

Customer Responsiveness



Medium-term Goals Be the Sole Strategic Partner

Tokyo Electron helps customers manufacture cutting-edge devices by maintaining an accurate and timely grasp on customer needs and providing innovative technologies for future generations. As a production equipment company with a diverse product range, we propose optimal solutions contributing to value creation for customers. Making full use of state-of-the-art AI and digital technologies, we also provide high-value-added maintenance services that support the stable operation of equipment. We strive to further enhance customer satisfaction, which is a key management theme we have tackled since our founding, aiming to be the sole strategic partner for customers.

Main activities



Solutions that create value for customers

Systems for creating value for customers, Proposing customer solutions leveraging a broad portfolio of products



Ensuring safety for customers

Providing information to customers, Global expansion of training for customers, Safe design of equipment



Initiatives for field solutions

Field solutions business, Advanced logistics, Total Support Center, Knowledge management, Remote support system, Upgrading engineers' skills



Improvement of customer satisfaction

Customer satisfaction survey

SDGs initiatives



- Contribute to customer innovation generation and value creation through the proposal of optimal solutions and innovative technologies
- Ensure a sustainable form of production and consumption throughout product life cycles by considering safety and the environment
- Support the stable operation of various generations of equipment while further improving productivity and promoting reuse and recycling

Solutions that Create Value for Customers

Systems for Creating Value for Customers

The semiconductor market has been expanding significantly, driven by the acceleration of IoT, the global launch of commercial 5G services and the growth of device-to-device communication such as the automated driving of cars. In fiscal year 2021, faced with various regulations around the world as a consequence of the spread of COVID-19, including curfews, restrictions on travel and isolation measures, Tokyo Electron aggressively worked to maintain active communication throughout all the Group companies so that we could continue to develop our business while strengthening cooperation with our global business sites. We also expanded the use of remote tools and strived to further strengthen our systems to provide customers with seamless high-value-added solutions, not only in sales activities but also in service support.

Since 2018, we have worked to further strengthen our customer responsiveness through two divisions: our Account Sales Division, which leads to new technology development based on the needs of traditional customers of major semiconductor manufacturers for next-generation leading-edge technology such as memory, logic and foundry; and our Global Sales Division, which responds to the needs of more than 100 customers in Japan and overseas who deal in communication devices and image sensors for the IoT market as well as power devices and other products. By building stronger, close collaborative relationships with each business unit and, moreover, with overseas subsidiaries, our respective sales divisions quickly provide customers with the technology, support and solutions they need.

We accurately grasp the issues and requirements of our customers in their product development and manufacturing operations, and provide this as feedback to our main development and manufacturing sites in a timely manner. To this end, we are working to further improve the level of our engineers involved in equipment installation and maintenance, who act as a frontline link between our customers and us. We are also building a global organization and developing proactive, flexible operations in order to respond quickly and accurately to customer needs as markets change.

In addition, we are working to build globally unified systems and structures in order to further enhance and stabilize the quality of our service support activities. The Global Service Committee, a regular gathering of service leaders from relevant domestic departments and overseas subsidiaries, enhances information sharing and in-house coordination related to improving the technical skills and interpersonal skills of our more than 4,000 field engineers worldwide, the localization of startups and improving work efficiency using the work-time management system. At our Total Support Centers (TSCs¹), we operate our TELeMetrics^{TM2} remote maintenance service, and provide customers with high-value-added services by utilizing our wealth of knowledge and range of tools to propose customized solutions for the various challenges they face.



Proposing Customer Solutions Leveraging a Broad Portfolio of Products

In a market where applications for semiconductors are ever-expanding, in order to meet the needs of production sites, such as improved yield and improved equipment efficiency per-unit area through enhanced productivity and smaller footprints, we are practicing product development initiated from the customer perspective.

Two of our divisions work closely together in turning that perspective into products. Specifically, our Account Sales Division identifies customer demands for next-generation technology and beyond, and based on these, our Corporate Innovation Division reviews the requirements and converts them into actual, tangible products.

In addition to developing leading-edge technologies, we are also continuously improving the performance of our mass production equipment, so that we can proactively respond to the needs of our customers spanning multiple generations. In proposing solutions to customers, we leverage a broad portfolio of equipment, including those used in the series of key patterning processes requiring advanced technical abilities, such as deposition, coating/development, etching and cleaning. Through optimal solutions that incorporate systems and software in addition to production equipment, we seek to optimize the production process. We strive to develop products that help strengthen our customers' competitiveness by achieving a balance between faster and better-quality semiconductor production.

¹ TSC: Total Support Center. Refer to p. 23

² TELeMetricsTM: Refer to p. 24

Initiatives for Field Solutions

Field Solutions Business

In the area of semiconductors, as improvements are made in the performance of CPUs¹ and memory, as advances are made in miniaturization for mass production and as transistors used in autonomous driving systems and VR²/AR become increasingly integrated, demand is increasing across a wide range of fields, such as medical treatment, finance, transportation and manufacturing. To meet this demand, it is becoming extremely important for our customers to improve the utilization rate of their equipment.

We are working to further strengthen our field solutions business with the aim of ensuring that shipped equipment can operate stably in the market over a long period. We are engaged in promoting knowledge management in field service, continuously improving our field engineers' skills, and strengthening our global support system through Total Support Centers (TSCs). Furthermore, in order to comply with various regulations due to COVID-19, including restrictions on overseas travel and isolation measures when traveling internationally, we will help to maximize our customers' business operations by proceeding to develop remote maintenance support and educational tools.

Advanced Logistics

As demand grows for semiconductors in a wide range of industries, we are working hard to further strengthen our logistics to secure a stable supply of equipment and parts, not only in response to the spread of COVID-19 and unseasonably bad weather, but also from the perspective of our business continuity plan.

As part of building systems that enable us to provide customers with a continuous supply of equipment and parts, in March 2021, we began operation of our second logistics center in Japan, a 6,000 m² facility located in Funabashi City, Chiba Prefecture.

The center will be operated using third party logistics (3PL³), whereby both physical distribution and warehouse operations are outsourced to a single company, and in the future, in addition to considering expansion of the facility to cope with increased shipments, we will aim for an efficient and flexible logistics system capable of responding to change. The full-scale operation of this new logistics center will enable us to provide our customers in Japan with a more stable supply of equipment and parts. In the future, to further strengthen our response to overseas customers, we will continue to build our logistics, including the expansion of facilities.



1 CPU: Central Processing Unit. A typical component of a computer, alongside memory and hard disks.

2 VR: Virtual Reality. Technology that creates a virtual world resembling reality in a computer.

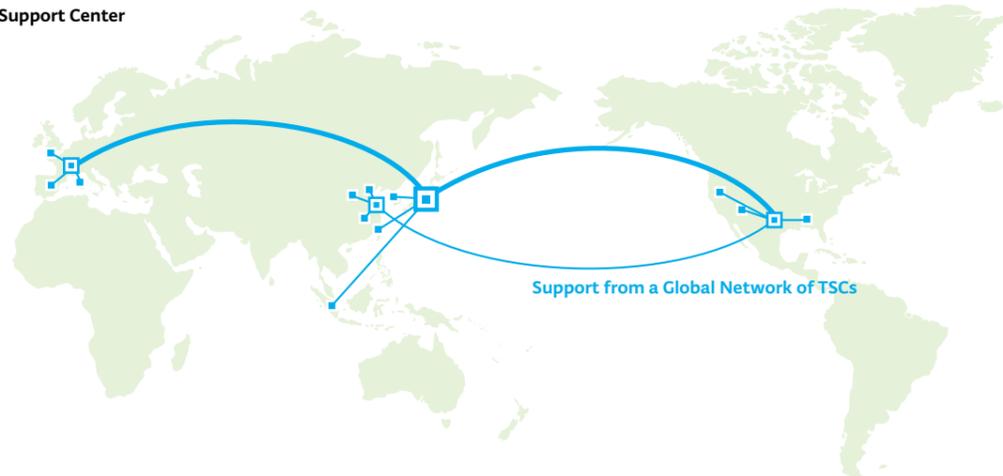
3 3PL: Third-Party Logistics. Arrangement whereby not only physical distribution but also warehouse operations are outsourced as a package.

Total Support Center

Having established Total Support Centers (TSCs) in Japan, the United States, China and Europe, we will support overseas subsidiaries through our global network centered around Japan.

At each TSC, dedicated representatives maintain and utilize a database of information about customers' equipment and examples of similar incidents. The TSCs also employ TElMetrics™ to perform remote maintenance. In fiscal year 2021, we established a system where TSCs around the world support each other, taking advantage of time differences in each region. These initiatives have enabled us to respond to inquiries and problems from customers around the world with greater speed and precision than ever before.

Total Support Center

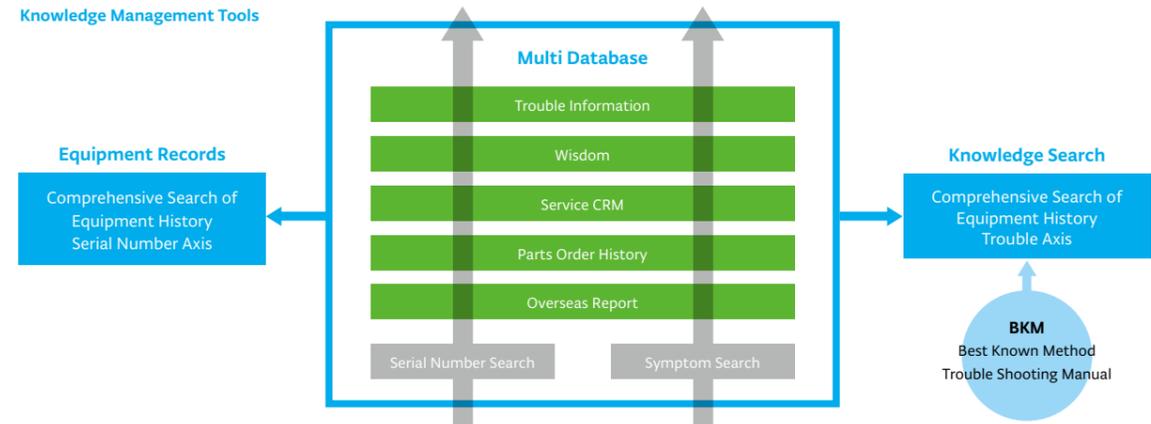


Knowledge Management

We promote knowledge management¹ throughout the entire Group so that we can deliver high-quality service swiftly to our customers. In the area of field service, we have built Service CRM² so that we can create a database and centrally manage customer equipment support and incident histories. Service CRM began operating in Japan in fiscal year 2020 and is currently being rolled out globally.

In addition, by taking advantage of knowledge management tools such as Equipment Records and Knowledge Search, comprehensive searches can be performed on multiple systems, helping to reduce the amount of time spent on work. Equipment Records enables batch searches of equipment work histories based on equipment serial numbers, including past repair information for customers and parts replacement histories. Knowledge Search, which was revamped in October 2020, enables users to enter keywords of equipment-related problems to carry out batch searches of files and documents saved in the database based on past trouble information. In fiscal year 2022, we are working on making the tools multilingual so that, in addition to Japanese and English, they can also support Korean and Chinese. Not only by increasing the number of languages supported to improve the work efficiency of our globally active field engineers, but also by promoting efforts to manage the various systems throughout the entire Group using One Platform³, we will strive to further improve our customer responsiveness.

Knowledge Management Tools



Remote Support System

We promote remote support using TElMetrics™ to minimize any downtime of production equipment, to detect abnormal operation before any major defect occurs and to support the stable operation of equipment.

With the growing need to support field engineers remotely due to travel restrictions and various state regulations as a consequence of the spread of COVID-19, we worked on developing an advanced remote support system whereby audio and video from a customer's manufacturing site can be shared in real time and the confidentiality of information can be better enhanced.

Starting in fiscal year 2021, we have also been working to enhance the convenience and quality of remote support by adding our own unique features to our existing smart glasses⁴ system, including information protection, restricted image transmission and phone translation.

Unique Features Added by Tokyo Electron

Information Protection Security feature for protecting information in case of loss or theft.	Restricted Image Transmission Information security feature whereby only necessary images are sent.	Phone Translation Feature that converts voice to text and displays a translation (multilingual support).	Dangerous Area Function Function that warns the wearer when approaching a preset dangerous area.
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Using smart glasses (image)

1 Knowledge Management: Management approach to promote internal company sharing of tacit knowledge held by individuals to encourage innovation and to improve overall productivity.

2 Service CRM: Service Customer Relationship Management.

3 One Platform: An initiative to manage information using a standardized database and system. Refer to Continuous Improvement of Business Operations on p. 28.

4 Smart glasses: Worn like an ordinary pair of glasses, smart glasses can display images and digital information through the glasses.

Upgrading Engineers' Skills

At our training operations center established in 2019 to enhance the training structure and globalization of field engineers, a group-wide common skills management system has been established that meets the standards of SEMATECH (a U.S. consortium for the joint development of semiconductors). The system helps us to deploy the most suitable human resources to provide customers with service based on an objective understanding of the skills of our engineers.

In fiscal year 2021, we began providing education for expert engineers to improve the skills of engineers at our overseas subsidiaries. The education includes training programs that enable technical support engineers from overseas to learn advanced development skills in a practical manner at our manufacturing sites in Japan. Furthermore, established in fiscal year 2021, our Global Data Engineering Team is also rolling out a program designed to train field engineers as data analysts specializing in Digital Transformation¹.

Ensuring Safety for Customers

Providing Information to Customers

Tokyo Electron is committed to providing sufficient safety information on our products to ensure that customers can safely use them. All products purchased by customers come with a TEL Safety and Environmental Guidelines manual. The manual describes examples of potential risks associated with using our products together with the methods for averting those risks, as well as safety measures applied to products and recommended methods for product disposal. It is divided into such categories as chemical, electrical, mechanical and ergonomic. The manual is available in 12 languages² to ensure that customers around the world can understand the content accurately and safely use the products. In addition to the TEL Safety and Environmental Guidelines manual, customers are also provided product-specific manuals tailored to the relevant product specifications.

If new safety warnings are identified after the product ships, we provide information to affected customers. We also strive to ensure that necessary information is communicated to any customers to whom we deliver products that involve the use of hazardous chemicals or high voltage electricity.



TEL Safety and Environmental Guidelines

Global Expansion of Training for Customers

We have established training centers all over the world, mainly at our development and production sites, and are providing customers with training on equipment operation and maintenance to ensure they are able to use the products safely. In fiscal year 2021, demand for Web-Based Training (WBT) and Remote Training³ increased as a result of the difficulty in holding equipment training on-site because of COVID-19.

While we have started remote training for much of our equipment, we are working to improve the content and quality of our WBT and remote training by sharing the equipment and methods we introduced with each of the training centers. Going forward, we will continue to give priority to customer safety as we promote further development of our training environment.

Safe Design of Equipment

Taking the entire product life cycle into consideration, we carry out product risk assessments as early as possible in the development phase. Based on the assessment results, we implement safe equipment design⁴ to reduce the risks posed to humans. We also examine and ensure compliance with increasingly strict laws and regulations around the globe, and have a system in place for all safety regulations of the regions where our equipment is delivered.

We conduct compliance checks through third-party assessment bodies on the equipment we ship to ensure compliance with international safety standards such as SEMI S2⁵ and CE-Marking⁶. Additionally, we work with overseas subsidiaries to take appropriate measures to comply with the laws and regulations of each country and region.

¹ Digital Transformation: Refer to p. 19

² 12 languages: Japanese, English, German, French, Italian, Dutch, Russian, Portuguese, Korean, Traditional Chinese, Simplified Chinese and Finnish

³ Remote Training: A training course, although remote, taken by trainees using actual equipment while interacting with the instructor in real time

⁴ Safe equipment design: A design concept that eliminates the cause of the machine's harm to humans through the safety design of the machine

⁵ SEMI S2: This is a set of environmental, health and safety guidelines for semiconductor production equipment. It is used mainly by the leading manufacturers of semiconductor equipment in the United States and Europe, not only for semiconductors but also as safe procurement guidelines for electric and electronic device manufacturing equipment around the world.

⁶ CE marking: When exporting into the European Union, CE marking defines rules for displaying a CE mark as proof that the equipment is safe and complies with EU-defined rules (Directives).

Improvement of Customer Satisfaction

Customer Satisfaction Survey

We conduct a Customer Satisfaction Survey (TEL CS Survey) every year with the goal of making continual improvements based on customer feedback. The survey started in fiscal year 2004, aimed at just a limited number of divisions. It was expanded to include all semiconductor production equipment divisions in fiscal year 2014, and later the flat panel display production equipment division and overseas subsidiaries in fiscal year 2016, and currently, it is implemented company-wide as the Customer Satisfaction Survey Program (CSSP).

Under the CSSP, we survey customers once a year, at the same time each year, and ask specific questions that will lead to improvements on a practical level. Information obtained from the survey is analyzed by business unit (product), account (customer) and function (software, development, etc.), and the results of this are shared with relevant divisions, such as sales, equipment/plants and service, to implement actions for improvement. Improvements are also made continuously to all aspects of the survey method, including the questions asked, the analytical methods used, and the overall operation of the survey activities.

In the TEL CS Survey for fiscal year 2021, responses were received from approximately 1,400 individual customers (70.2% of all customers), and 96.7% of all survey items received a score of 3 points or higher (Very Satisfied or Satisfied¹), which is our annual CSR goal. This marked an improvement of 3.4 percentage points from fiscal year 2020. When we receive an evaluation of 1 point (Very Dissatisfied), we respond to the customer as quickly as possible as part of a Shift Left approach to implementing early-stage improvements throughout the survey process. Going forward, we will continue to aim for 3 points or higher for 100% of the questions asked, and the entire company will work as one to implement customer-driven improvements.

Improvement Example

At a business unit that handles one of our product lines, the results for fiscal year 2018 fell below a score of 3 points in all three divisions (sales, equipment/plants and service), so we have been working on various improvements. Based on the results of the TEL CS Survey, the Management Council immediately reviewed the results and formulated KPIs², and has since monitored the situation every quarter. The following improvement measures have been implemented for issues identified for each customer in past survey results.

- Explain our strategies to customers to gain their understanding
- Improve the frequency of customer visits
- Form an internal task force to make continual improvements for equipment-related issues
- Promote direct communication between customers and our engineers
- Clarify ownership of each issue at a meeting to address issues, etc.

By going through the PDCA cycle for these improvement measures, we were able to achieve a target score of 3 points or higher in the sales, equipment/plants and service divisions in the survey for fiscal year 2021. As a result, these improvements have led to stronger products and we were able to confirm that overall customer satisfaction for our company has improved.



¹ On a four-point scale, 3 points or higher represents "Very Satisfied" or "Satisfied"

² KPI: Key performance indicator. An evaluation indicator for managing the progress of improvements