



# Customer Service

## Strategies & 2030 Goals

### Precise Response

Provide excellent customer service through close collaboration with customers and customer meetings/surveys on a regular basis to understand and respond to their needs

- Maintain customer satisfaction rating of over 90%
- Every million 12-inch wafers shipped, the number of engineering quality and reliability issues improved to 60% of the level in 2019 **NEW**

## 2019 Achievements

- Customer satisfaction rating of 93%  
Target: >90%

## 2020 Targets

- Maintain customer satisfaction rating of over 90%
- Every million 12-inch wafers shipped, improve the number of engineering quality or reliability issues to 95% of the level in 2019

### Virtual Fab

Provide comprehensive information in a timely manner to ensure the success of customer's products; strengthen processes and systems to hold the highest stands to protect customer product information

- In line with TSMC's technology roadmap, provide customers with over 1,200 types of available wafer manufacturing and process technology; over 170 types of advanced packaging technology
- Pass customer product information audit with no major flaws

- In line with TSMC's technology roadmap, provided customers with over 765 types of available wafer manufacturing and process technology  
Target: > 750 types of technology
- Passed customer product information audit with no major flaws  
Target: No major flaws

- Provide customers with over 800 types of available wafer manufacturing and processing technology; over 60 types of advanced packaging technology
- Pass customer product information audit with no major flaws

● Exceeded ● Achieved ● Missed Target



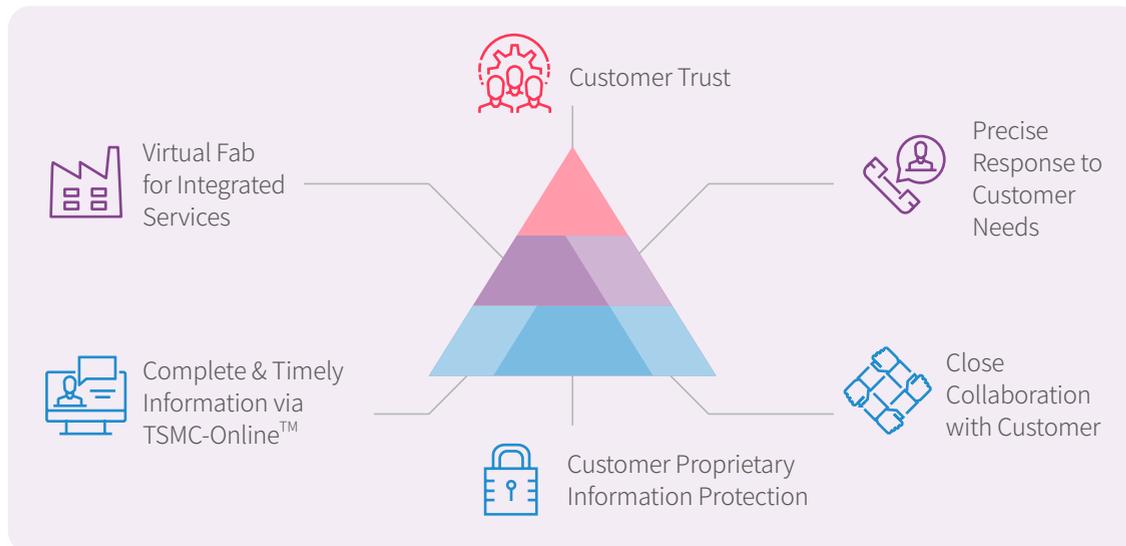
To become customers' trusted partner, TSMC vigorously strives to provide the best service to customers as to help customers achieve success. TSMC has established a devoted customer service team, which is a dedicated coordination window to provide the timely assistance and creates the best customer experience, from design support, mask making, and wafer manufacturing, to backend services. TSMC also commits to protect customer's confidential information with highest standard. TSMC wins customer's continuous trust, and was chosen as their foundry service provider, thereby ensuring TSMC's continue growth in the future.

### Precise Responses

TSMC treats customer feedback and expectations as an important basis for improving and developing customer relationship. TSMC learns about customer needs through multiple channels, and customers can then utilize these channels to provide feedback on the performance of business behavior, relationship, technology, quality, yield, design support, manufacturing, customer service, and further expectations for the future. TSMC reviews and analyzes customer feedback regularly, develop improvement plans upon them, and view it as a complete customer needs handling process. According to the annual

customer satisfaction survey in 2019, TSMC received a high score of 93%, keep maintaining high rating above 90% in 6 consecutive years. In 2019, in response to customers' expectation in continuous quality improvement for product segments required higher quality, TSMC created a new theme of improvement: "STOP & FIX." Combining with a series of quality training activities, TSMC strengthens employees' capability to provide quality services and encourages employees to adhere to the quality and be the front-line guardian of quality. In an ever-changing market, the close collaboration with customers helps TSMC continuously satisfy its customers' needs with advanced technology, manufacturing excellence, and high-quality service.

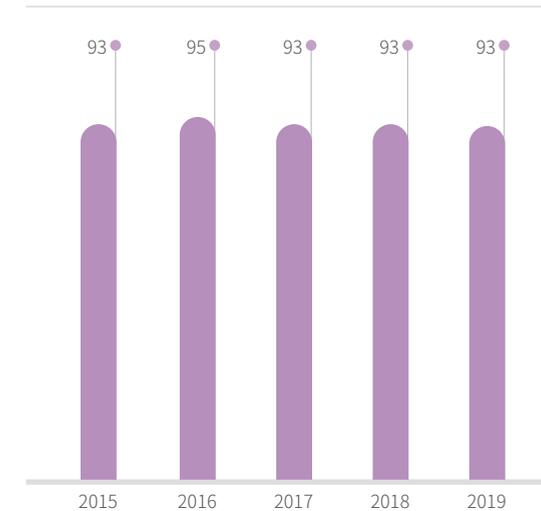
### The Customer Service Strategy Pyramid



### Various Communication Channels for Customers



### Annual Customer Satisfaction Ratings Unit: %



Note: Index includes Taiwan Facilities and Subsidiaries



## Virtual Fab Provides Integrated Customer Service

The instant information update and thorough protection of customer's confidential information are crucial for TSMC to build customer trust. To facilitate customer interaction on a real-time basis, TSMC-Online™ offers a suite of web-based applications that allow TSMC to play an active role in collaborations with its customers in design, engineering and logistics. Customers thus have a 24-7 access to critical information and are able to create customized reports to facilitate effective wafer management. Design collaboration lies upon data availability and accessibility, and provides customers with accurate and the most updated information at each stage of design life cycle. Engineering collaboration provides engineering lots, wafer yields and wafer acceptance test analysis, as well as quality and reliability data. Logistics collaboration provides information about customer order placement, shipments and delivery. To serve

as a customer's "virtual fab," through TSMC-Online™, customers can access transparent and comprehensive wafer manufacturing information and services. Thereby, customers can manage their products on a real-time basis to achieve product success. In 2019, in line with technology roadmap, TSMC now provides customers with over 760 types of available wafer manufacturing and process technologies and over 60 types of advanced package technologies. Proprietary Information Protection is a promise from TSMC to guarantee the interests of its customers. As a customer's "virtual fab," TSMC holds the highest standard to protect its customers by implementing a special safety monitoring mechanism throughout the whole production process with annual audit of all control points.

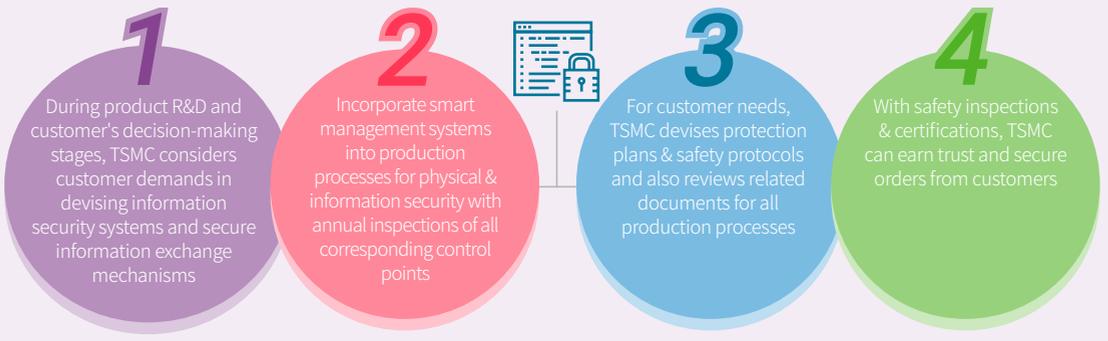
In 2019, TSMC helped customers achieve ISO 15408 certification for various types of high-security chip products. ISO 15408 certification, an international standard under [the Common Criteria for Information Technology Security Evaluation](#), is a security evaluation

standard for information products and systems. It is given in two major forms: product certification and site certification. To avoid any redundancy certification process on the part of its customers and provide a better customer experience by expediting customer's product certification processes, TSMC continues to obtain site certifications for its various foundry businesses according to demands. In 2019, TSMC successfully achieved ISO 15408 certification for its Fab 14B. Compliant to the highest standard for the production of security products and the protection of proprietary information, Fab 14B is fully qualified to readily accept orders for high-security products. For customers with such demand, therefore, TSMC is able to provide a safe manufacturing environment and ensure

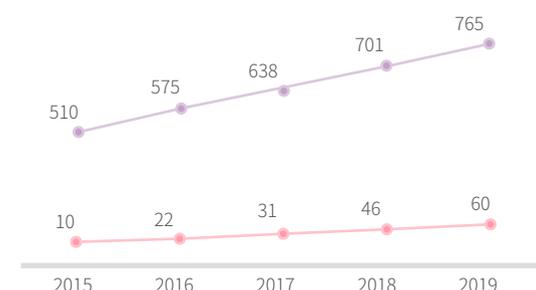
optimal safety management not only in the production process but also along the supply chain. Furthermore, TSMC ensures the safety and reliability of the end-products manufactured with its security and aims to pass all annual inspections on customer products and information protection, thereby deepening trust and partnership with its customers.

TSMC strongly believes that constant innovation and high-quality products and services are the key factors to maintain a long-lasting customer satisfaction. As a trusted technology and capacity provider in the global logic IC industry, TSMC will continue to be service-oriented and maximum-total-benefits silicon foundry as to become a long-term important partner that customers can trust and rely on for success.

## Customers' Confidential Information Protection



## Types of Wafer Manufacturing Technology/Advanced Packaging Technology



- Types of Wafer Manufacturing Technology
- Types of Advanced Packaging Technology

Note 1: 2019 index includes Taiwan Facilities and Subsidiaries

Note 2: The cut-off date of "types of wafer manufacturing technology" and "types of Advanced Packaging Technology" is December 31

Customer recognition of TSMC's excellence in customer service



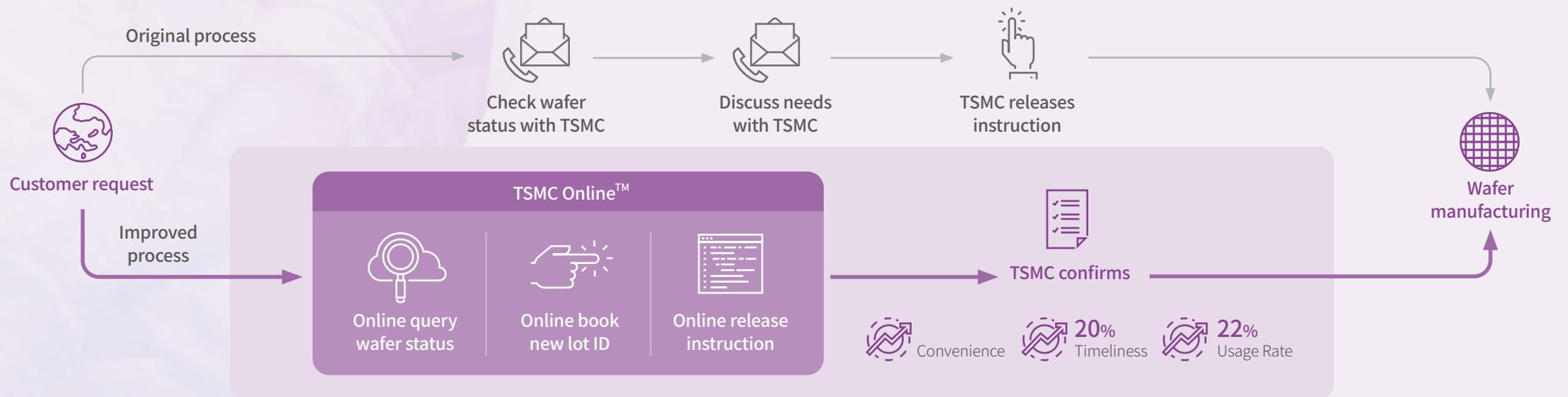
Case Study

## Enhance Self-Service Wafer Instructions - Real Time Customer Service

In 2019, to improve the timeliness and convenience of customers wafer manufacturing instruction, TSMC integrated product information and wafer production system, improved customer lot handling notice process, and enhanced TSMC-Online™ function. Now, customer can release manufacturing instructions to not-yet processed wafer or stacked-wafer products in TSMC-Online™ without time-zone constraint. Before this enhancement, if customer had manufacturing instruction to not-yet processed wafer or stacked-wafer product which is with complicate

manufacturing process, customer need to contact TSMC off-line. Then TSMC counterpart would help to release customer's instruction accordingly. Now, customer can per request to reserve wafer ID with manufacturing instruction in TSMC-Online™. The instruction will be released to manufacturing system directly after confirmation. Besides, TSMC integrated the information from Bill of Material and wafer production system. Combining with optimized system user interface, customers have a clear overview of wafer status and wafer instruction process in TSMC-Online™. This new service enhancement

can reduce wait time from time zone differences. After the new functions launched in March 2019, the usage rate increased by 22% and timeliness improved by 20%.



## Proprietary Information Protection

Proprietary Information Protection is a promise from TSMC to customers, shareholders and employees. TSMC responds to the increasing importance of proprietary information protection in regard to maintaining current and future competitive advantage, and devises "Proprietary Information Protection — PIP" policy to define the proprietary information protection and management guidelines. TSMC trade secrets and related undisclosed confidential information are protected under these guidelines in the best interest of company, shareholders, employees, customers, and vendors.

TSMC has created its PIP Committee, an organization dedicated to the Proprietary Information Protection, chaired by senior vice president of information technology and materials management & risk

management. Consisting of Vice Presidents from legal counsels, Human Resource, R&D, and Operations, the committee holds regular meetings to review and develop important policies on information protection and information security. It creates and enforces Proprietary Information Protection policy and guidelines, develops effective compliance mechanism, continues to enhance its capability to protect proprietary information, and ensures the applicability of those regulations through yearly reviews. Amendments were made in 2019 to guidelines on proprietary information management and to physical security area definition. Seven major approaches were adopted to consolidate and protect Company's proprietary information.



### TSMC's Strategy for Proprietary Information Protection

TSMC considers the Proprietary Information Protection (PIP) as part of its core business strategy. To fulfill its commitment to PIP, the Company has adopted four approaches: information classification and control, access authorization, training programs, and compliance auditing. These measures serve to protect the proprietary information of not only TSMC and its subsidiaries but also any third party entity that conducts business dealings with TSMC. Furthermore, TSMC continues to enforce IT security measures, actively identifying potential vulnerabilities and risks for data breach, assessing possible damages, and developing mitigation measures to fulfill its commitment to Proprietary Information Protection.

## Seven Major Approaches of PIP Implemented in 2019



## IT Security Management Measures in 2019

TSMC has developed specific methods for the assessment of information security risks, created clear protocols for management, built automated information security management system, and obtained ISO 27001 certification for information security, thereby becoming compliant with international standards for information security management. In response to all kinds of cyber-attacks and external threats to information security, TSMC continued in 2019 to enforce information security risk management measures, enhance detection, and strengthen defensive measures. For example, TSMC has created automated anti-virus system to prevent malware from infiltrating into its intranet; it has strengthened the control of intranet and firewalls to prevent the spread of virus across facilities or equipment; it has installed endpoint anti-virus measures; it has developed and

deployed information security monitoring applications to monitor internal computers and alert of any security problems; it has stepped up detection of computer vulnerabilities and ensured that software programs are up-to-date; it has also enhanced detection of phishing emails and taught employees how to identify them. TSMC ensures the validity and legitimacy of information security protocols and procedures through regular reviews and evaluations, thereby minimizing information security risks and protecting the company from ever-evolving and ever-growing security threats.

### Training and Campaigns for PIP & Information Security

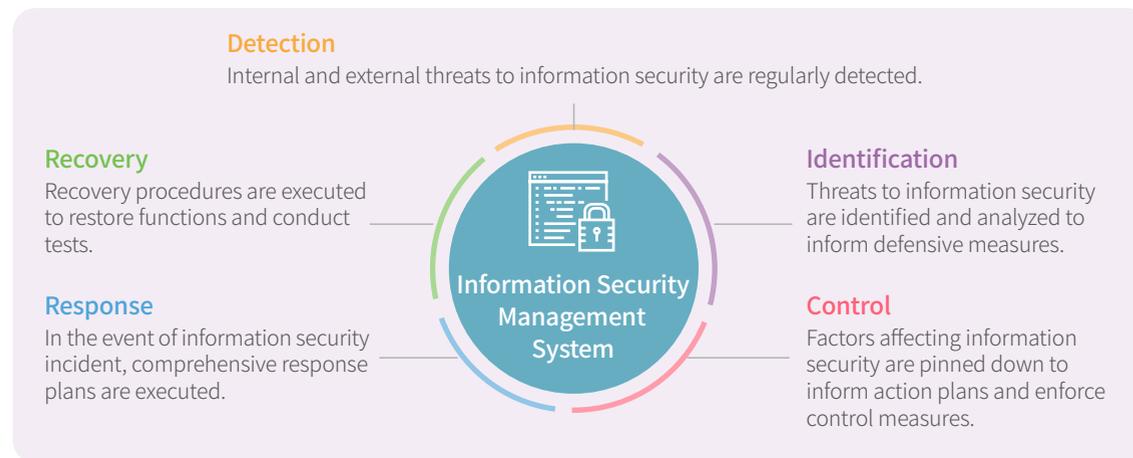
TSMC offers regular and diverse training programs and conducts continued promotion programs to impose PIP

awareness and obligations on all employees, making them recognize the importance of PIP and to equip them with the knowledge and capabilities needed to minimize the risk of information breach. For example, the Company has taught its employees how to identify phishing emails and provided clear guidelines to employees and contractors to avoid infractions of information security protocols. Furthermore, TSMC targets its efforts at employees by establishing internal PIP Working Committees in its organizations and functional units. In a total of 60 organizations, including TSMC's Taiwan facilities and overseas subsidiaries, PIP Guardians hold monthly meetings to keep track of situations on the ground, raise suggestions on information security for their organizations, and design PIP measures that meet the specific needs of their organizations, keep pace with changing conditions, and adapt to local circumstances. In addition, employees can raise their PIP concerns and report

information security incidents through a Helpdesk hotline or an online suggestion box. The reports will be handled and addressed by dedicated staff.

For suppliers, TSMC established Supplier's Chain Security Association in 2019, which holds Supply chain security interaction meeting with important suppliers that work closely with the company to discuss Proprietary Information Protection and information security policies and possible improvements. To protect the interest of both parties by avoiding information breach, TSMC launched a quarterly newsletter of TSMC Supply Chain Security Newsletter from the third quarter of 2019 to keep suppliers updated about any change in regulations and the newest announcements.

## Structure of Information Security Management System



## PIP and Information Security Incident Reporting





## 2019 Proprietary Information Protection Enforcement Report

### 95 Points

95 points average score for employees PIP engagement. Conducted a PIP engagement survey, collected over 40,000 surveys with over 85% response rate

### 14 PIP Micro-film

A PIP Micro-film Contest was held with 14 microfilms created, in which Vice President level or above executives reminded employees the importance of PIP to TSMC's competitive edge

### 24 PIP Posters

A total of 24 PIP posters were created to promote important regulations and announcements

### 48,000 Employees

Over 48,000 employees completed the annual PIP online refresher e-learning course

#### Course content

- Core concepts that underlie PIP policies
- Major events and new regulations in 2019
- Case studies on PIP regulatory violations
- Ways to check PIP regulations and seek consultancy if needed

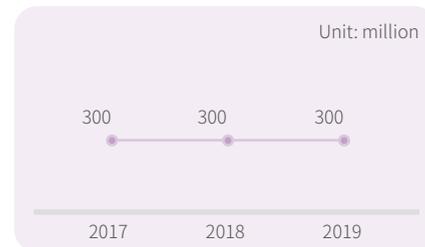
### 1 Fab achieved ISO 15408 certification

Fab 14B was successfully certified by the German Federal Office for Information Security (BSI) for ISO/IEC 15408-EAL6 under Common Criteria (Site Certification), thus becoming fully qualified to readily accept orders for security chips and high-security products



### 3 Million Checks

Number of PIP Inspections Conducted Each Month

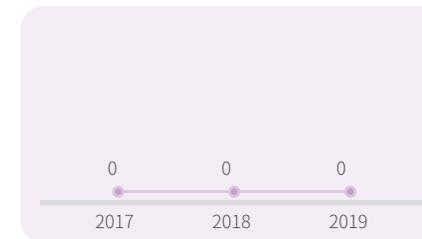


Approximately 3 million PIP checks conducted per month, including

- PIP contraband detection
- Entry control on premises
- Inspections on the handling of proprietary information
- Inspections on the use of emails
- Inspections of contractors' PIP practices

### 0 Case

Zero cases of customer information breach from information security incident



Note 1: 2019 PIP performance indicators cover TSMC's Taiwan facilities, TSMC (China), and TSMC (Nanjing)  
Note 2: To strengthen the protection of proprietary information, TSMC enforced inspection and detection measures for printed documents and physical security in 2019, resulting in a higher infraction rate than the year before

### 4 Customer Security Audits

TSMC assisted four customers in obtaining international security certifications for their products, and ensured their product information protection during manufacturing

### 100%

All new employees, a total of over 3,000 individuals, have completed PIP training courses

### 100%

All new vendors, a total of over 25,000 individuals, have completed PIP training courses

### 12 Regulations

Newly created or revised 12 PIP regulations

### 1.29%

1.29% of employees were caught violating PIP regulations and protocols<sup>Note 2</sup> and were given penalties consistent to the severity of damage caused by their violations. Penalties include demerit, warning, and suspension of duty. Major violation will result in termination of employment and lawsuit (i.e. Trade Secret Law)

**The main cause of violation:** personal negligence or practices not compliant to PIP protocols

#### Corrective measures

- Strengthen PIP promotion campaigns and training programs
- Reinforce control on data access and data distribution
- Reinforce control on document printing and data access
- Offer online consultancy service and training programs on new regulations



TSMC Delivers Unrivalled Manufacturing Flexibility

>12 Million

The output volume in 2019 exceeded 12M in 12-inch wafer equivalents

**Technologies**

2019	272
2018	261
2017	258

**Customers**

2019	499
2018	481
2017	465

**Products**

2019	10,761
2018	10,436
2017	9,920

