Responsiveness to customers

Medium-term goals

Become the best and sole strategic partner

Tokyo Electron (TEL) 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 comprehensive solutions contributing to value creation for customers. Making full use of state-of-the-art AI technologies and knowledge management tools, we also provide high-value-added maintenance services that support the stable operation of various generations of equipment. TEL strives to further enhance customer satisfaction, which is a key management theme it has tackled since our founding, aiming to be the best and sole strategic partner for customers.

Main activities

Solutions that create value for customers

Initiatives for field solutions

Ensuring safety for customers

Improvement of customer satisfaction

- Solutions that create value for customers
  Building systems for creating value for customers, Proposing customer solutions leveraging a broad portfolio of products
- Initiatives for field solutions
  Field solutions business, Development and production of upgraded models, Work optimization, Knowledge management, Total Support Center
- Ensuring safety for customers
  Improving in-house skills, Information provision, Global expansion of training for customers, Safe equipment design
- Improvement of customer satisfaction
  Customer satisfaction survey

SDGs initiatives

- Contribute to customer innovation generation and value creation through the proposal of comprehensive solutions
- Ensure a sustainable form of production and consumption throughout product life cycles by responding to diversifying needs, considering safety and the environment

Industry, innovation and infrastructure

Responsible consumption and production

Partnerships for the goals

SUSTAINABLE DEVELOPMENT GOALS

Solutions that create value for customers

Building systems for creating value for customers

The semiconductor market has been expanding rapidly in recent years, driven by IoT, 5G, automotive automation, and other innovations. Tokyo Electron (TEL) is building an organization to realize more effective global operations, providing the best technologies and services to meet customer needs as the market changes.

Since 2018, we have worked to 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 cutting-edge technology such as memory, logic, and foundry; and our Global Sales Division appropriately addresses the needs of more than 100 new customers in Japan and overseas in such fields as electrical appliances, automobiles, medical treatment, and healthcare. By building stronger, close collaborative relationships with each business unit and moreover with each overseas subsidiary, our respective sales divisions provide customers with swift, high-quality support and solutions.

We are working to build globally unified systems and structures in order to further enhance and stabilize the quality of our service and support activities. The Global Service Committee, a regular gathering of the service leaders of each department and each overseas subsidiary, enhances information sharing and in-house coordination, including improving the technical skills and interpersonal skills of our more than 4,000 field engineers worldwide, the localization of start-ups, and improving work efficiency using the work-time management system. Furthermore, through TELeMetrics™ [1], a remote maintenance service offered through our Total Support Centers (TSCs[2]), we provide customers with higher-value-added services, by utilizing our wealth of knowledge and range of tools to enable us to propose customized solutions services for the various challenges they face.

1 TELeMetrics™: Refer to p. 24.

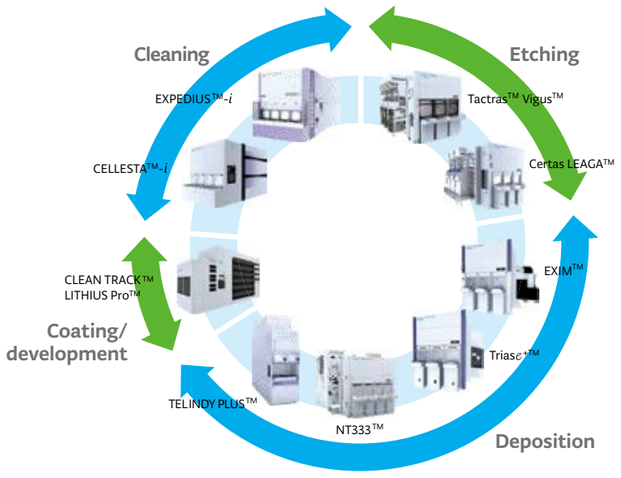
2 Total Support Centers (TSCs): Refer to p. 24.

Proposing customer solutions leveraging a broad portfolio of products

Because semiconductors and FPDs are becoming increasingly sophisticated and diverse, 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, TEL's product development is initiated from the customer perspective.

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

In proposing solutions to customers, we leverage a broad portfolio of equipment, including those used in the series of key patterning processes requiring advanced levels of technology, such as deposition, coating/development, etching, and cleaning. Through total 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.



Initiatives for field solutions

Field solutions business

As progressive improvements are made in the performance of CPUs[1] and semiconductor memory, as advances are made in miniaturization for mass production, and as transistors used in autonomous driving systems and VR/AR[2] become increasingly integrated, there is a need for semiconductors across a wide range of fields, such as medical treatment, finance, transportation, and manufacturing. Extending the life cycle of products is another challenge, evidenced by the growing demand for the long-term stable operation of semiconductors for automobiles and industry.

Tokyo Electron (TEL) is working to further strengthen its field solutions business to ensure that shipped equipment can operate stably in the market over a long period. We are engaged in various initiatives to help maximize our customers' business operations, including promoting knowledge management in field service, continuously improving our field engineers' skills, strengthening our global support system through Total Support Centers (TSCs), and expanding upgraded models.

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

2 Virtual Reality (VR): Technology that creates a virtual world resembling reality in a computer
Augmented Reality (AR): Technology that uses computer graphics (CG) and so on to reflect (augment) virtual reality in the real world

Development and production of upgraded models

In order to meet the needs of customers producing IoT-related products, TEL has established a system for developing and producing new upgraded models based on previous-generation equipment supporting 200 mm wafers. Upgraded models help customers to improve productivity and reduce environmental impact by replacing old units and parts with new ones while maintaining compatibility with existing processes and offering performance in terms of transfer speed and so on at the same level as the latest equipment. In fiscal year 2021, we began selling upgraded models of ALPHA-8SE™ [3] and UNITY™ Me[4], systems for peripheral devices that we had previously sold as new equipment. We also began developing upgraded models of coating/developing equipment and cleaning equipment for 200 mm wafers.

3 ALPHA-8SE™: A batch thermal processing system that can accommodate low-temperature to high-temperature processes

4 UNITY™ Me: A dry etch platform developed by TEL for wafers up to 200 mm

5 CUE: Certified Used Equipment

TEL's lineup of small-diameter equipment

Upgraded model complete / Upgraded model under review / * All models CUE[5] compatible

ALPHA-8SE™ i	NS300+ 200 mm Conversion	CLEAN TRACK™ ACT™ 8	UNITY™ Me+
Thermal Processing System	Cleaning System	Coater/Developer	Plasma Etch System
• 150/200 mm • Diffusion • LP-CVD • ALD	• 200 mm • 150 mm (2021–) • Front/Back scrubber	• 75/100/150/200 mm • I-line, Krf, ArF • SOG/SOD, PI	• 100/150/200 mm • Oxide, Nitride, Si, SiC

Work optimization

To improve the work efficiency of field engineers worldwide, and to enhance service quality and streamlining personnel, TEL uses globally common timesheets to conduct detailed work-time management and analysis for each location and product. In addition, intent on further improving work efficiency, we have been particularly focused on reviewing work where considerable improvement is likely based on the types of tasks undertaken by engineers and the time taken, such as work involved in starting up equipment and repair work.

Knowledge management

TEL promotes group-wide knowledge management[1] so that it can deliver high-quality service swiftly to its customers.

In the area of field service, we have been working on globally implementing Service CRM[2] so that we can create a database and centrally manage customers' equipment records (support and incident history). Having started in Japan in fiscal year 2020, Service CRM is being progressively expanded in Singapore and Europe in fiscal year 2021. Accessible to field engineers around the world, it allows us to increase the volume of operational knowledge data. It enables us to respond to calls from customers faster and more accurately efficiently. In addition, regarding our system that allows engineers to perform natural language searches (Japanese, English, and Chinese) for information they require from the vast amount of accumulated technical documentation, efforts have been made to improve the accuracy of searches by utilizing AI in image recognition and natural language processing. As a result, knowledge relating to incidents can be readily searched, and predictions concerning the cause of events can be made with greater accuracy.

Going forward, as we promote efforts to manage the various systems throughout the TEL group using One Platform[3], we remain committed to further improving the efficiency of our customer responsiveness.

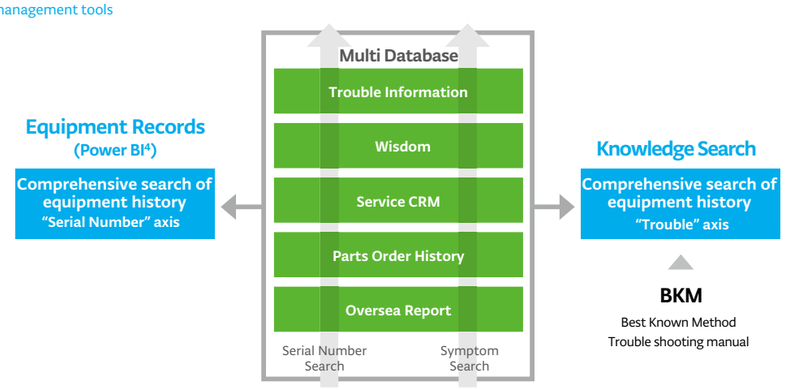
1 Knowledge management: Management approach to promote internal company sharing of tacit knowledge held by individuals, in order to encourage innovation and to improve overall productivity

2 Service CRM: Service Customer Relationship Management

3 Efforts to manage systems using One Platform: Refer to p. 28 "Continuous improvement of business operations."

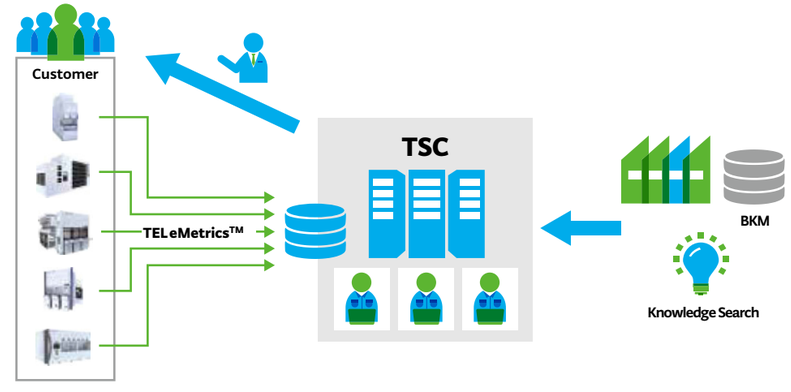
4 BI: Business Intelligence

Knowledge management tools



Total Support Center

TEL has built a global support system, establishing Total Support Centers (TSCs) in Japan, the United States, and China. At each TSC, dedicated representatives maintain and utilize a database of information about customers' equipment and examples of similar incidents. The TSCs also employ TELeMetrics™ to perform remote maintenance. These systems facilitate collaboration between the TSCs, field engineers, and plants, helping us to respond promptly and appropriately to customer inquiries and any problems that arise.



Ensuring safety for customers

Improving in-house skills

In October 2019, we established a training operations center to enhance the skills management, training structure, and globalization of field engineers. Having built a group-wide skills management system in accordance with SEMATECH (a U.S. consortium for the joint development of semiconductors), we deploy the most suitable human resources to provide customers with service, based on an objective understanding of the skills of our engineers. We are also committed to continuously reviewing and improving our training curricula and content from a global perspective, including establishing a system whereby field engineers can choose the training programs they need to attend in order to improve their skills.

Information provision

Tokyo Electron (TEL) is committed to providing sufficient information on its products to ensure that customers can safely use the products. All products purchased by customers come with a TEL Safety and Environmental Guidelines manual. The manual describes 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 languages[1] to ensure that customers around the world can understand the content accurately and safely use the products. Customers are also provided product-specific manuals tailored to the relevant product specifications.

If new safety warnings become apparent after a product ships, we contact affected customers individually and share that information with them.

TEL Safety and Environmental Guidelines

We also pay close attention to safety when delivering products that involve the use of hazardous chemicals or high voltage electricity. Furthermore, when delivering products to a customer's new production line, in accordance with TEL regulations, we thoroughly consider all safety aspects beforehand by checking the customer's facilities, equipment, safe work standards, and so on.

Global expansion of training for customers

TEL has established training centers all over the world, mainly at its development and production sites, and is providing customers with training on equipment operation and maintenance to ensure they are able to use the products safely. In July 2019, we opened a new training center at Tokyo Electron Korea. Using actual equipment, practical training is being rolled out at training centers globally, delivered by about 50 dedicated instructors whose skills have been recognized by our own internal certification system. In addition, we also implement online education as well as on-site training at customer's plants.

By conducting online surveys in order to respond more quickly to our customers' needs, and by collecting and analyzing customer feedback, we are working to improve the content of our training programs and the equipment used. Going forward, we will continue to give priority to customer safety as we put effort into further developing our training environment.

Safe equipment design

Taking the entire product life cycle into consideration, TEL carries out product risk assessments as early as possible in the development phase. Based on the assessment results, we implement safe equipment design[2] 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.

Equipment shipped from TEL is checked by a third-party inspection organization to ensure that it complies with international safety standards such as SEMI S2[3] and CE marking[4]. We also obtain Certificates of Conformity (CoC) from Notified Bodies in Europe in line with the Machinery Directive and EMC Directive[5]. In addition, we are actively working to comply with KC Mark, KCs Mark, and other certifications as Korea, China, and elsewhere in the Asian region strengthen their safety laws and regulations.

1
12 languages: Japanese, English, German, French, Italian, Dutch, Russian, Portuguese, Korean, Traditional Chinese, Simplified Chinese, and Finnish

2
Safe equipment design: A design concept that eliminates the cause of the machine's harm to humans through the safety design of the machine.

3
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 ICs but also as safe procurement guidelines for electric and electronic device manufacturing equipment around the world.

4
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).

5
EMC Directive: This is one of the New Approach Directives that apply to the 27 EU member states. This directive applies to all electric and electronic devices that are at risk of being disturbed by electromagnetic interference or that may interfere with other equipment. The current directive is 2014/30/EU.

Improvement of customer satisfaction

Customer satisfaction survey

Tokyo Electron (TEL) conducts 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. Results from the survey are analyzed by product, account (customer), and function (software, development, etc.), and given as feedback to customers. We also share the results with relevant divisions, such as sales, production, and support, and implement initiatives 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 customer satisfaction survey for fiscal year 2020, responses were received from approximately 1,400 individual customers, which is 69.5% of all customers. We received evaluations of three points or higher* on 93.3% of all questions asked.

When we receive an evaluation of one 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 three points or higher for 100% of the questions asked, and the entire company will work as one to implement customer-driven improvements.

* On a four-point scale, three points or higher represents "Very Satisfied" or "Satisfied"

Improvement example

As a result of the customer satisfaction survey, issues that would not normally be identified were brought to light, and persons-in-charge and managers at TEL, who are in direct contact with customers, made improvements with the cooperation of the relevant divisions. This led to improved evaluations of three points or higher for the question relating to software support for problem-solving, which was one of three questions we focused on during fiscal year 2020. We believe these improved evaluation scores from customers result from our efforts to enhance support for software operating across multiple pieces of equipment, which we have been working on for some time.