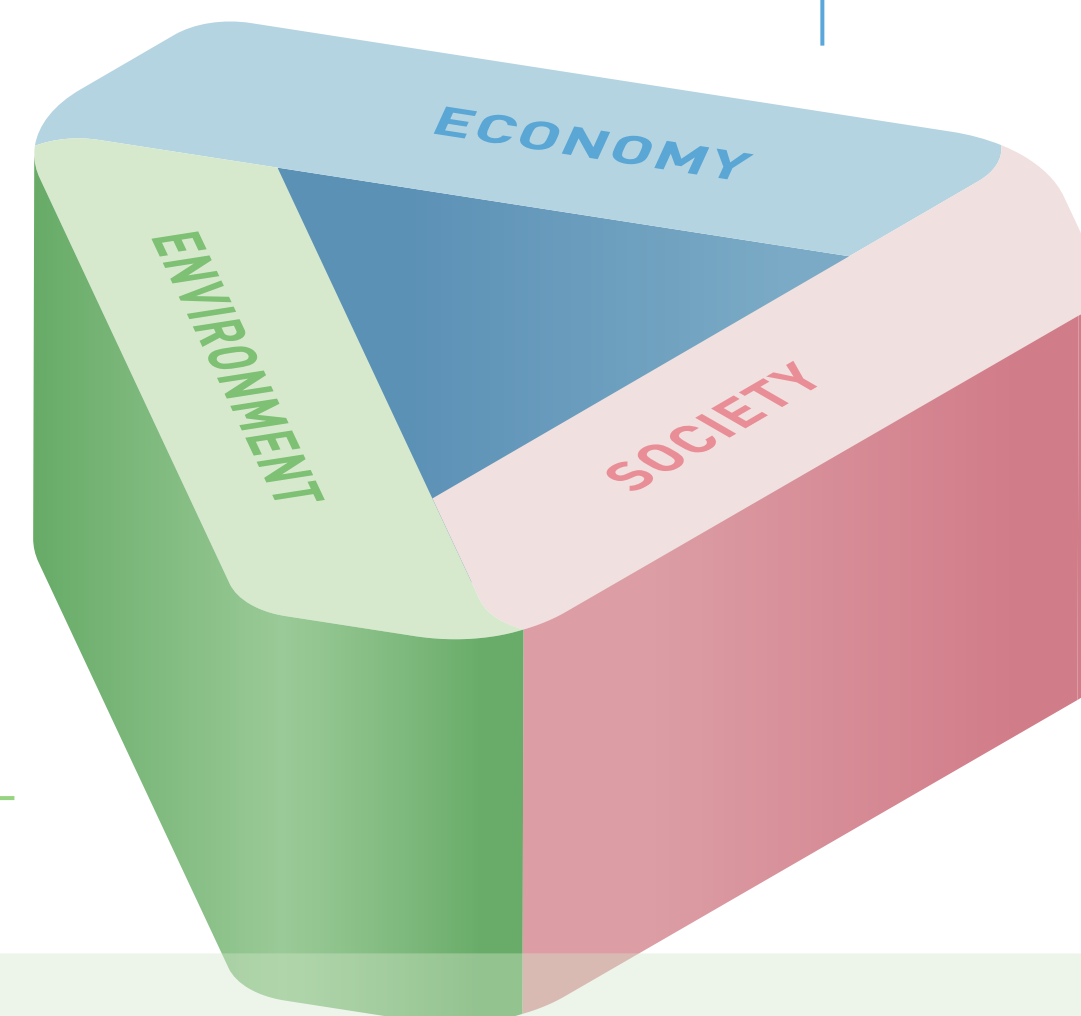


2019 TSMC
**Corporate Social Responsibility
Report Highlights**



Sustainable Development Goals for 2030



ENVIRONMENT



Reduce water consumption

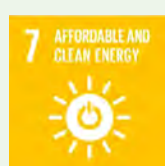
- Reduce unit water consumption (liter/8-inch equivalent wafer mask layers) by 30% (Base year: 2010)

Raise the standard for wastewater

- Water pollution composite indicator 30% above effluent standards

Increase usage of reclaimed water

- Increase the replacement rate of reclaimed water by more than 30%



Aim for energy-efficient production

- Double energy efficiency (8-inch equivalent wafer-mask layers/kWh) after five years of mass production for each process technology

Encourage suppliers to conserve energy

- Provide consultation on power reduction for suppliers and reduce energy consumption by a cumulative total of 1.5 billion kilowatt-hours (Base year: 2018)

Adopt renewable energy

- Renewable energy accounts for 20% of energy consumption of new fabs starting from 3 nm, and the purchasing of renewable energy to increase annually until 25% of manufacturing fabs' power consumption is supplied from renewable energy and non-fab power consumption is 100% from renewable energy.



Green product innovation

- Decrease the Product Environmental Footprint by 30% for each unit product (Base year: 2010)



Reduce the output of industrial waste

- Outsourced unit waste disposal per wafer (kilogram/8-inch equivalent wafer mask layers) ≤ 0.22

Promote a circular economy

- Develop multiple types of electronics-grade chemicals for TSMC's resource circulation
- Reduce waste production among major local suppliers by 35% (Base year: 2014)



Implement strategies in response to climate risks

- Reduce greenhouse gas emissions per unit of production (metric ton of carbon dioxide equivalents (MTCO_{2e})/ 8-inch equivalent wafer mask layers) by 40% (Base year: 2010)
- 0 days of production interruption due to climate disasters

Enhance the resilience against climate risks

- A cumulative total of 300 suppliers observe annual emergency response drills (Base year: 2016)

ECONOMY



Facilitate sustainability in the industry

- Tier 1 suppliers' completion rate of the Sustainability Management Self-Assessment Questionnaire: 100%
- Completion rate of critical suppliers reporting on the status of sustainability management in their critical upstream supply chains: 100%
- Tier 1 suppliers' completion rate for signing the TSMC Supplier Code of Conduct: 100%
- Tier 1 suppliers completion rate for signing the TSMC Guidance on Supplier Business Conduct and conducting internal training every two years: 100%
- Critical suppliers completion rate for receiving third-party audits every three years: 100%
- Completion rate of annual ethics and regulatory compliance training to employees: 100%

Support local suppliers

- A cumulative total of 145 local raw materials suppliers receive consultation on process enhancement and quality improvement (Base year: 2016)
- Encourage all major local raw materials suppliers and 75% of back-end packaging materials suppliers to participate in the Taiwan Continuous Improvement Competition; 60% to advance to the finals



Encourage innovation

- To maintain TSMC's technology leadership, annual R&D expenditure amounts to 8.5% of revenue
- Exceed 50,000 global patent granted



Improve recycling abilities

- Develop the ability to analyze 100% of CMR (Carcinogenic, Mutagenic and Reprotoxic) substances and help major suppliers develop the same capabilities

SOCIETY



Offer better medical care to elder people living alone

- Provide 12,000 service visits to elder people living alone through Network of Love



Promote filial piety among young generations

- Promote filial piety education in 120 educational institutions

Care for the educationally disadvantaged

- Continuously collaborate with public and private educational organizations and provide no less than NT\$12 million in resources annually

Volunteer readers for children in remote areas

- Provide more than 10,000 hours of reading service each year



Advocate for personal health management

- Zero cases of occupational hazard caused by exposure to chemicals



Offer competitive compensation

- Continue to maintain a position above the 75th percentile among industry peers in total compensation

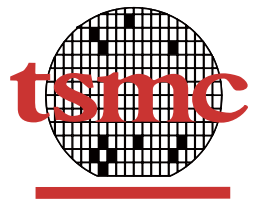
Promote workplace safety

- Disabling Injuries Frequency Rate (FR) < 0.45
- Disabling Severity Rate (SR) < 6
- All waste treatment vendors acquire ISO14001 or other international EHS Management certifications
- Completion rate of providing consultation to all vendors with high risk operations and auditing health and safety standards in their facilities: 100%
- Assist all contractors with high risk operations in obtaining ISO 45001 certification for occupational health and safety management system
- A cumulative total of 1,500 local suppliers participate in the Environmental, Safety, and Health (ESH) training program



Have more environmental & energy conservation volunteers

- Environmental protection volunteers provide over 1,200 services each year



Over the years, TSMC has held to its vision of uplifting society, and applied technology and innovation to help humanity overcome many challenges. We hope that TSMC can have greater social participation from the employees based on our professionalism. In 2019, We had taken a fresh look at our core abilities and SDGs. With that, we revisited our 2030 goals with concrete measures to fulfill our commitment.



Chairman and Corporate Social Responsibility Executive Committee Chairperson



Dow Jones Sustainability World Index for the 19th Consecutive Year



MSCI ACWI ESG Leaders Index Component



FTSE4Good

FTSE4Good Emerging Index Component / FTSE4Good TIP Taiwan ESG Index Component

A company exists to bring positive changes to our world. Each year, TSMC renews its commitment to society and the environment through the CSR committee. Though we know that the future is filled with challenges, with each and every TSMC employee steadfast at their roles, we believe that beautiful changes can continue to happen and energize TSMC's march towards sustainability.



Senior Vice President and Corporate Social Responsibility Committee Chairperson



"Prime"
Rated by ISS ESG Corporate Rating



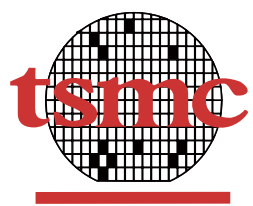
World's Most Admired
Companies



Corporate
Social Responsibility Award
Large Cap- First Place



Forbes –
World's Best Employers



A Trustworthy Company

With foundations built on the core value of Integrity, TSMC is a company that has always governed itself with the highest standards. The ethical culture of TSMC employees is continuously strengthened through comprehensive education and training. At the same time, TSMC works hand in hand with its customers and supply chain to serve the mutual benefit of the industry, and serves as a trustworthy partner to its stakeholders.

47,504 People

47,504 employees completed annual courses on Business Ethics and Regulatory Compliance

1

**World's Largest
Dedicated Semiconductor Foundry**

8.6 Trillion (NT\$)

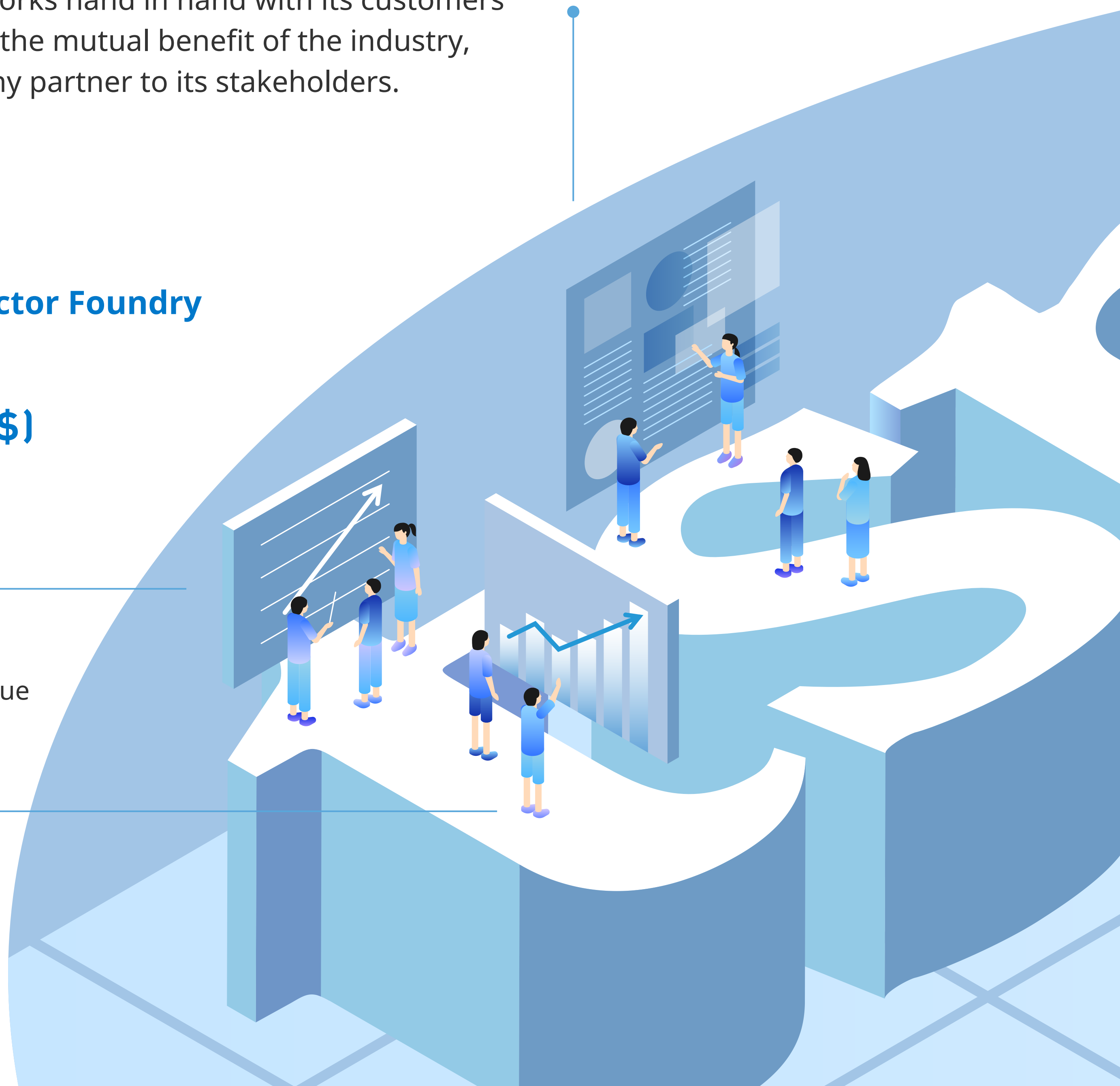
Market capitalization

10 Years

Ten consecutive years of year-on-year growth in revenue

53.9%

Total shareholder return



10,761

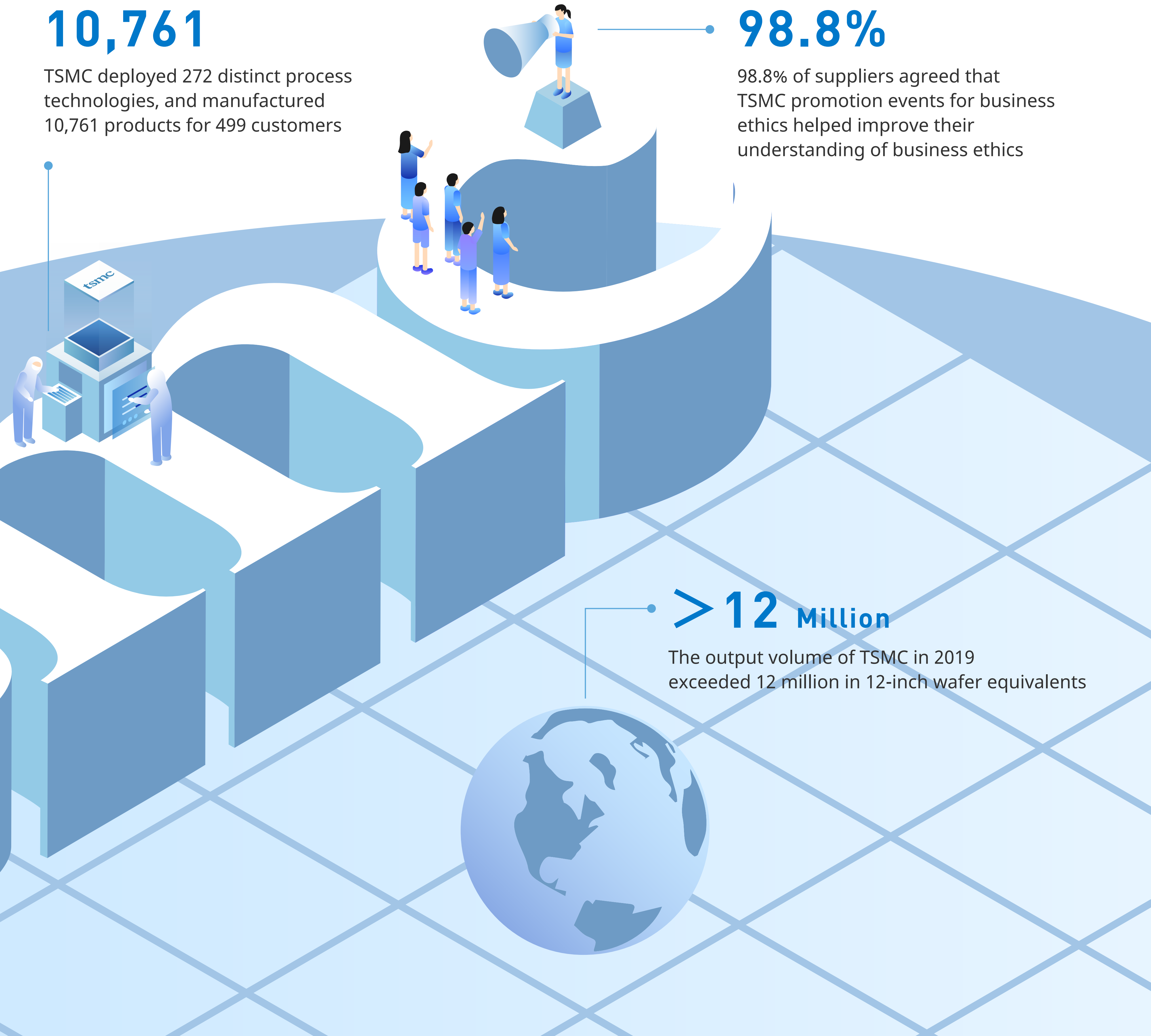
TSMC deployed 272 distinct process technologies, and manufactured 10,761 products for 499 customers

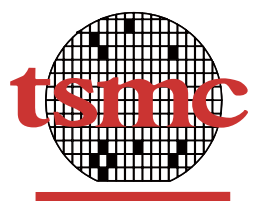
98.8%

98.8% of suppliers agreed that TSMC promotion events for business ethics helped improve their understanding of business ethics

> 12 Million

The output volume of TSMC in 2019 exceeded 12 million in 12-inch wafer equivalents





An Innovation Enabler

As the leader in dedicated IC foundry industry, TSMC has driven continued progress in global technology through innovation. We care about our customer's feedback and have been expanding our R&D scale over the years. We insist on producing sustainable products with high quality and low energy consumption, and have also established a mechanism to protect our customer's proprietary information. We hope to provide our customers next generation innovations and designs through leading technology and manufacturing excellence.

8.5%

Continued to expand R&D, 2019 expenditures in R&D totaled USD\$2.96 billion, equivalent to 8.5% of the year's total revenue

3,600 Patents

10,000 Trade Secrets

Protected intellectual property rights, with over 3,600 patents approved globally and over 10,000 trade secrets registered



1

Successful risk production of industry-leading 5nm process technology

1

Led the industry in volume production of N7+ process technology with EUV lithography technology

100%

100% compliance with hazardous substance regulations and customer requirements

> 15 Billion (NT\$)

Completed 49,356 quality improvement cases across departments, creating NT\$15 billion in value

765

In line with TSMC's technology roadmap, provided customers with over 765 types of available wafer manufacturing and process technology



10 Years

TSMC has received more Gold Awards than any other companies in Taiwan for the ten consecutive years and more Best Improvement and Innovation Awards for four consecutive years

93%

Maintained great working relationships, with customer satisfaction exceeding 90% for six consecutive years

A Responsible Purchaser

As the world's largest dedicated IC foundry, TSMC is committed to remaining a responsible purchaser by encouraging upstream and downstream suppliers to seek advancements in technology, quality, delivery, environmental protection, human rights, health and safety. We will strive vigorously to support the development of a sustainable supply chain.

100%

Tier 1 suppliers signed the Supplier Code of Conduct and Self-Assessment Questionnaire on Sustainable Management, with 100% completion rate

100%

Critical suppliers are required to report on the status of sustainability management in their critical upstream supply chains: the completion rate is 100%

100%

100% of the high-risk suppliers underwent TSMC or third-party on-site audits

22

22 suppliers attended TSMC's observation and learning program of emergency response drills

411

A cumulative total of 411 suppliers participated in the ESH training program



16

16 suppliers received consultation on process enhancement and quality improvement; Cumulative total: 33

46

A total of 46 critical Suppliers completed third-party supplier audits on sustainability risk by RBA-certified institutions

100%

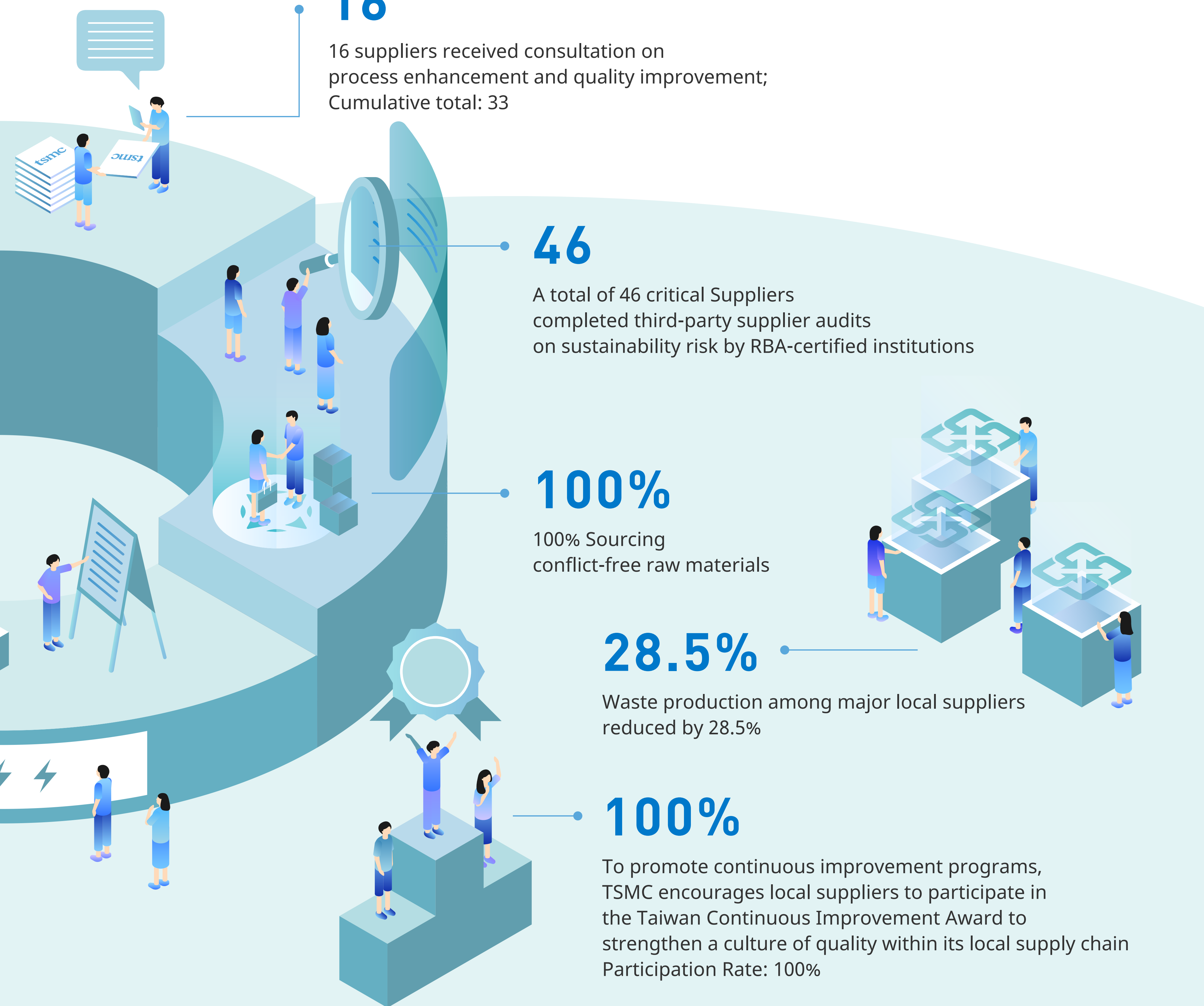
100% Sourcing conflict-free raw materials

28.5%

Waste production among major local suppliers reduced by 28.5%

100%

To promote continuous improvement programs, TSMC encourages local suppliers to participate in the Taiwan Continuous Improvement Award to strengthen a culture of quality within its local supply chain Participation Rate: 100%



A Practitioner of Green Power

TSMC's goal is to facilitate coexistence and mutual prosperity between business and environment. Aiming to become a practitioner of green power, we assimilate green management into our business and implement continuous improvement projects in the areas of climate change, energy management, water management, waste management, and air pollution control. We hope to protect our environment while increasing the Company's value.

0

zero days of production interruption due to climate disasters

97.8%

2019 reduction rate of volatile organic compounds reached 97.8%, exceeding 95% for five consecutive years

0

Reported zero cases of abnormal occurrences to supervising authorities

6 Years

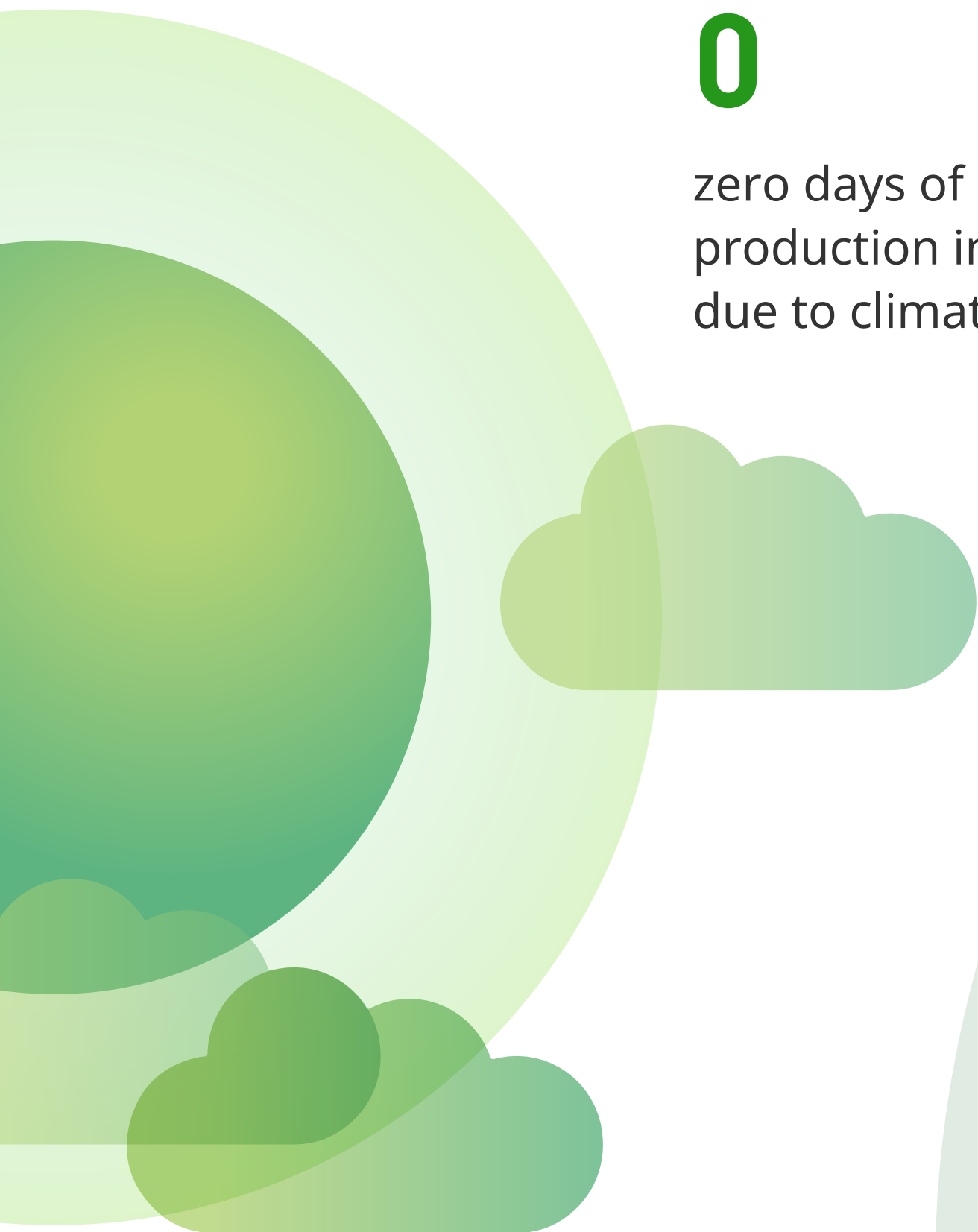
Cu^{2+} and $\text{NH}_4\text{-N}$ concentration of effluent water achieved 2025 goals six years ahead of schedule

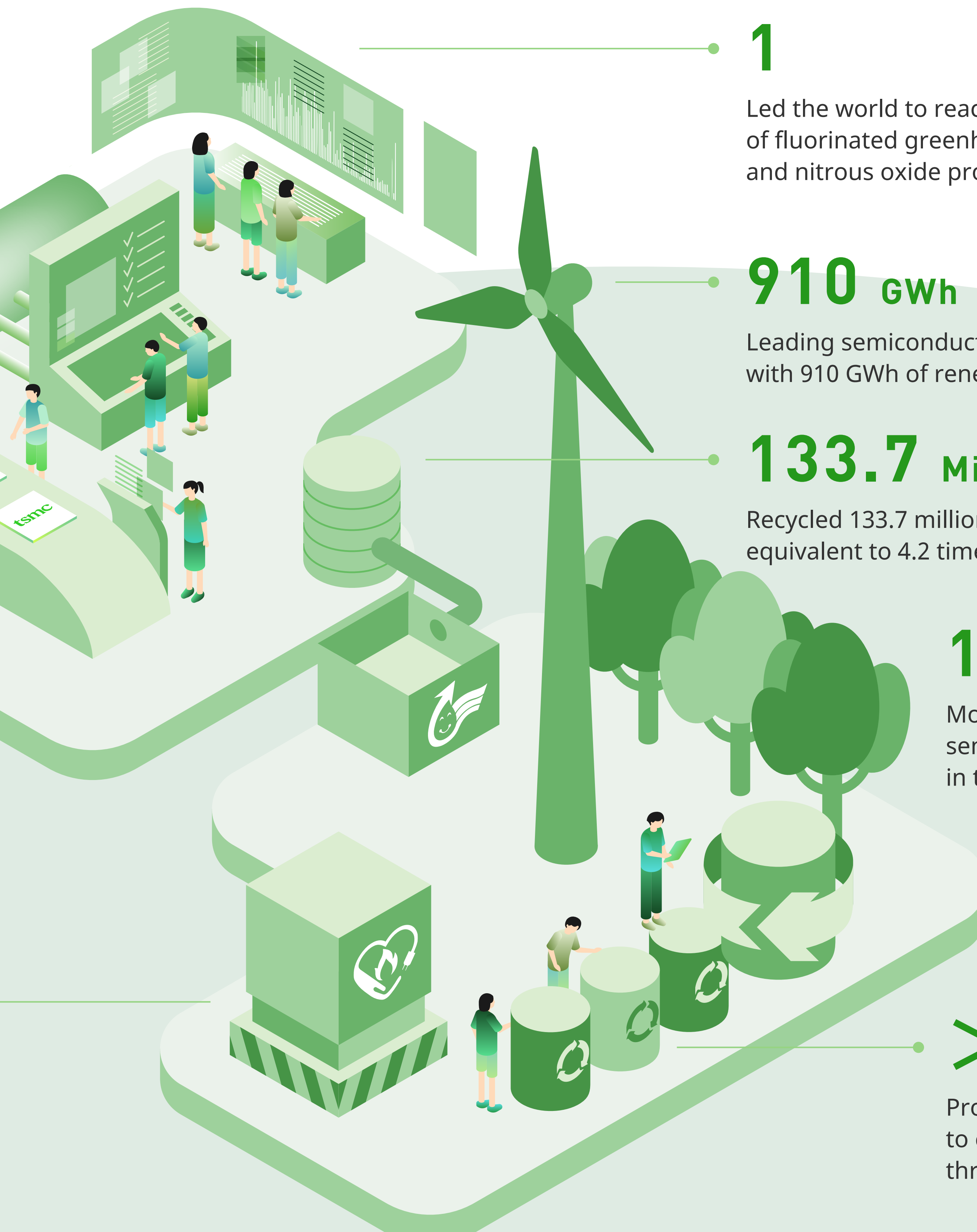
96%

2019 waste recycling rate reached 96%, exceeding for five consecutive years; The percentage of waste sent to landfills has been less than 1% for ten years in a row

503

A total of 503 energy-saving measures saved 300 GWh





1

Led the world to reach 93% reduction rate of fluorinated greenhouse gases (F-GHGs) and nitrous oxide processing equipment exhaust

910 GWh

Leading semiconductor manufacturer in Taiwan, with 910 GWh of renewable energy purchased

133.7 Million Metric Tons

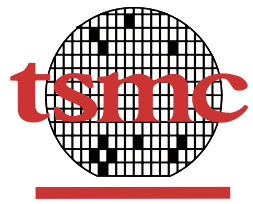
Recycled 133.7 million metric tons of water in total, equivalent to 4.2 times the volume of Baoshan Reservoir II

1

Most LEED certified semiconductor industry architecture area in the world

> 3 Million (NT\$)

Promoted the Circular Economy Project to create over NT\$300 million of value through recycling and waste reduction



An Attractive Employer

Employees are the most important asset of TSMC. We deeply instill a people-oriented culture and value the mutual commitment between the Company and our employees, building a friendly workplace exceeding domestic and international standards in safety, health, regulations, and human rights. TSMC aims to build a challenging work environment where learning never stops, and pursues the goal of becoming an employer that all employees can be truly proud of.

1

Launched Contractor 100 Campaign to encourage suppliers' sustainable actions, and published The Blue Book on Environmental Safety and Health for Contractors

50.8%

50.8% of all job vacancies were filled through internal transfers

> 109.9 Billion

Total compensation expenses for all employees exceeded NT\$109.9 billion

5,087 People

Recruited 5,087 new employees globally and offered high quality jobs





116,907 Hours

TSMC provided employees with a total of 116,907 hours of human rights protection training. In total, 48,763 employees completed the training program, accounting for 95% of TSMC's total employees



0

Strengthened OHS control measures, with no reported cases of occupational diseases caused by chemical or physical exposure



66.3%

Self-learning accounted for 66.3% of learning programs designed for the specific needs of organizations



3 Times

The average monthly salary of direct labor in TSMC's facilities in Taiwan was three times higher than the minimum wage in Taiwan



31 Months

The annual compensation for newly graduated engineers employed by TSMC in Taiwan with a master's degree was equivalent to around 31 months of salary, exceeding industry standards

Power to Change Society

To pursue the goal of building a better society, the TSMC Education and Culture Foundation and TSMC Charity Foundation serve as focal points for funds, materials, and people from inside and outside TSMC to devote resources towards cultivation of youths, culture and arts, environmental awareness, caring for the disadvantaged and rural education. We hope to drive the development of society with kindness, passing on the power of love and prospect.

15,641

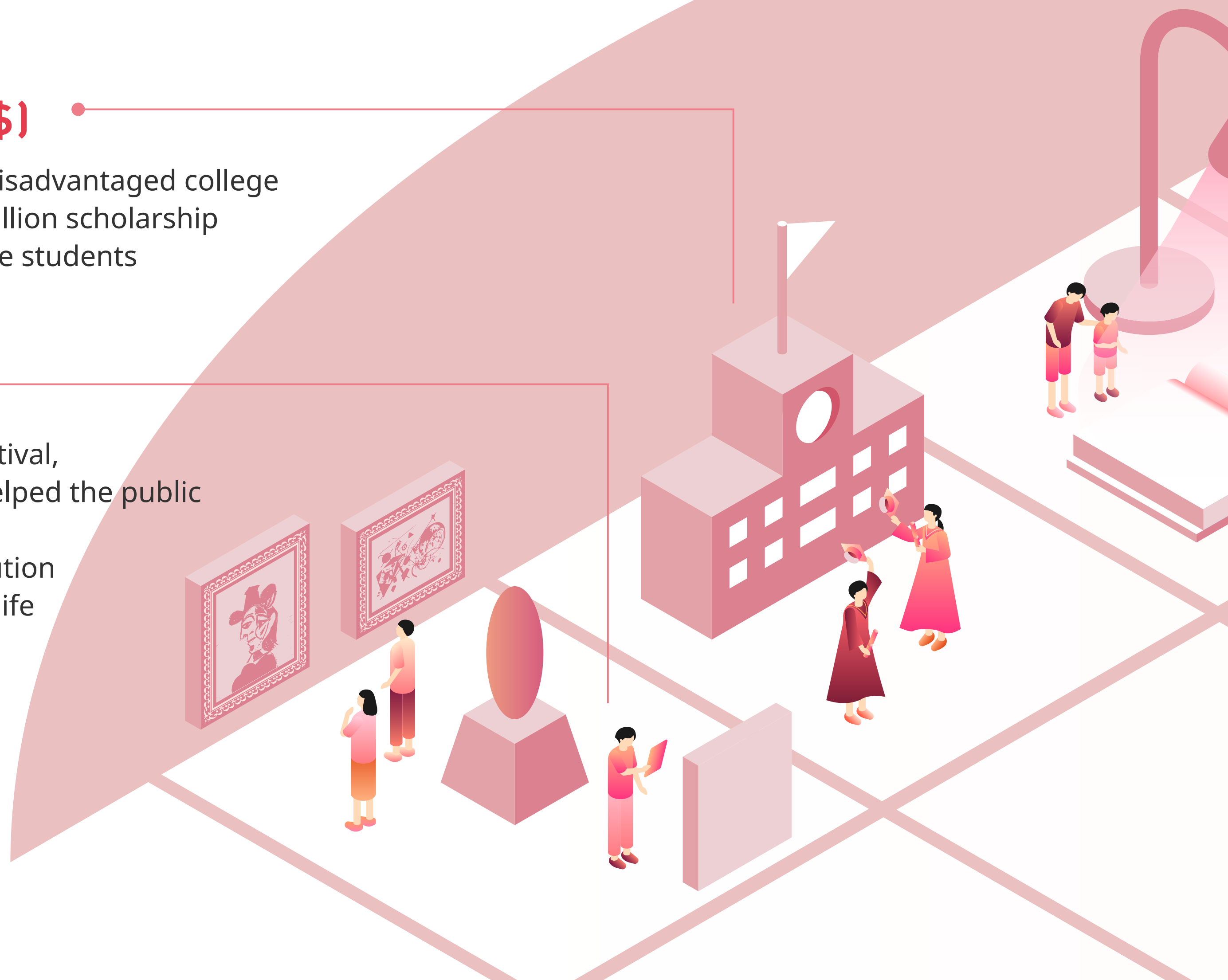
Continuously Supporting Hope Reading 2.0, 100 best books are recommended and donated to 200 elementary and junior high schools in rural areas. Up to 15,641 people have been benefited

5.5 Million (NT\$)

Expanding scholarships for disadvantaged college students, a total of NT\$5.5 million scholarship has been offered to 55 college students

61

Holding the Hsin-Chu Art Festival, a total of 61 performances helped the public experience the beauty of art and make a tangible contribution to the community's spiritual life



584,830,008 (NT\$)

Total investments in social participation to care for the disadvantaged, bridge the rural-urban educational gap, take care of elders living alone, and promotes diversified education and humanity appreciation among youth

83,797 Hours

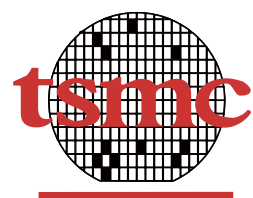
Dedicated to volunteer service

37

Continue working with 12 partners of the Network of Love Program to take care of elder people living alone, and promoting filial piety education in 37 educational institutions

221,935

Number of beneficiaries of social engagement



2019 CSR Performance Summary ^{Note 1}

Key Indicators	2015	2016	2017	2018	2019
Revenue (NT\$ billion)	843	948	977	1,031	1,070
Net Income (NT\$ billion)	307	334	343	351	345
Income Tax Expense (NT\$ billion)	44	52	53	46	45
R&D Expenditures (NT\$ billion)	66	71	81	86	91
Capital Expenditures (NT\$ billion)	258	328	331	316	460
Greenhouse Gas Emission (Metric Ton - CO ₂ equivalent) (Scope 1 and Scope 2)	6,670,291	7,413,953	8,156,140	8,475,367	8,769,614
Scope 1 (Metric Ton - CO ₂ equivalent)	2,027,645	2,035,510	2,075,928	2,125,725	2,071,743
Taiwan Sites	1,566,662	1,648,268	1,640,532	1,705,746	1,678,754
Subsidiaries ^{Note 2}	460,983	387,242	435,396	419,979	392,989
Scope 2 (Metric Ton - CO ₂ equivalent)	4,642,646	5,378,443	6,080,212	6,349,642	6,697,872
Taiwan Sites	4,315,766	5,030,647	5,702,511	6,325,931	6,673,235
Subsidiaries ^{Note 2}	326,880	347,796	377,701	23,711	24,637
Scope 3 (Metric Ton - CO ₂ equivalent)	3,446,447	3,767,411	4,242,521	4,315,497	5,307,028
Fluorinated Greenhouse Gas Emission (Metric Ton - CO ₂ equivalent)	1,331,467	1,259,527	1,194,136	1,185,433	1,081,212
NOx Emissions (Metric Tons)	54.42	60.54	82.5	118.92	116.67
SOx Emissions (Metric Tons)	32.55	33.08	43.87	39.71	32.18
VOC Emissions (Metric Tons)	129.4	163.6	170.8	168.4	102.1
Energy Consumption (GWh)(Including electricity, nature gas and diesel)	8,915	9,848	12,016	13,167	14,323
Direct Energy Consumption (GWh)(Including nature gas and diesel)	455	489	628	726	747
Indirect Energy Consumption (GWh)(Electricity)	8,460	9,358	11,388	12,441	13,576
Water Consumption (Million Metric Tons)	37.5	42.0	48.9	56.8	64.3
Taiwan Sites	34.0	38.6	45.2	51.0	58.0
Subsidiaries ^{Note 2}	3.5	3.4	3.8	5.7	6.3
Process Water Recycling Rate (%) ^{Note 3}	87.3	87.4	87.5	87.5	86.7
Total Water Saving (Million Metric Tons) ^{Note 3}	85.6	94.3	103.4	129.0	133.6
Ultra-Pure Water Usage (Million Metric Tons)	61.0	68.8	79.7	85.1	90.1

Key Indicators	2015	2016	2017	2018	2019
Tetramethylammonium hydroxide (TMAH)	19.1	16.3	12.9	13.1	7.9
Copper ion (Cu ²⁺)	0.23	0.19	0.22	0.18	0.09
Waste Generated (Metric Tons)	273,096	298,761	369,745	393,784	416,715
General Waste Generated (Metric Tons)	137,524	163,584	201,114	213,840	219,584
Taiwan Sites	132,427	158,899	196,077	208,340	212,465
Subsidiaries ^{Note 2}	5,097	4,685	5,037	5,501	7,119
Hazardous Waste Generated	135,572	135,177	168,631	179,944	197,131
Taiwan Sites	133,360	133,085	165,891	169,427	183,015
Subsidiaries ^{Note 2}	2,212	2,092	2,740	10,516	14,116
Waste Recycling Rate (%)	95	95	95	95	96
Taiwan Sites	95	95	95	95	96
Subsidiaries ^{Note 2}	79	79	80	83	74
ISO 14001 Certified Sites	16	18	20	22	22
% Sites Certified	100	100	100	100	100
Numbers of Employee	45,272	46,968	48,602	48,752	51,297
Employee Training Hours	780,546	623,711	639,852	540,408	741,178
Women in Workforce (%)	41.3	40.1	39.3	38.7	37.8
Females in Management (%)	11.5	11.7	12.3	12.6	12.7
Females in Junior Management (%)	12.8	12.8	13.6	13.7	13.6
Females in Top Management (%)	22.7	20.0	20.0	18.5	11.1
Turnover Rate (%)	5.2	4.3	4.2	4.5	4.9
Voluntary Turnover Rate (%)	5.0	4.2	4.1	4.3	4.8
Safety - Injury Frequency Rate ^{Note 4}	0.47	0.54	0.56	0.88	0.93
Safety - Injury Severity Rate ^{Note 5}	5	7	7	13	15
Fatalities – Employees	0	0	0	0	0
Fatalities – Contractors	0	0	0	0	0
Cash Donation (NT\$ million) ^{Note 6}	64.8	89.1	301.2	199.0註7	163.5

Note 1: Data includes all Taiwan sites and subsidiaries of TSMC.

Note 2: The scope of subsidiaries in Environmental parts includes WaferTech, TSMC China Company Limited, TSMC Nanjing Company Limited and VisEra.

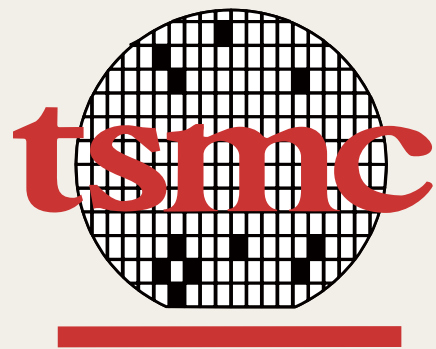
Note 3: Data includes all Taiwan fabs of TSMC.

Note 4: Safety - Injury Frequency Rate=Injury Number x 1,000,000/ Total hours worked

Note 5: Safety - Injury Severity Rate= Lost Work Days x 1,000,000/ Total hours worked

Note 6: Cash donation is the amount of cash donations by TSMC, TSMC Education and Culture Foundation, TSMC Charity Foundation, TSMC employees and TSMC Employee Welfare Committee

Note 7: In response to the government's renewable energy policy, TSMC purchased 100 GWh green power in 2017, which was the main reason for the higher amount of annual cash donations. The government's green power purchase plan was terminated at the end of 2017. TSMC is proactively searching for renewable energy.



Innovation Paints a Future of Sustainability

Innovation drives us forward at TSMC.
It beholds the expectations of our stakeholders.
As we pursue our dreams with courage and resilience,
TSMC continues to empower development in 5G, Artificial Intelligence, and beyond,
and to use cutting-edge technology,
to paint an intelligent and connected future
in which human lives are made more convenient, comfortable, and safe.

We pride ourselves as a driver of a sustainable future.
We galvanize each and every bit of positive energy
to unleash innovation that can bring positive change
that can be shared by all in a brilliant world.

Learn more about TSMC's sustainable development,
please refer to our CSR Report, CSR Website and Facebook page.
If you have any feedback, please feel free to contact us at CSR@TSMC.COM