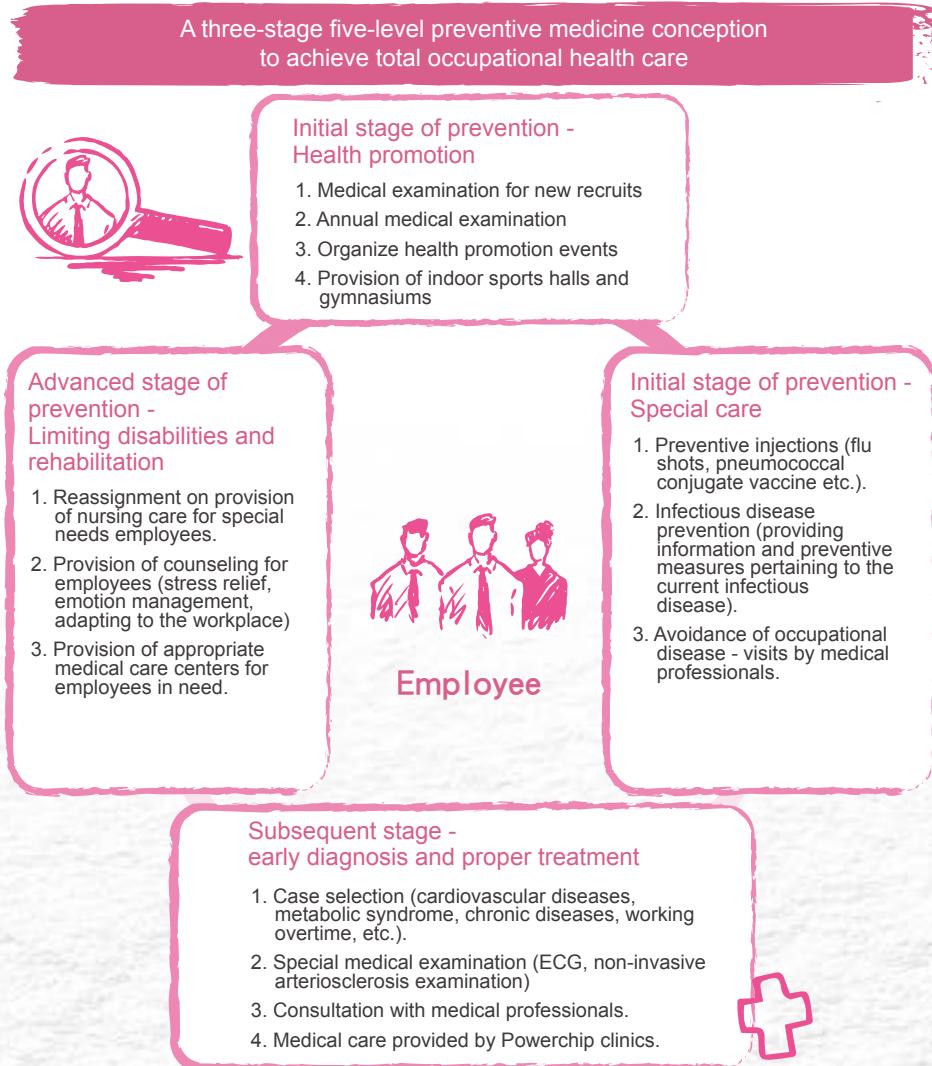


4.1 Human resources

4.2 Employee welfare

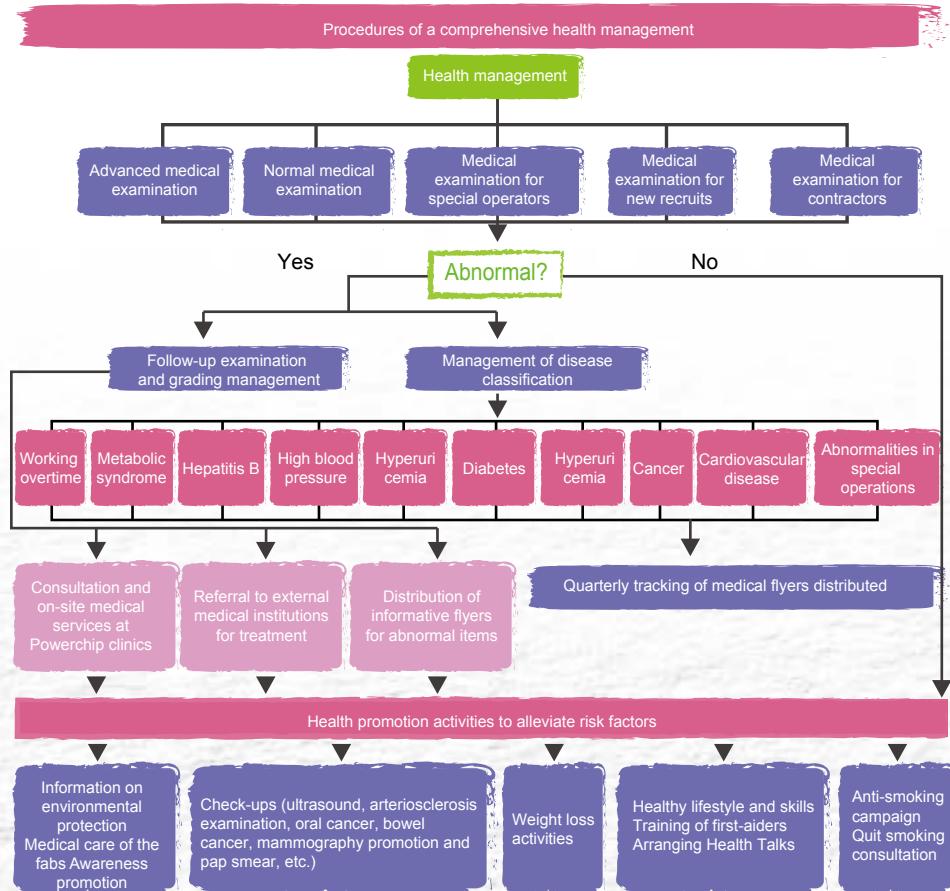
4.3 Competency development

◆ 4.4 Occupational health and safety



Comprehensive health management

Health management is achieved through physical examinations and regular health examinations, to stay abreast of workers' health. Through classifying health statuses and diseases, we manage and track their health; we also arrange consultation with occupational physicians, offer health education, provide health education instructions, and implement health promotion activities.





4.1 Human resources

4.2 Employee welfare

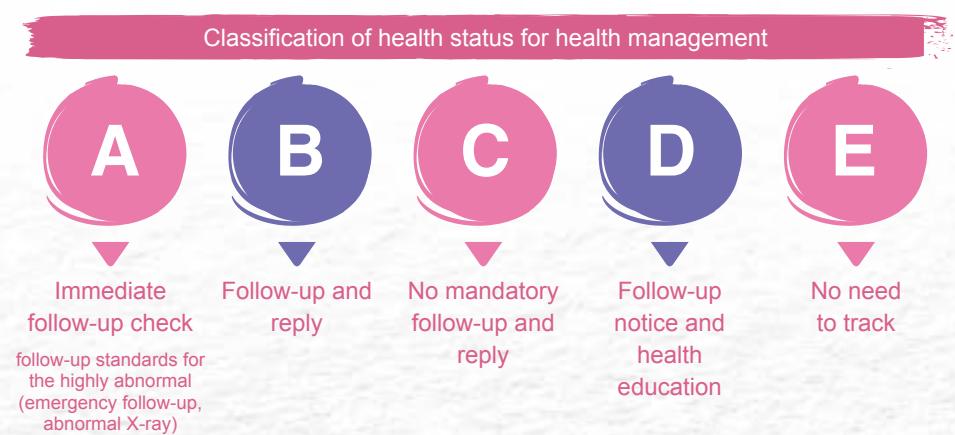
4.3 Competency development

◆ **4.4 Occupational health and safety**

Since 2007, after taking into consideration advice from professionals, the Company reviewed the operations of the fabs and undertook consolidation and planning, which ultimately led to the establishment of the Occupational Disease Preventive Measure Management Items. Via (occupational disease) Prevention, Return to Work and Compensation (PRC), the Company strives to achieve its ultimate goal of employee health care—— No Pain at Work, Healthy Life's a Perk.” Meanwhile, we also reviewed potential hazardous operations, updated the list of these operations, and incorporated them in the internal supervision management with a multi-layered preventive method and diverse proactive management.

Classification of health statuses for health management

Providing more than what the law stipulates, PSMC sponsors comprehensive medical examinations for its employees annually and will follow-up on various medical abnormal items, so that early treatment can be provided upon early detection. Moreover, the employees who receive health examination will be classified into different health levels for health management by the health center in accordance with the result of their diagnosis at the hospital:



We conduct case management for high-risk groups (cardiovascular diseases, maternity health protection employees, special operators, etc.) and track their health status; provide them with professional consultation service and transfer them to the on-site occupational physicians to help them find suitable jobs. Meanwhile, PSMC also provides the same health care management to the long-term contractors and requests them to complete their medical examination regularly as an inclusion into the health care sphere of the Company to develop a healthy and non-infectious workplace.

Health Promotion and Psychological Consultation

According to medical examination results and seasonal changes, the Company arranges for different types of ultrasound check-ups, vaccination, health promotion activities for weight loss, health care for those with cardiovascular diseases, check-ups for breast and cervical cancer etc. to take care of the physical health of the employees. In addition, the Company also organizes various talks and provides specialist consultation service for enhancing health knowledge and cultivating correct mental health perception of the employees.

In the assessment of health promotion needs, we analyzed the gender ratio, age group, and work nature of employees based on the Company's characteristics. We analyzed items with high abnormality rates in the employee health examination, new recruits health examination, and health examination activities, to plan the major measures in the health promotion program in detail. We arranged re-inspections for those with abnormal results in the health examination, and guided those who are overweight or have high cholesterol, abnormal blood sugar levels, or hypertension to participate in a series of activities, such as a weight control health program. We managed to understand employees' common health problems based on their health needs survey results, and held further physical fitness tests, including body composition, muscle fitness, flexibility, and cardiorespiratory endurance. Finally, we implemented health promotion activities, such as stress management, physical fitness activities, and diet guidance. We posted health information (divided into three categories: safety and health communications, medical knowledge, and chronic disease health education) to improve employees' health knowledge, change their lifestyle habits, and promote their health according to laws, seasons, and employee needs. Employees with chronic diseases were screened for by annual physical examinations and new recruit physical examinations (hyperuricemia, hepatitis carriers, hyperglycemia, obesity, diabetes, metabolic syndrome, etc.), and were provided with health education instructions regularly every three months.





4.1 Human resources

4.2 Employee welfare

4.3 Competency development

◆ 4.4 Occupational health and safety

2020 Health Promotion Activities

Month	Theme of Activity	Estimated Number of Participants	Actual Number of Participants	Achieving rate (%)
1~12	Self-paid abdominal ultrasound examination	178	186	104%
10~11	Pap smear	135	134	99%
8~9	Self-paid breast ultrasound examination	90	90	100%
2	Bone density test	900	721	80%
2	Intraocular pressure test	900	681	76%
6~9	Blood donation	200	239	120%
7~8	Thyroid ultrasound test	40	51	128%
8	Feeling Numb and Pain? A talk on Neuralgia	97	83	86%
8	Prostate ultrasound examination	35	30	86%
9	Healthy Weight Loss Seminar	79	71	90%
9	Are You Skinny Fat? A talk on Weight and Fat Loss	200	135	68%
9~10	Gynecological ultrasound examination	80	86	108%
10	AED Operation Instruction Lecture	50	44	88%
10~11	Influenza vaccine administration	300	357	119%

Results of weight loss over the years

year	104	105	106	107	108	109
Number of participants	624	520	473	389	277	695
Total weight loss (KG)	694.8	866.4	620.1	632.1	758.1	1,415.8
Average weight loss (KG/Person)	1.12	1.6	1.31	2.86	4.03	2.03
Average age	34.52	35.67	35.41	36.88	36.78	37.8



▲ Exercise guidance and low-calorie health meals





4.1 Human resources

4.2 Employee welfare

4.3 Competency development

◆ **4.4 Occupational health and safety**

Establishment of Powerchip Clinic

The company has established Powerchip clinic in the plan to provide health management services such as clinic visit, health advisory, prophylactic inoculation and so on to our employees and their family members, the employees of our affiliated companies and the contractors. There are occupational health service doctors who offer health education and health guidance to help employees find suitable work.

The fabs have full-time nurses on a 24-hour rotation. They provide professional services on health protection and care, organize health promotion activities and provide emergency rescue and relief, thus lifting the worries of our employees in terms of health care.



門診掛號

- ◆◆ 門診資訊 ◆◆
 - 門診時刻表與醫生簡介
 - 看診症狀參考表
- ◆◆ 看診時間 ◆◆
 - 上午診：09:00 ~ 12:00
 - 門診時間與日期詳見門診時刻表
- ◆◆ 看診需求 ◆◆
 - 請攜帶健保卡
 - 部份負擔費用100元
- ◆◆ 掛號方式 ◆◆
 - 電話預約掛號：2396
 - 現場掛號：力晶診所位置於力晶電子一樓大廳旁
 - 以現場報到之先後為看診之順序

[線上掛號] [查詢掛號]

▲ Powerchip's clinical service information

Digitalized Health Management

Via an electronic health management system, the employees can not only see their medical examination reports over the years to have a full picture of their health condition, our employees can also make appointments with doctors, sign up for health promotion activities, and consult physicians about their health problems online. The system also offers various and comprehensive health services to strengthen our employees' abilities for health self-management.



PSMC 力晶積成電子

健康管理系統

健康諮詢
健康點名「尋」功能
問健康評估我的指標...
身心健康學習心得...
定期性的運動訓練...
[更多...]

健康問答

請問力晶診所可以掛...
醫大...
請勿...
子育體適度...
[更多...]

重要訊息

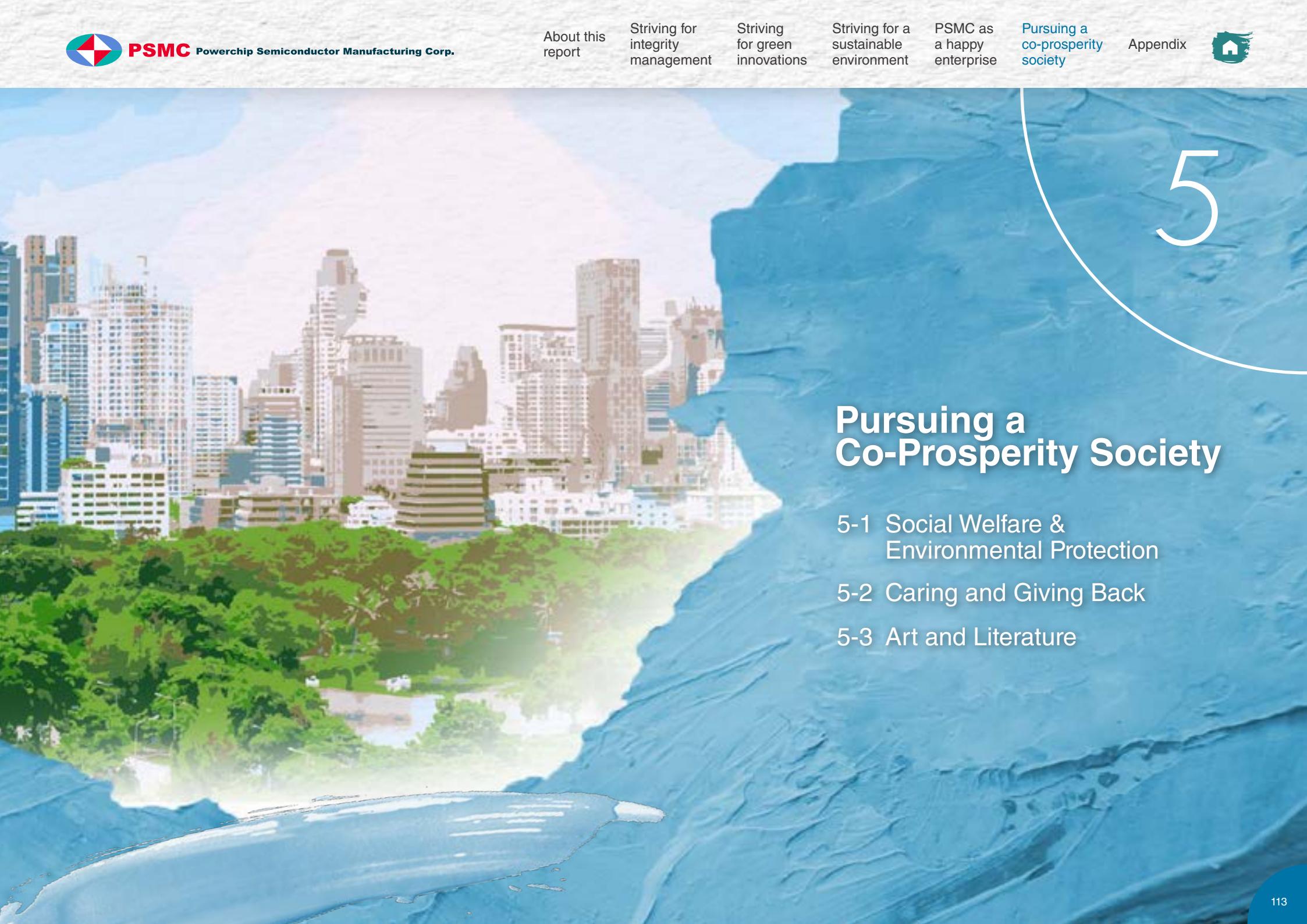
力晶電的醫院之健康檢查都組提供員工免費參加 HOT! HOT!

▲ PSMC's health management system information

- There are medical general knowledge and information on activities on the homepage of PSMC's health management website for our employees' references.
- The website also includes health Q&A and mom & baby websites that our employees can ask questions and exchange information.
- We update the bulletin boards on a regular basis, post health information and health education posters and so on.
- We e-mail our employees on the different types of health promotion activities and health information messages for their reference.



5



Pursuing a Co-Prosperity Society

- 5-1 Social Welfare & Environmental Protection
- 5-2 Caring and Giving Back
- 5-3 Art and Literature



◆ 5.1 Social Welfare & Environmental Protection

5.2 Caring and Giving Back

5.3 Art and Literature

5.1 Social Welfare & Environmental Protection

Social Welfare & Environmental Protection

In a bid to make our environment better and to prevent animals from mistakenly eating plastic, our Health Club has been promoting the "333 No Plastic" campaign since 2017. On the third Wednesday of each month, colleagues are encouraged to pick up litter at the neighborhood of the Company using their 30-minute lunch break. To make our environment better, our efforts in this regard have never stopped for more than four years. Picking up trash outdoors allows us to bathe in the sun, appreciate the trees and flowers, chat with each other, check on each other, and care about each other, enabling us to have a healthier body and mind. Due to COVID-19, we divided participants into seven groups, who took turn participating in this activity starting from July 2020. About 48 people participated in the activity throughout the year.



Powerchip Environmental Protection Foundation

The Foundation was established in May 2006. The Foundation is dedicated to promoting environmental education and environmental applications, domestically and abroad. We engage or sponsor research, discussions, and relevant events on domestic and international environmental issues. We actively promote the results of our effort to individuals, society, and corporations, implementing environmental protection in our daily lives.

The 2020 activities are as follows:

Project Name: A Midway Home for Old Trees

Project Period:

January to December 2020

Content of Implementation:

We undertook the project for old tree protection, promoting the missions of our committee, and hiring management consultants to help with tree care and consultation.

Result of Implementation:

We moved trees that were going to be cut down for reasons such as constructions to appropriate sites, where proper care and arrangements would also be provided. We hoped that by doing this, we were able to raise awareness in environmental protection in Taiwan, treasure the lives of trees, and educate our future generations.

Project Name: Landscaping the environment by replanting cherry blossom trees.

Project Period:

January to December 2020

Content of Implementation:

Replanting site:

No. 68, Sec. 3, Nanjing E. Rd., Zhongshan Dist., Taipei City (behind our foundation's main address)

Result of Implementation:

For the purpose of improving the landscape with trees, a cherry blossom tree (re)planting and maintenance project was launched.

Replanting Dates:

2017/11/22

Moved the camphor tree (the root had embedded into and cracked part of the floor. Further, the tree was not in a good condition).

2017/11/30

Moved eight cherry blossom trees (four Yoshino cherry trees and four yaezakura trees).

2018/11/16

Removed four withered cherry blossom trees.

2018/11/22

Replant (two yaezakura trees and two Yoshino cherry blossom trees)

2019/11/28

Removed and replanted two yaezakura trees.

2020

Continued maintenance work.





◆ 5.1 Social Welfare & Environmental Protection

5.2 Caring and Giving Back

5.3 Art and Literature

Project Name: Assisted government agencies, corporations, and associations in promoting environmental activities

Project Period:

April 15 and May 8, 2020

Content of Implementation:

Sponsored the campaign "Say No to Plastics" launched by Taiwan Concern Society on the educational and interactive stage play on environmental protection.

Result of Implementation:

Penglai Elementary School and Pyahaw Elementary School in Yilan County; Da Peng Elementary School and Jhong Hua Elementary School in Taichung City.

A total of 344 people directly participated and benefited from the above event, enhancing their environmental knowledge, fostering a positive attitude towards the environment, and prompting them to pay attention to the daily environment and to reflect; thereby turning knowledge into practice, and solving environmental problems. They learned to reduce the use of disposable products, and to achieve effective waste reduction and reuse through recycling, plastic reduction, and economical use of resources.


Project Period:

April 10, 16, and 17, 2020

Content of Implementation:

Sponsored the action play titled "Environmental Protection Incredible Team" launched by the Cultural Promotion Board of Taiwanese Indigenous People on carbon reduction.

Result of Implementation:

Taipei Municipal WanFang Elementary School and Taipei Municipal Wugong Elementary School; Tainan Municipal Madou District Dashan Elementary School and Tainan Municipal Madou District Peiwen Elementary School; Tainan Municipal Jiali District Yanping Elementary School and TongSing Elementary School in Tainan City.

A total of 435 people participated in and benefited from the activities listed above. Through simple plays, the children were taught that carbon reduction could be done in daily life. This would help them understand concrete conceptions and the importance of energy. Learning about waste reduction, resource recycling and reuse, and putting such concepts into practice, these children can become the medium to transfer environmental protection values to their families, thus expand the overall benefits.


Project Period:

June 29 to July 13, 2020

Content of Implementation:

Sponsored the environmental protection drama promotion activity titled "Permanent Plastics" held by the Chinese Cultural and Creative Arts Charity Association

Result of Implementation:

Meinong Dist Kaohsiung City Fu-an Elementary School, Kaohsiung City Long-Shan Elementary School, Kaohsiung City Dong-Men Elementary School, and Ji Dong Elementary School in Kaohsiung City; Shuang Yuan Primary School and Ximen Elementary School in Taipei City. A total of 758 people directly participated and benefited from the activity. With real photos and storytelling, these students could understand the serious impact of plastics on the environment and ecology, including bottled water on the market and containers for take-out meals; their incorrect myths about paper tableware and environmentally friendly tableware were rectified, and they learned how to use them and replace them timely to create a win-win outcome for the environment and their health.





◆ 5.1 Social Welfare & Environmental Protection

5.2 Caring and Giving Back

5.3 Art and Literature

Promotion of Industrial Safety and Environmental Protection

To increase the awareness of safety protection, energy-saving, carbon reduction, and health promotion among our colleagues, the Department of Risk Management held a series of activities for our Industrial Safety and Environmental Protection Month, in hopes that the participation of all employees may retain relevant values on personal safety, energy conservation, carbon reduction, and self-health management, and that these values could be implemented into their daily lives. By working together, the commitment to protect lives and the planet can be fulfilled.

Training

Item: Environmental protection seminars

Date of Activity: October 6 (Tues.)

Description and Benefits:

- Lecturers were invited to share their industry's water protection experiences under the topic of "Water Management in Response to the tightening Trend of the Environmental Protection Regulations and the Water Act", enabling the Company's employees to further understand the use of water resources in high-tech industries
- Added bonus points for departmental environmental, safety, and health activities, 50 participants could have a lucky draw for gifts



Environmental safety Promotion

Item: Beach cleanup activities

Date of Activity: September 19 (Sat.)

Description and Benefits:

- Beach clean is a way to show our commitment to social responsibility, and we showed our employees the concept of protecting the ocean using ICC forms
- Added bonus points for departmental environmental, safety, and health activities, and provided drinking water, boxed lunch, and a total of 100 gifts to participants (including their family members)
- 116 employees and their family members participated in the clean up; covering a total area of about 350m from the coast, and picked up 208.15kg of various types of trash



Environmental safety Promotion

Item: Environmental safety and health communication quiz activity

Date of Activity: October

Description and Benefits:

- This activity allowed employees to learn plant environment and important concepts in industrial safety, environmental protection, and hygiene; 10 true or false questions were provided to employees to answer.
- Participants who answered all questions correctly could participate in a lucky draw for NT\$100 gift certificates (300 certificates)
- The number of participants was 1,635, and the correct answer rate was 97.6%



◆ 5.1 Social Welfare & Environmental Protection

5.2 Caring and Giving Back

5.3 Art and Literature

Item: Lake Placid Music Concert

Date of Activity:

October 17(Sat.)

Description and Benefits:

- A music concert, hiking around the lake, and winning manga on environmental safety appreciation.
- "Good Time Music Festival" in Hsinchu Science Park was held grandly, attracting thousands of participants.
- Participants queued on site to receive a NT\$80 coupons/lucky draw voucher. Those who completed the hike around the lake were given a souvenir; our employees also received a small gift (only 80) upon sign-in on the spot.



Item: Flea Market - public welfare event

Date of Activity:

September - October

Description and Benefits:

- The Company's employees donated items they no longer needed and sold them for charity at the event to make the best use of the materials, recycle and reuse resources, as well as save energy and reduce carbon emissions for environmental protection. Unsold items were donated and the proceeds were given charity organizations.



Hsinchu Love Children Home (Gaofeng Road)	\$55,000
Hsinchu St. Teresa Children Center (Baoshan)	\$55,000
Hsinchu Branch of Children Are Us Foundation	\$50,000

Item: Plant environmental safety and health - Treasure hunt

Date of Activity: September 21 - October 5

Description and Benefits:

- The treasure hunt and quiz activity was designed for the purpose of promoting environmental safety and health. The treasure hunt increased interaction with and among participants, which enhanced the fun.
- Participants who answered all questions correctly could participate in a lucky draw for NT\$200 gift certificates (100 certificates)
- The total number of participants: 1,020; the number of participants answering all questions correctly: 999 with a percentage of 97.9%



Item: Fire equipment exhibition

Date of Activity:

October 13, 14, 15, and 16

Description and Benefits:

- Employees could learn about the types of fire safety equipment and their functions in the plant through the display, and could familiarize with the operation of the system through the hands-on experience
- The top 50 contestants who participated in the quiz of the demonstration every day received a small gift.



◆ 5.1 Social Welfare & Environmental Protection

5.2 Caring and Giving Back

5.3 Art and Literature

Item: Disaster Prevention Slogan Competition

Date of Activity: September - October

Description and Benefits:

- Use easy-to-remember slogans to increase disaster prevention awareness, which stimulated our colleagues and strengthened disaster prevention awareness.
- To motivate employees to participate, the top 12 with the most votes would each be awarded a prize money of NT\$500, and 20 of the 961 employees participating in the voting would be selected randomly to each receive a prize money of NT\$200.
- A total of 96 projects were submitted, and the winning slogans were broadcast in a short video in the office area of the Company and posted on the bulletin boards and stairwells of each plant to increase visibility.



Item: Industry Safety and Environmental Protection Month Seminar - Emergency Response Education and Training

Date of Activity: September 25 (Fri.)

Description and Benefits:

- Improved the concept of disaster prevention, helped relevant personnel stay alert and uphold a positive attitude, prepared them for response, and increased their familiarity with rescue procedures in disasters
- Invited lecturers to introduce our country's chemical substance management laws and regulations, emergency response procedures, chemical hazard characteristics, etc.



Item: Health Seminars

Date of Activity: August 11, September 2, September 16

Description and Benefits:

- What should I do if I feel numb and pain? We invited a lecturer to introduce us to painful peripheral neuropathy caused by comprehensive peripheral neuropathy, and neuralgia caused by a single or two problematic peripheral nerves. A total of 105 people participated; overall satisfaction rate was 96%
- Losing weight healthily! We invited a lecturer to introduce the first step of healthy weight loss, which was how to eat healthily and maintain ideal weight. A total of 71 people participated; overall satisfaction with the seminar was 100%
- Are you "skinny fat"? To maintain a healthy body, we must not only look at body weight but also body fat. Therefore, we invited a lecturer to talk about body fat. A total of 135 people participated in the course; overall satisfaction with the seminar was 97%
- All of the above items could be included as bonus points in the departmental environmental, safety, and health activities

Item: Weight loss events

Date of Activity: Event Duration: 2 months (August 17)

Description and Benefits:

- The participants were mainly colleagues (excluding pregnant women) whose BMI were over 20. These events were to motivate employees to exercise voluntarily and to pay attention to health
- First place could receive NT\$3,000 / second NT\$2,500 / third NT\$2,000 / fourth NT\$1,500 / fifth to 15th NT\$1,000, adding up to 20,000 in prizes (15 people in total); participants with a weight loss of more than one kilogram can participate in a lucky draw (limited to 10 participants)
- A total of 702 people signed up, 469 of them completed the activity, and 408 of them lost weight successfully; combined weight loss was 1,415.8 kg



5.1 Social Welfare & Environmental Protection

◆ 5.2 Caring and Giving Back

5.3 Art and Literature

5.2 Caring and Giving Back

Community care

As Baoshan Township's harvest of citrus tankan was affected by COVID-19 in 2020. To implement "using technology do good and make society a better place", we gave back to the community with practical actions by giving each employee a box (6 kg) of citrus tankan, to help reduce farmers' losses.



Before Maintenance



Stage One: Weed and Deadwood Control, and Soil Loosening and Cultivation



Stage Two: Growing Diverse Plants





5.1 Social Welfare & Environmental Protection

◆ 5.2 Caring and Giving Back

5.3 Art and Literature

Charities

In 2019, after restructuring, PSMC took over the original Charity Society that was founded voluntarily, and has been assisting underprivileged groups compassionately. Charity undertakings has been mainly made by employees who are compassionate and empathetic, who comprehend the meaning of charity work via actual participation and service. The society has also been facilitating the fundraising within the company and inspiring our colleagues to take actions.

Event Name: Summer Palace [Eat good Rice, Do good deeds, and Give Away good shoes]

Event Content:

Taoyuan District Agricultural Research and Extension Station, Council of Agriculture, Executive Yuan, guided Ruanqiao Village, Zhudong Township, to grow organic rice, and the farms donated "gain dividend" as a fund for shoe purchases. This not only promoted organic rice, which is beneficial to the environment and health, but enabled donation to children in the remote mountainous areas.



Donations:

A total of NT\$283,020 was raised, and a total of 98 pairs of shoes were donated. (about 52 pairs to Fang-Ji Kindergarten, Jianshi Township, Hsinchu County; about 28 pairs for Sheng-Shin Kindergarten in Wufeng Township, Hsinchu County; about 18 pairs to Taoshan Elementary Kindergarten, Wufeng Township, Hsinchu County)



Event Name: Reunion upon the Full Moon: [Giving Moon Cakes to Jianshi Township]

Event Content:

Donating charity moon cake gift boxes to the Jianshi Township; the donation has been held for 15 years. Let us continue to spread love together

Donations:

Gien Shih Elementary School (approximately 30 boxes), and donations by churches (24 boxes by Jia-Le / 24 boxes by Xin-Le; the remaining 67 boxes were distributed by priests to the mountainous areas)





5.1 Social Welfare & Environmental Protection

◆ 5.2 Caring and Giving Back

5.3 Art and Literature

Event Name: [Eden Social Welfare Foundation/Genesis Social Welfare Foundation] featuring stimulus vouchers

Event Content:

Do you feel you are unable to do good during the pandemic? To accompany the issue of stimulus vouchers, let us donate money or vouchers to help children with developmental delays and people in a vegetative state get through the pandemic.



Donations:

Eden: NT\$80,400 in cash; NT\$12,200 in stimulus vouchers

Genesis: NT\$68,000 in cash; NT\$8,200 in stimulus vouchers



Event Name: [World Peace Association] A Happy New Year for Hungry Children

Event Content:

Helping hungry children stay healthy and receive education is a click away. During the holidays, on which we should feel grateful, we hope to call on everyone to contribute again so that hungry children can enjoy basic food and clothing and celebrate the New Year without worries.

Donations:

Assisted the Hsinchu Branch of the association in helping 500 disadvantaged children in the cold winter. 1. Red envelope for schooling: NT\$500 each

2. Winter vacation meal fee: NT\$500 each
3. Charity sales of lucky red envelopes: NT\$50/pack (6 pieces)
4. Charity sales of cow-shaped piggy bank: NT\$150/pieces





5.1 Social Welfare & Environmental Protection

5.2 Caring and Giving Back

◆ **5.3 Art and Literature**

5.3 Art and Literature

Powerchip Cultural Foundation was founded in November 2004 with promoting artistic and cultural activities as its goal. Currently, the Foundation organizes or co-organizes cultural activities, performances, and competitions to help promote cultural, artistic developments, and other charitable activities that share the same philosophy as the Foundation.

1. Powerchip 2020 Classic Series- András Schiff, a Legendary Piano Master. András Schiff 2020 Piano Recital

Number of participants/beneficiaries

Around 2,200

Date/Location

March 5, 2020
National Concert Hall

Implementation and benefits

1. Reviewed the content of the project;
2. Set out and implemented the media publicity plan for the project;
3. Participated in the performance on the day of the event;
4. Provided tickets to and invited people from various fields to appreciate the beauty of arts and culture, to enhance the artistic and cultural atmosphere and the quality of talents;
5. Formulated and implemented a plan for classes offered by the master to expand and extend the benefits of the event and to support Taiwanese classical music talents actively.



2. Taipei Music Academy & Festival 2020

Number of participants/beneficiaries

Around 4,800

Date/Location

Three musical concerts:
National Concert Hall on August 3, 2020;
Chimei Hall of Chimei Museum on August 8, 2020; National Concert Hall on August 9, 2020

Eight classes offered by masters:
August 4 - August 7, 2020 (two classes on August 7) Stern@100-Violin Class by Master

Department of Music, Taipei National University of the Arts, August 2 - August 10, 2020

Implementation and benefits

1. Reviewed the content of the project;
2. Set out and implemented the media publicity plan for the project;
3. Participated in the performance on the day of the event;
4. Provided tickets to and invited people from various fields to appreciate the



beauty of arts and culture, to enhance the artistic and cultural atmosphere and the quality of talents;

5. Formulated and implemented a series of educational activities, including Master Class, to maximize the welfare and actively develop classical music talents in Taiwan.



5.1 Social Welfare & Environmental Protection

5.2 Caring and Giving Back

◆ 5.3 Art and Literature

3. National Symphony Orchestra and Yu-Chien Tseng Musical Concerts in Taiwan

Number of participants/beneficiaries

Around 2,200

Date/Location

September 12, 2020
National Concert Hall

Implementation and benefits

1. Reviewed the content of the project;
2. Set out and implemented the media publicity plan for the project;
3. Participated in the performance on the day of the event;
4. Provided tickets to and invited people from various fields to appreciate the beauty of arts and culture, to enhance the artistic and cultural atmosphere and the quality of talents;
5. Formulated and implemented a plan for introduction before the performance to expand and extend the benefits of the event and to support Taiwanese classical music talents actively.



4. "Concerto Evening - Beethoven by Daniil Olegovich Trifonov" in Taiwan

Number of participants/beneficiaries

Around 8,200

Date/Location

- National Concert Hall on October 22, 2020
- Bach Recital - Concert Hall of National Kaohsiung Center for the Arts-Weiuying on October 16, 2020
- Bach Recital - National Concert Hall on October 18, 2020
- Contemporary Classical Recital- Grand Theater of National Taichung Theater on October 19, 2020

Implementation and benefits

1. Reviewed the content of the project;
2. Set out and implemented the media publicity plan for the project;
3. Participated in the performance on the day of the event;
4. Provided tickets to and invited people from various fields to appreciate the beauty of arts and culture, to enhance the artistic and cultural atmosphere and the quality of talents;
5. Formulated and implemented a plan for introduction before the performance to expand and extend the benefits of the event and to support Taiwanese classical music talents actively.

5. "Songs of Comfort and Hope" by Yo-Yo Ma & Kathryn Stott

Number of participants/beneficiaries

Around 2,200

Date/Location

November 15, 2020
National Concert Hall

Implementation and benefits

1. Reviewed the content of the project;
2. Set out and implemented the media publicity plan for the project;
3. Participated in the performance on the day of the event;
4. Provided tickets to and invited people from various fields to appreciate the beauty of arts and culture, to enhance the artistic and cultural atmosphere and the quality of talents;
5. Formulated and implemented a plan for introduction before the performance to expand and extend the benefits of the event and to support Taiwanese classical music talents actively.





5.1 Social Welfare & Environmental Protection

5.2 Caring and Giving Back

◆ 5.3 Art and Literature

6. “Bach Solo with Yu-Chien Tseng” in Taiwan

Number of participants/beneficiaries

Around 6,300

Date/Location

- National Concert Hall on November 29, 2020
- Concert Hall of National Kaohsiung Center for the Arts-Weiwuying on November 27, 2020
- Grand Theater of National Taichung Theater on December 4, 2020

Implementation and benefits

- Reviewed the content of the project;
- Set out and implemented the media publicity plan for the project;
- Participated in the performance on the day of the event;

7. “Kit Armstrong × Mozart's Complete Piano Sonatas” piano recital

Number of participants/beneficiaries

Around 3,100

Date/Location

December 21, 22, 24, 25 and 27, 2020
National Theater & National Concert Hall

Implementation and benefits

- Reviewed the content of the project;



- Provided tickets to and invited people from various fields to appreciate the beauty of arts and culture, to enhance the artistic and cultural atmosphere and the quality of talents;
- Formulated and implemented educational promotion activities, such as classes offered by the master and introduction before the performance, to expand and extend the benefits of the event and to support Taiwanese classical music talents actively.

- Set out and implemented the media publicity plan for the project;
- Participated in the performance on the day of the event;
- Provided tickets to and invited people from various fields to appreciate the beauty of arts and culture, to enhance the artistic and cultural atmosphere and the quality of talents;
- Formulated and implemented a series of educational promotion activities, such as seminars by the master, to expand and extend the benefits of the event and to support Taiwanese classical music talents actively.

8. Formosa Ballet 2020 [International Music and Dance Lecture & Ballet Master Class]

Number of participants/beneficiaries

Around 400

Date/Location

- Chinese Culture University on July 27, 2020
- Cultural Affairs Bureau of Hsinchu County Government on July 29, 2020
- Taichung Municipal Wen-Hua Senior High School on August 2, 2020
- Performance Hall of Tainan Cultural Center on August 9, 2020

9. Contemporary Legend Theatre’s “King Lear” in 2020

Number of participants/beneficiaries

Around 6,900

Date/Location

- Three sessions at National Theater on September 25 - 27, 2020
- Two sessions at Playhouse of National Kaohsiung Center for the Arts-Weiwuying on October 3-4, 2020
- Five sessions in total

Implementation and benefits

- Reviewed the content of the project;
- Set out and implemented the media publicity plan for the project;
- Formulated and implemented a series of educational promotion activities, such as workshops and seminars by the masters, to expand and extend the benefits of the event and to support Taiwanese classical music talents actively.

Implementation and benefits

- Reviewed the content of the project;
- Set out and implemented the media publicity plan for the project;
- Participated in the performance on the day of the event;
- Provided tickets to and invited people from various fields to appreciate the beauty of arts and culture, to enhance the artistic and cultural atmosphere and the quality of talents;



6



Appendix

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Appendix 1: Statement of Assurance



INDEPENDENT ASSURANCE OPINION STATEMENT

Powerchip Semiconductor Manufacturing Corporation

2020 Corporate Social Responsibility Report

The British Standards Institution is independent to Powerchip Semiconductor Manufacturing Corporation (hereafter referred to as PSMC in this statement) and has no financial interest in the operation of PSMC other than for the assessment and verification of the sustainability statements contained in this report.

This independent assurance opinion statement has been prepared for the stakeholders of PSMC only for the purposes of assuring its statements relating to its corporate social responsibility (CSR), more particularly described in the Scope below. It was not prepared for any other purpose. The British Standards Institution will not, in providing this independent assurance opinion statement, accept or assume responsibility (legal or otherwise) or accept liability for or in connection with any other purpose for which it may be used, or to any person by whom the independent assurance opinion statement may be read.

This independent assurance opinion statement is prepared on the basis of review by the British Standards Institution of information presented to it by PSMC. The review does not extend beyond such information and is solely based on it. In performing such review, the British Standards Institution has assumed that all such information is complete and accurate.

Any queries that may arise by virtue of this independent assurance opinion statement or matters relating to it should be addressed to PSMC only.

Scope

The scope of engagement agreed upon with PSMC includes the following:

1. The assurance scope is consistent with the description of Powerchip Semiconductor Manufacturing Corporation 2020 Corporate Social Responsibility Report
2. The evaluation of the nature and extent of the PSMC's adherence to AA1000 Account Ability Principles (2018) and the reliability of specified sustainability performance information in this report as conducted in accordance with type 2 of AA1000AS v3 sustainability assurance engagement.

This statement was prepared in English and translated into Chinese for reference only.

Opinion Statement

We conclude that the Powerchip Semiconductor Manufacturing Corporation 2020 Corporate Social Responsibility Report provides a fair view of the PSMC CSR programmes and performances during 2020. The CSR report subject to assurance is materially correct without voluntary omissions based upon testing within the limitations of the scope of the assurance, the information and data provided by the PSMC and the sample taken. We believe that the 2020 economic, social and environmental performance information are correctly represented. The CSR performance information disclosed in the report demonstrate PSMC's efforts recognized by its stakeholders.

Our work was carried out by a team of (CSR) report assurers in accordance with the AA1000AS v3. We planned and performed this part of our work to obtain the necessary information and explanations we considered to provide sufficient evidence that PSMC's description of their approach to AA1000AS v3 and their self-declaration in accordance with GRI Standards: Core option were fairly stated.

Methodology

Our work was designed to gather evidence on which to base our conclusion. We undertook the following activities:

- a top level review of issues raised by external parties that could be relevant to PSMC's policies to provide a check on the appropriateness of statements made in the report
- discussion with managers on PSMC's approach to stakeholder engagement. Moreover, we had sampled two external stakeholders to conduct interview
- interview with 35 staffs involved in sustainability management, report preparation and provision of report information were carried out
- review of key organizational developments
- review of the extant and maturity of the relevant accounting systems for financial and non-financial reports
- review of the findings of internal audits
- the verification of performance data and claims made in the report through meeting with managers responsible for gathering data
- review of the processes for gathering and ensuring the accuracy of data, followed data trails to initial aggregated source

and checked sample data to greater depth during site visits

- the consolidated financial data are based on audited financial data, we checked that this data was consistently reproduced
- review of supporting evidence for claims made in the reports
- an assessment of the organization's reporting and management processes concerning this reporting against the principles of Inclusivity, Materiality, Responsiveness and Impact as described in the AA1000AP (2018)

Conclusions

A detailed review against the Inclusivity, Materiality, Responsiveness and Impact of AA1000AP (2018) and sustainability performance information as well as GRI Standards is set out below:

Inclusivity

In this report, it reflects that PSMC has continually sought the engagement of its stakeholders and established material sustainability topics, as the participation of stakeholders has been conducted in developing and achieving an accountable and strategic response to sustainability. There are fair reporting and disclosures for economic, social and environmental information in this report, so that appropriate planning and target-setting can be supported. In our professional opinion the report covers the PSMC's inclusivity issues and has demonstrated social responsible conduct supported by top management and implemented at all levels among organization.

Materiality

The PSMC publishes material topics that will substantively influence and impact the assessments, decisions, actions and performance of PSMC and its stakeholders. The sustainability information disclosed enables its stakeholders to make informed judgements about the PSMC's management and performance. In our professional opinion the report covers the PSMC's material issues.

Responsiveness

PSMC has implemented the practice to respond to the expectations and perceptions of its stakeholders. An Ethical Policy for the PSMC is developed and continually provides the opportunity to further enhance PSMC's responsiveness to stakeholder concerns. Topics that stakeholder concern about have been responded timely. In our professional opinion the report covers the PSMC's responsiveness issues.

Impact

PSMC has identified and fairly represented impacts that were measured and disclosed in probably balanced and effective way. PSMC has established processes to monitor, measure, evaluate and manage impacts that lead to more effective decision-making and results-based management within an organization. In our professional opinion the report covers the PSMC's impact issues.

Performance information

Based on our work described in this statement, specified sustainability performance information such as GRI Standards disclosures disclosed in this report. PSMC and BSI have agreed upon to include in the scope. In our view, the data and information contained within Powerchip Semiconductor Manufacturing Corporation 2020 Corporate Social Responsibility Report are reliable.

GRI Sustainability Reporting Standards (GRI Standards)

PSMC provided us with their self-declaration of in accordance with GRI Standards: Core option (For each material topic covered by a topic-specific GRI Standard, comply with all reporting requirements for at least one topic-specific disclosure). Based on our review, we confirm that social responsibility and sustainable development disclosures with reference to GRI Standards' disclosures are reported, partially reported or omitted. In our professional opinion the self-declaration covers the PSMC's social responsibility and sustainability topics.

Assurance level

The high level assurance provided is in accordance with AA1000AS v3 in our review, as defined by the scope and methodology described in this statement.

Responsibility

This CSR report is the responsibility of the PSMC's chairman as declared in his responsibility letter. Our responsibility is to provide an independent assurance opinion statement to stakeholders giving our professional opinion based on the scope and methodology described.

Competency and Independence

The assurance team was composed of Lead auditors experienced in relevant sectors, and trained in a range of sustainability, environmental and social standards including AA1000AS, ISO 14001, ISO 45001, ISO 14064 and ISO 9001. BSI is a leading global standards and assessment body founded in 1901. The assurance is carried out in line with the BSI Fair Trading Code of Practice..



...making excellence a habit.™


Peter Pu, Managing Director BSI Taiwan

Statement No: SRA-TW-2020067
2021-08-18 For and on behalf of BSI:

Taiwan Headquarters: 2nd Floor, No. 37, Ji-Hu Rd., Ni-Hu Dist., Taipei 114, Taiwan, R.O.C.

A Member of the BSI Group of Companies.



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Appendix 2: GRI Sustainability Reporting Standards (GRI Standards) Comparison Table

The content below is verified by a third party, the British Standards Institution (BSI). The results of the verification are as per Appendix 1: Statement of Assurance.

★ denotes material topics ● denotes external verification obtained.

GRI Standards Categories/Topics	Number	Disclosure Content of GRI Standards	External Verification	Corresponding Chapter	Page No.	Omitted/ Notes
1. Organization Overview						
GRI102 General Disclosure 2016: Core	102-1	Name of the organization	●	About PSMC	7	
	102-2	Activities, brands, products, and services	●	About PSMC	7	
	102-3	Location of headquarters	●	About PSMC	7	
	102-4	Location of operations	●	About PSMC	7	
	102-5	Ownership and legal form	●	About PSMC	7	
	102-6	Markets served	●	About PSMC	7	
	102-7	Scale of the organization	●	About PSMC	7	
	102-8	Information on employees and other workers	●	About PSMC 4.1 Human resources	7 89	
	102-9	Supply chain	●	2.4 Suppliers	59	
	102-10	Significant changes to the organization and its supply chain	●	Focus on foundry 2.2 Innovation and R&D 2.4 Suppliers	8 48 59	
	102-11	Precautionary Principle or approach	●	1.4 Risk Management	29	
	102-12	External initiatives	●	About this Report Sustainable development strategies	3 9	
	102-13	Membership of associations	●	External participation	8	
2. Strategies						
GRI102 General Disclosure 2016: Core	102-14	Statement from senior decision-maker	●	Message from Manager	4	
GRI 102 General Disclosure 2016: Comprehensive	102-15	Key impacts, risks, and opportunities	●	1.4 Risk Management	29	



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GRI Standards Categories/Topics	Number	Disclosure Content of GRI Standards	External Verification	Corresponding Chapter	Page No.	Omitted/Notes
3. Ethics and Integrity						
GRI102 General Disclosure 2016: Core	102-16	Values, principles, standards, and norms of behavior	●	1.2 Integrity and conformity to the law	25	
GRI 102 General Disclosure 2016: Comprehensive	102-17	Mechanisms for advice and concerns about ethics	●	1.2 Integrity and conformity to the law	25	
4. Governance						
GRI102 General Disclosure 2016: Core	102-18	Governance structure	●	1.1 Organizational Structure	22	
5. Stakeholder engagement						
GRI102 General Disclosure 2016: Core	102-40	List of stakeholder groups	●	Stakeholder engagement	10	
	102-41	Collective bargaining agreements	●	-		No union.
	102-42	Identifying and selecting stakeholders	●	Stakeholder engagement	10	
	102-43	Approach to stakeholder engagement	●	Stakeholder engagement	10	
	102-44	Key topics and concerns raised	●	Stakeholder engagement	10	
6. Reporting practice						
GRI102 General Disclosure 2016: Core	102-45	Entities included in the consolidated financial statements	●	Focus on foundry	8	
	102-46	Defining report content and topic Boundaries	●	Identifying and managing material issues	12	
	102-47	List of material topics	●	Identifying and managing material issues	12	
	102-48	Restatements of information	●	About this Report	3	
	102-49	Changes in reporting	●	About this Report	3	
	102-50	Reporting period	●	About this Report	3	
	102-51	Date of most recent report	●	About this Report	3	



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GRI Standards Categories/Topics	Number	Disclosure Content of GRI Standards	External Verification	Corresponding Chapter	Page No.	Omitted/Notes
GRI102 General Disclosure 2016: Core	102-52	Reporting cycle	●	About this Report	3	
	102-53	Contact point for questions regarding the report	●	About this Report	3	
	102-54	Claims of reporting in accordance with the GRI Standards	●	About this Report	3	
	102-55	GRI content index	●	About this Report	3	
	102-56	External assurance	●	About this Report	3	
Specific Standards: 200 Series (Economic topics)						
★ Economic Performances						
GRI 103 Management policy to economic performances 2016	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	14	
	103-2	The management approach and its components	●	2. Striving for green innovations	40	
	103-3	Evaluation of the management approach	●	2. Striving for green innovations	40	
GRI 201 Disclosures of economic performances issues 2016	201-1	Direct economic value generated and distributed	●	1.3 Financial performance	27	
	201-3	Defined benefit plan obligations and other retirement plans	●	4.2 Employee benefits	91	
	201-4	Financial assistance received from government	●	1.3 Financial performance	27	Not receiving subsidies from government
Market Presence						
GRI 202 Disclosures of market presence issues 2016	202-2	Proportion of senior management hired from the local community	●	4.1 Human resources	89	
Procurement Practices						
GRI 204 Disclosures of procurement practices issues 2016	204-1	Proportion of spending on local suppliers	●	2.4 Suppliers	48	



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GRI Standards Categories/Topics	Number	Disclosure Content of GRI Standards	External Verification	Corresponding Chapter	Page No.	Omitted/Notes
★ Anti-corruption						
GRI 103 Management policy to anti-corruption 2016	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	14	
	103-2	The management approach and its components	●	1. Striving for integrity management	19	
	103-3	Evaluation of the management approach	●	1. Striving for integrity management	19	
GRI 205 Disclosures of anti-corruption issues 2016	205-3	Confirmed incidents of corruption and actions taken	●	1.2 Integrity and conformity to the law	25	
★ Anti-competitive Behavior						
GRI 103 Management policy to anti-competitive behavior 2016	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	14	
	103-2	The management approach and its components	●	1. Striving for integrity management	19	
	103-3	Evaluation of the management approach	●	1. Striving for integrity management	19	
GRI 206 Disclosures of anti-competitive behavior issues 2016	206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	●	Internal control	26	
Specific Standards: 300 Series (Environmental topics)						
★ Energy						
GRI 103 Management policy of energy 2016	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	14	
	103-2	The management approach and its components	●	3. Striving for a sustainable environment	63	
	103-3	Evaluation of the management approach	●	3. Striving for a sustainable environment	63	
GRI 302 Disclosures of energy issues 2016	302-1	Energy consumption within the organization	●	Energy consumption	66	
	302-3	Energy intensity	●	Energy consumption	66	
	302-4	Reduction of energy consumption	●	Energy Saving	67	



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GRI Standards Categories/Topics	Number	Disclosure Content of GRI Standards		External Verification	Corresponding Chapter		Page No.	Omitted/Notes
★ Water and effluents								
GRI 103 Management approach of water and effluents 2018	103-1	Explanation of the material topic and its Boundary		●	Description of boundaries of material issues		14	
	103-2	The management approach and its components		●	3. Striving for a sustainable environment		63	
	103-3	Evaluation of the management approach		●	3. Striving for a sustainable environment		63	
GRI 303 Topic-specific disclosures of water and effluents 2018	303-1	Interactions with water as a shared resource		●	Water resource management		70	
	303-2	Management of water discharge-related impacts		●	Water resource management		70	
	303-3	Water withdrawal		●	Water resource management		70	
	303-4	Water discharge		●	Wastewater treatment		73	
	303-5	Water consumption		●	Wastewater treatment		73	
★ Emissions								
GRI 103 Management policy of emission 2016	103-1	Explanation of the material topic and its Boundary		●	Description of boundaries of material issues		14	
	103-2	The management approach and its components		●	3. Striving for a sustainable environment		70	
	103-3	Evaluation of the management approach		●	3. Striving for a sustainable environment		70	
GRI 305 Disclosure of emission issues 2016	305-1	Direct (Scope 1) GHG emissions		●	GHG Investigation and Reduction		69	
	305-2	Energy indirect (Scope 2) GHG emissions		●	GHG Investigation and Reduction		69	
	305-4	GHG emissions intensity		●	GHG Investigation and Reduction		69	
	305-5	Reduction of GHG emissions		●	GHG Investigation and Reduction		69	
	305-7	Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions		●	Air pollution emissions		76	
★ Waste								
GRI 103 Management approach of waste 2020	103-1	Explanation of the material topic and its Boundary		●	Description of boundaries of material issues		14	
	103-2	The management approach and its components		●	3. Striving for a sustainable environment		63	



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GRI 103 Management approach of waste 2020	103-3	Evaluation of the management approach	●	3. Striving for a sustainable environment	63	
GRI 306 Topic-specific disclosures 2020	306-1	Waste generation and significant waste-related impacts	●	Waste treatment	79	
	306-2	Management of significant waste-related impacts	●	Waste treatment	79	
	306-3	Waste generated	●	Waste treatment	79	
	306-4	Waste diverted from disposal	●	Waste treatment	79	
	306-5	Waste directed to disposal	●	Waste treatment	79	

★ Legal Compliance for Environmental Protection Law

GRI 103 The management policy of legal compliance for environmental protection law 2016	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	14	
	103-2	The management approach and its components	●	3. Striving for a sustainable environment	63	
	103-3	Evaluation of the management approach	●	3. Striving for a sustainable environment	63	
GRI 307 Disclosures of legal compliance for environmental protection law 2016	307-1	Non-compliance with environmental laws and regulations	●	3.3 Green production	76	

★ Environmental Assessment of Supplier

GRI 103 The management policy of environmental assessment of Suppliers 2016	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	14	
	103-2	The management approach and its components	●	2. Striving for green innovations	40	
	103-3	Evaluation of the management approach	●	2. Striving for green innovations	40	
GRI 308 Disclosures of the environmental assessment of Suppliers 2016	308-1	New suppliers that were screened using environmental criteria	●	Audit on suppliers	61	
	308-2	Negative environmental impacts in the supply chain and actions taken	●	Audit on suppliers	61	



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GRI Standards Categories/Topics	Number	Disclosure Content of GRI Standards		External Verification	Corresponding Chapter		Page No.	Omitted/Notes				
Specific Standards: 400 Series (Social topics)												
★ Labor Relations												
GRI 103 Management policy of labor relations 2016	103-1	Explanation of the material topic and its Boundary		●	Description of boundaries of material issues		14					
	103-2	The management approach and its components		●	4. PSMC as a happy enterprise		86					
	103-3	Evaluation of the management approach		●	4. PSMC as a happy enterprise		86					
GRI 401 Disclosures of labor relations issues 2016	401-1	New employee hires and employee turnover		●	Employee turnover		91					
	401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees		●	4.2 Employee benefits 4.4 Occupational health and safety		91 98					
	401-3	Parental leave		●	4.2 Employee benefits		91					
★ Labor Relations												
GRI 103 Management policy of labor/management relations 2016	103-1	Explanation of the material topic and its Boundary		●	Description of boundaries of material issues		14					
	103-2	The management approach and its components		●	4. PSMC as a happy enterprise		86					
	103-3	Evaluation of the management approach		●	4. PSMC as a happy enterprise		86					
GRI 402 Disclosures of labor relations issues 2016	402-1	Minimum notice periods regarding operational changes		●	4.1 Human resources		89					
★ Occupational Health and Safety												
GRI 103 Management policy to occupational health and safety for 2018	103-1	Explanation of the material topic and its Boundary		●	Description of boundaries of material issues		14					
	103-2	The management approach and its components		●	4. PSMC as a happy enterprise		86					
	103-3	Evaluation of the management approach		●	4. PSMC as a happy enterprise		86					



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GRI Standards Categories/Topics	Number	Disclosure Content of GRI Standards	External Verification	Corresponding Chapter	Page No.	Omitted/Notes
GRI 403 Disclosures of occupational health and safety 2018	403-1	Occupational health and safety management system	●	4.4 Occupational health and safety	98	
	403-2	Hazard identification, risk assessment, and incident investigation	●	4.4 Occupational health and safety	98	
	403-3	Occupational health services	●	4.4 Occupational health and safety	98	
	403-4	Worker participation, consultation, and communication on occupational health and safety	●	4.4 Occupational health and safety	98	
	403-5	Worker training on occupational health and safety	●	4.4 Occupational health and safety	98	
	403-6	Promotion of worker health	●	4.4 Occupational health and safety	98	
	403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	●	4.4 Occupational health and safety	98	
	403-8	Workers covered by an occupational health and safety management system	●	4.4 Occupational health and safety	98	
	403-9	Work-related injuries	●	4.4 Occupational health and safety	98	
	403-10	Work-related ill health	●	4.4 Occupational health and safety	98	
★ Training and Education						
GRI 103 The management policy of training and education 2016	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	14	
	103-2	The management approach and its components	●	4. PSMC as a happy enterprise	86	
	103-3	Evaluation of the management approach	●	4. PSMC as a happy enterprise	86	
GRI 404 Disclosures of training and education issues 2016	404-1	Average hours of training per year per employee	●	4.3 Occupational competency development	96	
	404-2	Programs for upgrading employee skills and transition assistance programs	●	4.3 Occupational competency development	96	
	404-3	Percentage of employees receiving regular performance and career development reviews	●	4.3 Occupational competency development	91	



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★ Forced of Compulsory Labor							
GRI 103 The management policy of forced or compulsory labor issues 2016	103-1	Explanation of the material topic and its Boundary			Description of boundaries of material issues	14	
	103-2	The management approach and its components			4. PSMC as a happy enterprise	86	
	103-3	Evaluation of the management approach			4. PSMC as a happy enterprise	86	
GRI 409 Disclosures of forced or compulsory labor issues 2016	409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor			4.1 Human resources	89	
Security Practices							
GRI 410 Disclosures of security practices issues 2016	410-1	Security personnel trained in human rights policies or procedures			4.1 Human resources	89	
Rights of Indigenous Peoples							
GRI 411 Disclosures of rights of indigenous peoples issues 2016	411-1	Incidents of violations involving rights of indigenous peoples			Internal control	26	
Human Rights Assessment							
GRI 412 Disclosures of human rights assessment issues 2016	412-2	Employee training on human rights policies or procedures			4.3 Occupational competency development	96	
	412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening			Sustainable development strategies	9	
Local Communities							
GRI 413 Disclosures of local communities issues 2016	413-1	Operations with local community engagement, impact assessments, and development programs			3.3 Green production	76	
	413-2	Operations with significant actual and potential negative impacts on local communities			5.2 Caring and Giving Back	119	
Social assessment of suppliers							
GRI 414 Disclosures of supplier social assessment issues 2016	414-1	New suppliers that were screened using social criteria			2.4 Suppliers	59	
	414-2	Negative social impacts in the supply chain and actions taken			2.4 Suppliers	59	



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Public Policy							
GRI 415 Disclosures of public policy issues 2016	415-1	Political contributions			Internal control	26	No political contributions during the reporting period
★ Customer Health and Safety							
GRI 416 Customer Health and Safety Management policy 2016	103-1	Explanation of the material topic and its Boundary			Description of boundaries of material issues	14	
	103-2	The management approach and its components			2. Striving for green innovations	40	
	103-3	Evaluation of the management approach			2. Striving for green innovations	40	
GRI 416 Customer Health and Safety Disclosure of Issues 2016	416-1	Assessment of the health and safety impacts of product and service categories			2.3 Customer service 3.3 Green production	55 76	
	416-2	Incidents of non-compliance concerning the health and safety impacts of products and services			Internal control	26	
★ Customer Privacy							
GRI 103 Management policy of customer privacy 2016	103-1	Explanation of the material topic and its Boundary			Description of boundaries of material issues	14	
	103-2	The management approach and its components			1. Striving for integrity management	19	
	103-3	Evaluation of the management approach			1. Striving for integrity management	19	
GRI 418 Disclosures of customer privacy issues 2016	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data			1.5 Information security control	39	
★ Compliance of Socioeconomic Regulations							
GRI 103 Compliance of Socioeconomic Regulations Management policy 2016	103-1	Explanation of the material topic and its Boundary			Description of boundaries of material issues	14	
	103-2	The management approach and its components			1. Striving for integrity management	19	
	103-3	Evaluation of the management approach			1. Striving for integrity management	19	



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GRI Standards Categories/Topics	Number	Disclosure Content of GRI Standards	External Verification	Corresponding Chapter	Page No.	Omitted/Notes
GRI 419 Compliance of Socioeconomic Regulations Disclosure of Issues 2016	419-1	Non-compliance with laws and regulations in the social and economic area	●	Internal control	26	
Customized sustainability issues						
★ Integrity Governance						
GRI 103 Management policy of integrity governance	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	14	
	103-2	The management approach and its components	●	1. Striving for integrity management	19	
	103-3	Evaluation of the management approach	●	1. Striving for integrity management	19	
★ Intellectual Property Rights						
GRI 103 Management policy of intellectual property rights	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	14	
	103-2	The management approach and its components	●	2. Striving for green innovations	40	
	103-3	Evaluation of the management approach	●	2. Striving for green innovations	40	
★ Products, Services and R&D Innovation						
GRI 103 Products, Services and R&D Innovation Management policy	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	14	
	103-2	The management approach and its components	●	2. Striving for green innovations	40	
	103-3	Evaluation of the management approach	●	2. Striving for green innovations	40	
★ Management of product and quality control						
GRI 103 Management of product and quality control Management policy	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	14	
	103-2	The management approach and its components	●	2. Striving for green innovations	40	
	103-3	Evaluation of the management approach	●	2. Striving for green innovations	40	
★ Management of Employee Occupational Competency						
GRI 103 Management policy of employee occupational competency	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	14	
	103-2	The management approach and its components	●	4. PSMC as a happy enterprise	86	
	103-3	Evaluation of the management approach	●	4. PSMC as a happy enterprise	86	



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Item	Sustainable Development Goals	Corresponding Chapter	Page No.
Goal 3	Ensure healthy lives and promote well-being for all at all ages.	4. PSMC as a happy enterprise	86
Goal 4	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.	4. PSMC as a happy enterprise	86
Goal 6	Ensure availability and sustainable management of water and sanitation for all.	3. Striving for a sustainable environment	63
Goal 7	Ensure access to affordable, reliable, sustainable and modern energy for all.	3. Striving for a sustainable environment	63
Goal 8	Promote sustained, inclusive and sustainable economic growth, full and productive	2. Striving for green innovations	40
Goal 10	Reduce inequality within and among countries.	1. Striving for integrity management 2. Striving for green innovations	19 40
Goal 12	Ensure sustainable consumption and production patterns.	3. Striving for a sustainable environment	63 40
Goal 16	Promote peaceful and inclusive societies for sustainable development, provide access	1. Striving for integrity management	19



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Item	Clauses	Corresponding Chapter	Page No.
1. Organizational Governance			
1.1	The system by which companies are directed and controlled	About PSMC 06	7
2. Human Rights			
2.1	Due diligence	Internal control	26
2.2	Human rights risk situations	1.4 Risk Management	29
2.3	Avoidance of complicity	1. Striving for integrity management	19
2.4	Resolving grievances	4. PSMC as a happy enterprise	86
2.5	Discrimination and vulnerable groups	4.1 Human resources	89
2.6	Civil and political rights	4.1 Human resources	89
2.7	Economic, social and cultural rights	4.1 Human resources	89
2.8	Fundamental principles and rights at work	4.2 Employee benefits	91
3. Labor Practices			
3.1	Employment and employment relationships	4. PSMC as a happy enterprise	86
3.2	Conditions of work and social protection	4.4 Occupational health and safety	98
3.3	Social dialogue	4. PSMC as a happy enterprise	86
3.4	Health and safety at work	4.4 Occupational health and safety	98
3.5	Human development and training in the workplace	4.3 Occupational competency development	96
4. Environment			
4.1	Prevention of pollution	3. Striving for a sustainable environment	63
4.2	Sustainable resource use	3. Striving for a sustainable environment	63
4.3	Climate change mitigation and adaptation	3. Striving for a sustainable environment	63
4.4	Protection of the environment, biodiversity and restoration of natural habitats	3. Striving for a sustainable environment 5.1. Social Welfare of Environmental Protection	63 114

Item	Clauses	Corresponding Chapter	Page No.
5. Fair Operating Practices			
5.1	Anti-corruption	1. Striving for integrity management	19
5.2	Responsible political involvement	1. Striving for integrity management	19
5.3	Fair competition	1.2 Integrity and conformity to the law	25
5.4	Promoting social responsibility in the value chain	1. Striving for integrity management	19
5.5	Respect for property rights	2.2 Innovation and R&D	48
6. Consumer Issues			
6.1	Fair marketing, factual and unbiased information and fair contractual practices	2.4 Suppliers	59
6.2	Protecting consumers' health and safety	2.3 Customer service	55
6.3	Sustainable consumption	2.3 Customer service	55
6.4	Consumer service, support, and complaint and dispute resolution	2.3 Customer service	55
6.5	Consumer data protection and privacy	1.5 Information security control	39
6.6	Access to essential services	2.3 Customer service	55
6.7	Education and awareness	4.3 Occupational competency development	96
7. Community Involvement and Development			
7.1	Community involvement	5. Pursuing Co-Prosperity Society	113
7.2	Education and culture	5.3 Art and Literature	122
7.3	Employment creation and skills development	4.3 Occupational competency development	96
7.4	Technology development and access	2. Striving for green innovations	40
7.5	Wealth and income creation	1.3 Financial performance 2.2 Innovation and R&D	27 48
7.6	Health	4.4 Occupational health and safety	98
7.7	Social investment	5. Pursuing Co-Prosperity Society	113



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Item	Clauses	Corresponding Chapter	Page No.
1. Human Rights			
1	Businesses should support and respect the protection of internationally proclaimed human rights	About PSMC	7
2	Make sure that they are not complicit in human rights abuses.	About PSMC	7
2. Labor			
3	Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining.	4.1 Human resources 4.2 Employee benefits	89 91
4	The elimination of all forms of forced and compulsory labor.	4.1 Human resources	89
5	The effective abolition of child labor.	4.1 Human resources	89
6	The elimination of discrimination in respect of employment and occupation.	4.1 Human resources	89
3. Environment			
7	Businesses should support a precautionary approach to environmental challenges.	3. Striving for a sustainable environment	63
8	Undertake initiatives to promote greater environmental responsibility.	3. Striving for a sustainable environment	63
9	Encourage the development and diffusion of environmentally friendly technologies.	3. Striving for a sustainable environment	63
4. Anti-corruption			
10	Businesses should work against corruption in all its forms, including extortion and bribery.	Integrity and conformity to the law	25



PSMC Powerchip Semiconductor Manufacturing Corp.

