Chapter 3 | Value Creation by the Value Chain

**Initiatives in the Value Chain**

Tokyo Electron is building a superior business model that takes advantage of our company’s characteristics, and is continuing to create value through sustainability initiatives and a series of business activities.

**Research and Development**
- P. 27
  - Overview
    - Development of innovative and unique technologies for creating high-value-added, next-generation products that will be needed by customers in the future
    - Continuous development that looks into the future based on the prompt comprehension of market and technological trends, as well as customer needs
  - Differentiation Points
    - Optimization of R&D by maintaining close collaboration between the Corporate Innovation Division and the development divisions at individual sites
    - Development of leading-edge technologies through various types of collaboration with consortiums and academia in Japan and overseas
    - Pursuit of development efficiency and new value creation by promoting digital transformation (DX)
  - Value Created
    - High-value-added, innovative, and unique technologies
    - Improvement in equipment productivity, such as higher throughput, a higher utilization rate and smaller space requirements
    - Equipment technology that increases environmental performance

**Procurement and Manufacturing**
- P. 29
  - Overview
    - Establishment of stable production capabilities by building a sustainable supply chain
    - Efficient manufacturing of high-quality, high-reliability, safe and environment-friendly products
    - Creation of value through partnerships with suppliers
  - Differentiation Points
    - Business expansion based on relationships of mutual trust with suppliers who possess high-quality and technological capabilities
    - World-class manufacturing operations through the use of our manufacturing know-how, knowledge and the equipment data we have accumulated over many years
    - Aiming for productivity and efficiency by creating production systems that respond swiftly to market fluctuations
  - Value Created
    - High-quality and high-reliability products incorporating leading-edge technologies
    - Shortening of production lead times by further improving the accuracy of the production plan and increasing the efficiency of manufacturing operations
    - Safety-first operation

**Sales**
- P. 31
  - Overview
    - Be the sole strategic partner for customers by providing the Best Products and Best Technical Service
    - Proposals on optimal solutions that contribute to the creation of value for our customers
  - Differentiation Points
    - Early comprehension of the needs of customers based on a solid relationship of mutual trust and incorporating those needs into product development
    - Ability to suggest solutions by taking advantage of a wide range of product lineup and to satisfy a broader range of customer needs with used equipment and re-engineered equipment
    - Continuous initiatives to improve the customer satisfaction level
  - Value Created
    - High-value-added products incorporating innovative technologies by simultaneous parallel evaluation of four technology nodes
    - Products that address a variety of applications, as well as used equipment and re-engineered equipment
    - Customer responsiveness based on the deployment of global operations

**Installation and Maintenance Services**
- P. 33
  - Overview
    - Deploying the Best Technical Service with high added value in a prompt and appropriate manner
    - Strengthening of our global support structure to provide advanced field solutions that solve customers’ issues
  - Differentiation Points
    - Field engineers who are highly specialized and possess broad knowledge
    - Providing highly efficient and high-quality services by a remote maintenance service, etc.
    - Enhancing productivity by promoting knowledge management and utilizing AI, digital technology, etc.
  - Value Created
    - Comprehensive services that include everything from equipment delivery to post-sale maintenance
    - Contribution toward the long-term steady operation of equipment across many generations
    - High-quality technical services that contribute to improving customers’ productivity
We are taking on the challenge of developing our own unique technologies through basic and applied R&D as well as through utilizing in-house and outside knowledge, while always remaining conscious of the most current customer needs.

We are creating innovative and unique technologies for manufacturing leading-edge semiconductors and flat panel displays (FPDs) by ascertaining technological and market trends as well as customer needs early on by leveraging global marketing activity networks and sharing that information throughout all relevant departments. Through development portfolio management, we are formulating short-term as well as medium- to long-term development strategies and progressing various types of basic and elemental R&D toward the next growth phase. Additionally, we are continuing to develop technologies that will help customers create value through worldwide collaboration with domestic development bases as the core as well as through strengthening our R&D capabilities through alliances with outside consortia, research institutes and academia.

**Key Themes for Medium- to Long-term Value Creation**

- **Timely development of high-value-added technologies and products through promotion of Shift Left**: This involves testing performance and quality from an early stage of the development life cycle to reduce reworking in the latter stages.
- **Creating innovative and unique technologies for manufacturing leading-edge semiconductors and FPDs**: Activities include the development of innovative and unique technologies for manufacturing leading-edge semiconductors and FPDs.
- **Increasing investment in human resources and development**: This includes providing an appropriate intellectual property portfolio.

**Management Resources to Be Invested**

- **R&D investment over three years, beginning in fiscal 2020**: More than 400 billion yen.
- **R&D sites**: 12 (5 in Japan and 6 overseas).
- **Human resources possessing knowledge in a variety of specialized fields related to semiconductor and FPD production equipment**.
- **Reduction in CO2 emissions from products**.

**Primary Management Indicators**

- **Cost of development and return (ROI)**.
- **New products for next-generation technologies as a percentage of all equipment models**.
- **Reduction in CO2 emissions from products**.

**Sustainability Initiatives**

- **Initiatives related to product environment**.
- **Future-oriented development of environmental technologies**.
- **Initiatives related to Recommendations of the Task Force on Climate-related Financial Disclosures (TCFD)**.
- **Structure to promote innovative development that takes advantage of global diversity**.
- **Development efficiency improvement through the promotion of DX**.

**Risk Management Initiatives**

- **Main Risks**.
- **Initiatives**.

**Intellectual Property Rights**

- **Dechipping product competitiveness**.
- **Dechipping product competitiveness Disappearance of liability**.

**Human Resources**

- **Enhanced product development capability and customer support quality**.
- **Make ongoing improvements to work environments and promote health and productivity management, including having top management share direction through regular employee meetings, establishing training plans for the next generation of human resources, visualizing career paths for employees and offering attractive remuneration and benefits**.

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**Chapter 3 Value Creation by the Value Chain**

**Main Research and Development Initiatives**

**Strengthening Research and Development Capabilities**

One of the important themes we uphold is continuous creation of high-value-added, next-generation products that will be needed by customers in the future. To make this happen, we have a dual structure for development. The development divisions at individual sites and the Corporate Innovation Division jointly promote both the progress and improvement of technology in both the areas they manage and newer areas, collaborating where necessary while maintaining their respective individuality. The development divisions at individual sites are focusing on improving functions in the product areas they manage as well as in peripheral areas, and also developing technologies and systems to be installed in products intended for use in manufacturing vastly evolved future-generation semiconductors and FPDs.

The Corporate Innovation Division works closely with the development divisions at individual sites to maintain consistency in each product area and focuses on further high-value addition by optimizing research and development while maintaining a bird’s-eye view of the entire development structure. At the same time, the division is also engaged in a search for potential growth areas, as well as in research and development of fundamental technologies toward creating new value in the future.

**Global Alliance**

To promptly comprehend leading-edge technological trends and link them to stronger R&D capability and productization, we are advancing various types of collaboration with consortia and academia in Japan and overseas.

With research institutes and universities in Japan, we are primarily developing basic and fundamental technologies. In Europe, we are conducting joint research at leading-edge research facilities at some of the world’s largest international institutes, in an effort to develop leading-edge processes, including next-generation patterning technologies. In the United States, we are participating in a consortium specializing in nanotechnology and are conducting joint research on new-generation AI chips, neuromorphic devices modeled after human neural circuits, and three-dimensional stacking technology, which is attracting attention as a new integration technology.

**Promotion of Digital Transformation (DX)**

Prioritizing DX as an important means for continuing to provide new value to customers, we are promoting it company-wide. Tangible results are definitely showing up in research and development, including the realization of remote support using AI technology. We are also advancing initiatives targeted at providing new value to customers, such as the search for new materials and achievement of process optimization at overwhelming speeds by utilizing materials informatics.

In 2020, we opened TEL Digital Design Square, a DX-focused site, in Sapporo, Japan. We are establishing an environment in which data scientists can thrive, and are also providing education and training on DX knowledge and methods to support engineers in the individual divisions in creating innovation in their work.

We plan to continue promoting DX and the utilization of things such as AI in solving a variety of issues and developing functions, and

**Development Activities**
Along with striving to build a sustainable supply chain, we have established a system for manufacturing high-quality products more efficiently.

To ensure stable and sustainable procurement, we carry out CSR and BCP assessments throughout the supply chain based on industry codes of conduct, as well as share knowledge with our suppliers regarding safety, quality, the environment and compliance. We value fair and transparent relationships with our suppliers and aim to grow alongside them and contribute to society on a global level through firm relationships based on trust.

Key Themes for Medium- to Long-term Value Creation
- Creating production systems and capabilities appropriate for the market size
- Optimizing management resource allocation to truncate the transition period from product development to mass production
- Streamlining manufacturing operations with consideration toward the operating margin and ROE

Management Resources to Be Invested
- Many years of know-how in semiconductor/FPD manufacturing
- Product Lifecycle Management System based on the latest digital technology
- Firm trust-based relationship with our suppliers
- Production lead times
- Procurement stockout rate
- Direct and indirect manufacturing costs
- Production lead times and leveling

Primary Management Indicators
- Direct and indirect manufacturing costs
- Production lead times
- Procurement stockout rate
- Quality: Continuous improvement of Business Operations
- Safety: Zero accidents and zero defects

Risk Management Initiatives

<table>
<thead>
<tr>
<th>Main Risks</th>
<th>Initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procurement, Production and Supply</td>
<td>Reduce delays in the supply of products</td>
</tr>
<tr>
<td>Safety</td>
<td>Reduce occurrence of safety-related problems and liability for damages, and a decline in quality</td>
</tr>
<tr>
<td>Quality</td>
<td>Ensure non-conformance rates and auditing suppliers’ quality systems</td>
</tr>
<tr>
<td>Environmental Issues</td>
<td>Reduce the environmental impact of the product life cycle</td>
</tr>
</tbody>
</table>

Sustainability Initiatives
- Quality control in manufacturing
- Promoting sound supply chain management based on industry codes of conduct
- Initiatives for reducing CO2 emissions and utilizing renewable energy at plants and offices
- Medium- and Long-term Environmental Goals
- Shortening of production lead times and leveling

Aiming for Productivity and Efficiency
We are creating a production system that centralizes all production-related information and can respond swiftly to market fluctuations. In addition, we have implemented a core manufacturing execution system (MES) that utilize the latest digital technology to strengthen our IT infrastructure and computerize field data. By utilizing the aggregated data in each business operation, we can quickly detect data needed for business decisions, make production schedules more reasonable and more efficient, visualize delivery dates for parts and achieve stronger coordination between sales planning and procurement/inventory planning. In addition, based on BOM information, we have established production capabilities (flowlines) for performing work in an accurate and efficient manner according to the schedule expected by the customer, while ensuring appropriate availability of materials and staff.

Main Procurement and Manufacturing Initiatives

Initiatives with Suppliers
In addition to conducting STQA when beginning transactions with new suppliers, we conduct annual surveys with regard to CSR, BCP, conflict minerals and environmental laws and regulations, and we work with our suppliers to promote improvement activities based on the survey results. We also hold production update briefings and TEL Partners Day on a regular basis to create opportunities to share market trends, our management policy and business policies, and CSR initiatives with our suppliers.

Procurement policies based on each country’s laws and regulations, social norms and industry codes of conduct are disseminated internally and externally to relevant parties, and compliance is encouraged. In addition, as a BCP measure, we have created a database of manufacturing sites for procured items and have established a system that enables us to quickly confirm the damage sustained in the event of a disaster and promptly begin restoration activities. We are also striving to improve the quality of procured items by clarifying the required specifications for procurement.

Manufacturing Operations
We have key manufacturing sites in Japan. We are constantly striving to innovate in production and further improve profitability while engaging in the strategic development of world-class manufacturing operations through the use of our manufacturing know-how, knowledge and the equipment data we have accumulated over many years.

In assembly, adjustment, inspections and other processes, we have implemented in-process quality control consisting of thorough screening, simulation verification and so on to prevent non-conforming products from making it through to subsequent processes. In the manufacturing process, which consists of a combination of procurement from suppliers and our own operations, we meticulously control the quality of procured products and are working to build a resilient supply chain that can guarantee stable procurement.

In addition, each manufacturing site is working to shorten the transition period from product development to mass production, and improve product quality by strengthening production capacities, optimizing inventory and reducing management resources involved in mass production and realizing them to product development.

STQA Activity Model

1. STQA: Supplier Total Quality Assessment. An assessment that focuses on industry codes of conduct, cost reduction, higher productivity and quality

Business, which involves a wide range of parts, has introduced automated warehouses and a warehouse and shipping navigation system, as well as automated inspections to save on human labor and increase efficiency.

1. MES: Manufacturing Execution System. A system that monitors and controls the work of machinery and workers by transmitting the results of the factory production line
2. BOM: Bill Of Materials. A list of the parts that control a product, showing the hierarchical structure as well as including basic information on each part, such as from which parts the product is assembled.
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We propose optimal solutions that contribute to the creation of value for our customers in order to be the sole strategic partner.

Since our company’s inception, improvement of customer satisfaction has been a significant management theme. We will build strong, trust-based relationships with our customers by providing the Best Products and Best Technical Service in order to be their sole strategic partner.

We help customers manufacture leading-edge devices by grasping the latest technological trends and customer needs in an accurate and timely manner, as well as developing innovative technologies for future generations.

In addition, by leveraging our strengths as a device manufacturer with a diverse product lineup and the experience and high level of quality we have cultivated over many years, we propose optimal solutions that contribute to the creation of value for our customers. Moreover, by focusing on sales of used equipment and re-engineered equipment, we can meet a wider range of customer needs and help maximize their return on investment.

Key Themes for Medium- to Long-term Value Creation
- Improving our responsiveness to customers and customer satisfaction
- Increasing mutual profits by providing the Best Products and Best Technical Service
- Improving our position among our major customers

Management Resources to Be Invested
- A global sales and service system in which business units, the Account Sales Division, the Global Sales Division and overseas subsidiaries coordinate with one another
- Joint development evaluation equipment for promoting on-site collaboration with customers
- Broad-ranging knowledge and comprehensive technological capabilities born from our diverse product lineup

Primary Management Indicators
- Customer satisfaction
- Market share of major customers
- Operating margin

Sustainability Initiatives
- Initiatives for improvement of customer satisfaction
- Ongoing efforts to ensure customer safety
- Reducing CO2 emissions from product usage by addressing Medium- to Long-term Environmental Goals
- Improvement of operational efficiency in sales activities

Main Sales Initiatives

Product Feedback that Reflects Accurate Understanding of Customer Needs
By collaborating with customers to create technology roadmaps spanning multiple generations, we can identify customer needs early on and reflect them in R&D for the next generation and beyond. This allows us to offer highly competitive products that help improve the yield rate of devices and maximize equipment utilization rate. We are also strongly promoting on-site collaboration to deliver value-added machines to customers’ fabs and laboratories at an early stage, and are working to optimize products and shorten the time from technology development to mass production.

To carry out these activities efficiently, global operations (> One-TEL), are being rolled out by an organic organization consisting of business units, the Account Sales Division, the Global Sales Division, development and manufacturing divisions, service divisions, overseas subsidiaries and other entities.

Improvement of Customer Satisfaction
We are working to build a solid relationship of mutual trust with customers by further enhancing customer satisfaction, which we have valued highly since our founding. As an indicator for this effort, for many years we have been conducting a unique company-wide customer satisfaction survey (TEL CS Survey) at the same time every year to promote ongoing improvements to our business practices.

In the customer satisfaction survey for fiscal 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 three points or higher (Very Satisfied or Satisfied). This marked an improvement of 3.4 percentage points from fiscal 2020. 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, plants, service and overseas subsidiaries to implement actions for improvement.

* On a four-point scale, three points or higher represents “Very Satisfied” or “Satisfied”
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**Value Chain Initiatives**

**Installation and Maintenance Services**

We have established a global support system to provide the Best Technical Service with high added value in a prompt and appropriate manner.

For installation and equipment maintenance, we take advantage of a cumulative number of equipment installations of approximately 76,000 units to offer the Best Technical Service with high added value.

We make full use of leading-edge AI, digital technology and knowledge management tools, and promote enhanced efficiency for our services to support the stable operation of various generations of equipment for a wide variety of applications.

By refining the skills of the front-line engineers who interact with customers, we work hard to accurately identify customer needs and provide timely feedback to our development and manufacturing operations. In addition, we are making efforts to further improve the quality of our services through the provision of advanced field solutions, such as by constructing a global support system via our Total Support Center (TSC) and enhancing remote support through our remote maintenance service.

**Key Themes for Medium-to Long-term Value Creation**

- Improvement of customer satisfaction through the provision of high-value-added services
- Maximizing service revenues through expanded sales of comprehensive contract-based services
- Addressing new customer needs with equipment for power devices, re-engineered equipment and other measures
- Safety initiatives for installation and maintenance services
- Improving the efficiency of start-up operations and maintenance services

**Sustainability Initiatives**

- Improving the efficiency of start-up operations and maintenance services
- Safety initiatives for installation and maintenance services
- Provision of high-quality services
- Effective utilization of diverse talent

**Management Resources to Be Invested**

- Service support infrastructure at 76 sites in 18 countries and regions
- Service database and remote support system that utilizes AI, knowledge management etc.
- Approximately 4,000 field engineers with highly specialized and broad knowledge

**Primary Management Indicators**

- Net sales for field solutions business
- Profitability of field solutions business
- Man-hours for installation and maintenance services at overseas subsidiaries

**Risk Management Initiatives**

- Main Risks
  - Quality
  - Human Resources
  - The Novel Coronavirus (COVID-19)

- Initiatives
  - Man-hours for installation and maintenance services at overseas subsidiaries

**Main Installation and Maintenance Service Initiatives**

**Enhancing Front-line Engineers**

We believe it is essential to accurately ascertain valuable information, including customer needs and equipment operation status, in markets where we deliver equipment, as well as to provide timely feedback with regard to related operations to assist in equipment development and improvements to functionality.

To efficiently conduct these activities, we are working to improve the skills of each and every engineer involved in on-site equipment installation and maintenance. We also strive to promote seamless communication between our development and manufacturing departments and both the engineers at our overseas subsidiaries and our own engineers assigned overseas who serve as our on-site contacts with customers.

Moreover, we are making efforts to establish a management system for operations in each country and region so that we can respond in a flexible and rapid manner to changes in the business environment and promote efficient operations.

**Promotion of High-value-added Services**

We have built a global support system, establishing Total Support Centers (TSCs) in Japan, the United States, China and Europe. At each TSC, dedicated representatives maintain and utilize a database of information about customers’ equipment and examples of similar incidents. Further, through our TELeMetrics™ remote maintenance service, TSCs use their knowledge and tools to propose solutions to the various issues customers face.

And to expand remote support for field engineers, we are engaged in developing a remote support system that can share video and audio from customers’ fabs in real time, as well as to further enhance the confidentiality of information. Through such efforts, we are promoting remote support that helps to ensure stable equipment operation. Starting in fiscal 2021, we will add unique functions such as information protection, restricted video transmission, and call translation to our existing smart glasses™ system to make remote support more convenient and further improve support quality.

**Improving Service Productivity**

To further improve service productivity, we are implementing initiatives in conjunction with Group-wide business innovation projects. To promote knowledge management, we are deploying Service CRM™ on a global scale to centrally manage customers’ equipment records (support/trouble history) as a database, as well as to ascertain each field engineer’s actual work status through work orders.

In addition, we are placing more emphasis than ever on developing advanced equipment diagnostic capabilities that utilize equipment output data. Going forward, we plan to utilize these functions to support comprehensive contract-based services, particularly those with billing based on performance (Pay for Performance contracts).

*Service CRM: Service Customer Relationship Management
Tokyo Electron is merging business activities with a variety of sustainability initiatives, focusing on the environment, society and governance to help create new value.

**Environment**

Environmental issues such as climate change are growing more crucial. To promote activities in the medium to long term that meet the environmental/social/governance needs of its customers and other stakeholders, the Manufacturing Company Presidents’ Council, which includes the corporate director in charge of environment, health and safety (EHS), monitors and supervises progress related to environmental issues. A headquarters has been established, headed by the corporate director in charge of EHS, and promotes environmental activities across the entire Group. The Environment Council, made up of members appointed by the executives of the Group companies, sets targets related to environmental issues, monitors progress and also works to achieve its goals. Furthermore, to continuously promote our environmental activities, we have operated an environmental management system based on ISO 14001 since fiscal 1998, primarily at our manufacturing subsidiaries. The progress of our activities and legal compliance status are checked through internal audits and third-party audits. Any issues identified through these activities are reviewed by the Environment Council; reported to the Manufacturing Company Presidents’ Council and used for promoting environmental activities across the entire Group. Under such an environment management system, fiscal 2021 was again free from environmental incidents, accidents, violations and associated legal proceedings.

Medium- and Long-term Environmental Goals

In order to further strengthen our initiatives toward the environment in our products, plants and offices, the contents of the medium- and long-term environmental goals for fiscal 2031 were revised in December 2020. In the goals for products, the reference year for per-wafer CO2 emissions was changed from fiscal 2014 to fiscal 2019. In addition, in the goals for plants and offices, the total CO2 emissions reduction goal was changed from 20% reduction to 70% reduction, while reaching a rate of 100% renewable energy usage. At present, we are working on new initiatives toward achieving these revised goals. Specifically, we are planning to introduce renewable energy and offices in Japan, the United States and China starting from fiscal 2022. This will bring our use of renewable energy company-wide to over 50%, while dropping our CO2 emissions by 40%. In terms of products, we are moving ahead with understanding the amount of CO2 emissions during use of standard equipment and creating a chart. We are rolling out activities toward achieving our goals based on this.

We have set the following as a long-term goal to achieve by 2050: “As a leading company in environmental management, we strive to contribute to the development of a dream-inspired society by proactively promoting the reduction of environmental burden of both our products, plants and offices, and at the same time, providing evolutionary manufacturing technologies that effectively reduce the power consumption of electronic products.” We are working on initiatives for this at a company-wide level.

**E-COMPASS**

We established E-COMPASS (Environmental Co-Creation by Material, Process and Subcomponent Solutions) as a new supply chain sustainability initiative. E-COMPASS aims to align our products and the entire operations more closely with our environmental mandates, strengthen our ties with business partners, solidify our industry leadership, and pave the way for a sustainable future. We will utilize every management resource at our disposal to drive the major trends of digitalization and greening of society and actively endeavor to preserve the global environment throughout the supply chain.

**Initiatives Related to Recommendations of the Task Force on Climate-related Financial Disclosures (TCFD)**

We are pursuing ongoing disclosures and initiatives based on the TCFD framework and relating to risks and opportunities that climate change presents to our business.

**Status of Initiatives Related to Recommendations of the TCFD**

- **Governance**
  Each of our corporate directors for EHS and CSR is working under the supervision of the CEO to monitor progress of goals related to our response to climate change. With the establishment of the EHS Promotion Department and CSR Operations Department at headquarters, these activities are being driven by the entire Group. At the Environmental Council, comprised of members appointed by executives of the Group companies, company-wide goals are set, progress is monitored and the achievement of these goals is promoted.

- **Strategy**
  Utilizing the framework of the TCFD recommendations, we identified the risks and opportunities of climate change that will impact business over the medium to long term. We have evaluated the potential impact on business from some of these risks and opportunities, and we aim to continue quantifying others going forward as we investigate relevant measures.

- **Risk Management**
  Through the Manufacturing Company Presidents’ Council, we approve company-wide management initiatives, from short term to long term, that related divisions and councils recommend, and then apply those initiatives to the facilities and divisions of the Group companies.

- **For Scope 1 and 2 CO2 emissions,** we are adopting renewable energy from a global perspective, including the implementation of measures at our key manufacturing sites in Japan with high emissions.

- **For Scope 3 emissions,** we recognize the importance of providing products that generate fewer CO2 emissions because about 88% of the emissions in our entire value chain are generated during use of products after sale, so we are focusing on development of a range of environmental technologies.

We also formulate business continuity plans in anticipation of natural disasters caused by abnormal weather and other factors, and take measures with our suppliers to ensure that business operations can be maintained.

- **Metrics and Targets**
  To further reinforce our initiatives toward improving environmental performance of products and conserving the environment at our plants and offices, we revised our medium-term environmental goals in December 2020. While supporting the advancement of information and communications technology (ICT) and the use of our semiconductor and FPD production equipment, we are also committed to achieving new environmental goals in keeping with our Corporate Philosophy: “We strive to contribute to the development of a dream-inspired society by building resilience to climate change and aligning our EHS promotion strategy toward the medium to long term.”

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**Examples of Climate Change (Risks and Opportunities) Impacting Business over the Medium to Long Term**

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Type</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2°C Temperature Increase</td>
<td>Transition risks</td>
<td>- Increased energy costs in line with taxes on fuel and energy. Assuming our greenhouse gas (GHG) emissions and use of renewable energy remain at fiscal 2021 levels, if a carbon tax were applied, we estimate our costs would increase by 1.1 billion yen/year by fiscal 2025 (assuming a tax of 6,000 yen per ton CO2) and 2.5 billion yen/year by fiscal 2040 (14,000 yen per ton CO2). Decreased net sales if we are unable to meet customers’ requirements and demands for environmental initiatives. Reduced reputation among investors, NGOs and local communities if a response to climate change and other environmental issues is delayed.</td>
</tr>
</tbody>
</table>
| 4°C Temperature Increase | Physical risks | - Impacts on our suppliers and customers from abnormal weather (net sales decrease as a result of supply chain disruptions, operation stoppages, production/shipping delays and other factors). }

| Common Opportunities | | - Accelerated efforts to create new value, including innovation toward development of low-GHG products and services, and equipment and technologies that contribute toward the manufacture of low-power consumption devices. Gaining superiority and business opportunities through proactive initiatives for climate change and adding value to our products and services. Higher productivity by streamlining operations and reducing related environmental impacts. Securing a competitive advantage by building resilience (responsiveness to climate change) into global operations, including working to adopt renewable energy, and improving corporate value through these initiatives. |

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* Refer to Medium- and Long-term Environmental Goals on p. 35
We ensure that our executives and employees, as well as suppliers, are fully aware of this content. Specifically, we publish the Human Rights Policy on our website to make it available to everyone inside and outside the Company, and also implement online human rights training targeting all of our executives and employees. In fiscal 2021, as in the previous fiscal year, we conducted human rights due diligence, as well as risk surveys, and identified and assessed impacts. As part of the surveys, we utilized a self-assessment questionnaire (SAQ) for internal use, based on the RBA Code of Conduct, and also reviewed the results of a CSR assessment for suppliers of materials, staffing and logistics to assess the current situation throughout the value chain. We are using the results of these surveys to consider corrective actions and reduce human rights risks.

To conduct human rights due diligence going forward, we will assess and correct any human rights issues we identify in our business activities, and further improve the grievance mechanisms we provide.

TCIR 0.27

Human Rights Initiatives

In fiscal 2018, we formulated our Human Rights Policy, summarizing our approach to human rights. We have specified the human rights we believe are particularly important in business activities as Freedom, Equality & Non-Discrimination, Freedom of Association, and Human Rights. In addition, we have specified the Human and Civil Rights and the ILO Declaration on Fundamental Principles and Rights at Work. The Ten Principles of the United Nations Global Compact, and the RBA Code of Conduct.

Handling of Accidents

We analyze the causes of all accidents and implement corrective measures. We strive to prevent accident recurrence by not only identifying the main cause, but also carrying out multi-faceted cause analysis, targeting the operator who was involved, the facility, the environment, the involved coworkers and the management aspect, and sharing the results with all Group companies.

Human Rights

Approach to Human Rights

Conscious of our corporate social responsibility, we recognize that it is important to conduct ourselves with a strong sense of integrity. Based on this recognition, we have firmly upheld human rights since our founding, as reflected in the spirit of our Corporate Philosophy and Management Policies. For us, respecting human rights means a significant undertaking, not only to fulfill our responsibility for eliminating adverse impacts on people caused through business activities, but also to respect those people who support our business activities, and contribute to the realization of a sustainable, dream-inspiring society. We incorporate the concept of respect into every aspect of our business activities, and strive to nurture a dynamic corporate culture where each person can realize his or her full potential.

We recognize the importance of having highly effective grievance mechanisms related to human rights and are working to establish and operate those mechanisms. In fiscal 2021, we further strengthened our internal and external reporting systems in Japan and overseas for employees and suppliers. By continuing to conduct human rights due diligence going forward, we will assess and correct any human rights issues we identify in our business activities, and further improve the grievance mechanisms we provide.

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Supplier Human Rights Risk Survey Results

<table>
<thead>
<tr>
<th>Percentage of companies</th>
<th>Percentage of companies</th>
<th>Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>assessed to have low</td>
<td>assessed to have low</td>
<td>• Appropriate use of water and waste to prevent pollution</td>
</tr>
<tr>
<td>risks</td>
<td>risks</td>
<td></td>
</tr>
<tr>
<td>65%</td>
<td>35%</td>
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</tbody>
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The results of human rights risk surveys conducted at suppliers showed that 35% of those with 500 or more employees had potential/actual risks. Among these risks, the major risks are health and safety issues related to human rights, followed by labor issues. Based on these results, we continued to request those suppliers to comply with domestic laws and regulations and social norms related to health and safety. We will work to reduce human rights risks by promoting corrective actions together with our suppliers.

Meanwhile, inside our company, we identified potential human rights risks in the areas of labor, and health and safety. To mitigate these risks, we are reviewing our efforts to fully manage working hours and also taking steps to improve operational efficiency further.

References:
1. Human Rights Policy: www.tokyo-electron.com/en/employment/diavtext/health-and-safety/2. RBA Code of Conduct: A global initiative with a focus on the electronics industry, the Responsible Business Alliance (RBA) establishes a set of standards for supply chains in the electronics industry for a safe, labor-friendly environment, to ensure that workers are treated with respect and dignity, and that companies take responsibility for environmental impacts in the manufacturing process.

1 Safeequipment design: A design concept that eliminates the cause of the machine’s harm to humans through the safety design of the machine.

2. SEMI-S2: This is a set of environmental, health and safety guidelines for semiconductor manufacturing equipment. It is used mainly by the leading manufacturers of semiconductor equipment in the United States and Europe, not only for semiconductor but also for other equipment, as well as for medical equipment.

3. 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 rules (directives).

4. 0.27: TCIR is an index showing a company’s own responsibility index. The index is calculated as the ratio of human rights risks against the total number of risks.

5. Formal risk assessment:


7. Refer to Supply Chain Management on p. 30.
**Supply Chain Management**

**Principles and System of Supply Chain Management**

The building and maintenance of a supply chain, which responds flexibly to the demands and risks of a diverse society and contributes to the creation of new value, is crucial for the enhancement of our medium- and long-term corporate value. To make our entire supply chain sound and sustainable, we have formulated a procurement policy based on the laws, regulations and social norms of each country, as well as the RBA Code of Conduct, and are promoting activities based on this policy by disseminating it throughout the Company and our suppliers. We also promote improvement activities from various perspectives while valuing continuous communication with diverse suppliers, including material suppliers that handle parts and raw materials, staffing suppliers that provide services and logistics suppliers that handle physical distribution operations. We strive to create value in the supply chain by working to build relationships of trust with our suppliers, who support our business as partners, and by working together to conduct operations in compliance with global standards. Under the leadership of the Representative Director, President & CEO, issues identified during various activities are shared with relevant operations in compliance with global standards. Under the leadership of the Representative Director, President & CEO, issues identified during various activities are shared with relevant divisions for consideration and action on specific improvements.

**Initiatives in the Supply Chain**

**CSR Operations**

To keep track of our suppliers’ engagement in CSR activities, we have conducted a CSR assessment in the areas such as labor, health and safety, the environment and ethics since fiscal 2014. We analyze the results of the assessments, provide feedback and work together with our suppliers to remediate any issues. In fiscal 2019, we completely revised the content of the survey based on audit standards stipulated by the RBA, and have since conducted surveys on materials, staffing and logistics suppliers. In fiscal 2021, with the help and understanding of our suppliers, steps were taken to repay workers with respect to cases of an employment-related expense burden for forced labor and bonded labor, which had been identified in the previous fiscal year and which have been given particular emphasis in the RBA Code of Conduct. In addition, with respect to cases of false reporting, changes were made in business processes and audits were introduced. Regarding the human rights issue of “freely chosen employment”, we have expressly stipulated our zero tolerance policy for forced labor and bonded labor, and by communicating this to our major suppliers, we are promoting initiatives to ensure that all people in our supply chain can work of their own free will.

1. Material suppliers: Surveys have been conducted since fiscal 2014 for suppliers accounting for more than 80% of our procurement spend.
2. Staffing suppliers: Surveys have been conducted since fiscal 2019 on 100% of employment agencies and contracting companies (interior contractors).
3. Logistics suppliers: Surveys have been conducted since fiscal 2019 on 100% of customers-related operators.

**Responsible Procurement of Minerals (Conflict Minerals)**

We regard taking action against conflict minerals (3TG) obtained through illegal exploitation, including sources with human rights violations or poor working conditions, as an important part of corporate social responsibility. Our resolute goals to eliminate the use of raw materials made from these conflict minerals, as well as any parts or components containing them. We conduct surveys on conflict minerals using the CMRT and referring to the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas.

**Procurement BCP**

As part of our business continuity plans (BCPs), we collaborate with suppliers for disaster preparation. We maintain a database of suppliers’ production sites so that, in the event of a crisis, we can promptly identify impacted suppliers and quickly collaborate in recovery efforts. In addition, we conduct BCP assessments on our suppliers, analyze their responses and provide them with feedback to promote further improvement.

**Check**

Implementation of supply chain CSR assessment and analysis of response

**Act**

Provision of feedback based on the results and requests for improvements to suppliers

**Human Resources**

**Employees Both Create and Fulfill Company Values**

A total of 14,479 employees are working at the 76 Tokyo Electron sites located in 18 countries and regions of the world, and we believe that each of them maintains a high level of engagement and demonstrating their full potential will lead directly to our company’s growth. By sharing with our employees the direction toward which management is aiming and providing platforms for direct dialogue through the employee meetings and discussions held every year at each site, we are striving to build mutual trust between the organization and individuals.

Furthermore, to realize our Corporate Philosophy, we established TEL Values, which delineate Tokyo Electron’s values, the mindset that each employee must possess and the codes of conduct to be passed on to the future. The TEL Values — pride, challenge, ownership, teamwork and awareness — are being put into practice by our employees all over the world.

We have established TEL UNIVERSITY as an in-house educational establishment, helping employees to independently build their careers and realize their personal goals for their growth and development. Our aim is to stand shoulder to shoulder with each employee, supporting their self-growth and fruitful career development throughout their working life, and create a foundation that enables the organization and individuals to trust each other and grow. We are focusing on employee growth that leads to corporate growth through the following four initiatives; Provision of Personalized Learning Opportunities, Support for Career Development, Leader Programs, and Provision of Global Learning Opportunities.

**Corporate Education System (TEL UNIVERSITY)**

**Diversity and Inclusion**

At Tokyo Electron, diversity and inclusion are management pillars that lead to the continuous generation of innovation and increased corporate value. We are actively pursuing them with the strong commitment of our management.

Although the areas of emphasis for diversity and inclusion vary by country, we have taken on gender and nationality as major themes and put the following goals and initiatives in place based on the characteristics of each region.

- **In terms of succession planning, we conduct a diversity-conscious talent pipeline (plan for developing human resources) and strive to increase the ratio of women in management positions.**
- **Taking into consideration that many of our employees are engineers, we actively invest in the use of recruiters and branding to hire women at a level that is equal to or greater than the ratio of women in each region (or the ratio of women majoring in science and engineering in the case of engineers).**
- **We create an organizational structure where even those from outside of Japan can take on corporate roles through the use of technology and shared global human resources systems.**
- **We organize events such as talk days and diversity and inclusion from internal and external experts and leaders, generate networking opportunities for employees with similar characteristics and experience, and hold roundtable discussions regarding careers before and after taking maternity/paternity leave and childcare leave.**

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**Chapter 3 | Value Creation by the Value Chain**

<table>
<thead>
<tr>
<th>Supply Chain CSR Process</th>
<th>Do</th>
<th>Check</th>
<th>Act</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan * Formulation of supply chain policies</td>
<td>Notification of requests to our suppliers and appeal for CSR activities</td>
<td>Implementation of supply chain CSR assessment and analysis of response</td>
<td>Provision of feedback based on the results and requests for improvements to suppliers</td>
</tr>
</tbody>
</table>
Employee Engagement
Improving employee engagement is essential to maximize corporate performance and achieve sustainable growth. Recognizing that employees both create and fulfill company values for us, we have been regularly conducting engagement surveys since fiscal 2016 to assess the current state of employee engagement and identify issues. Based on the results of the surveys, our management takes the lead in making improvements to foster a better workplace environment and culture. These initiatives resulted in an increase in the employee engagement score of 12 points from fiscal 2016 to fiscal 2021 and a turnover rate of 2.5%.

We plan to continue these initiatives since we believe that improving employee engagement leads to providing increased value to our stakeholders.

Quality
Initiatives for Quality Improvement
In order to help each of our employees correctly understand and implement quality assurance activities, we realize the importance of correctly defining the ideal form of quality assurance (goals), along with creating an environment and culture for widely disseminating it. From the ideal form, we established “Our Approach to Quality” and “Quality Policy” and communicate the importance of quality to our employees at various opportunities to increase their quality awareness. To carry out correct quality assurance activities, it is important to establish clear rules for what has to be done and correctly implement those rules. To ensure that our employees are always aware of their roles and purposes and correctly perform their work, we are striving to make the rules comprehensive, reeassess and deploy our quality education from time to time and visualize appropriate quality information. Based on these foundations, we help our employees mutually enhance awareness about quality in a variety of situations so that their efforts lead to the improvement and growth of our business processes, enabling us to provide product quality and services that surpass customer expectations.

Approach to Quality
We have defined our approach to quality as follows:

“1. Tokyo Electron Group seeks to provide the highest-quality products, quality services and innovative solutions that enable customer success.”

Quality Policy
1. Quality Focus
   Focusing on quality to satisfy customers, meet production schedules and reduce required maintenance even with temporary cost increases.

2. Quality Design and Assurance
   Building quality into products and assuring in-process quality control from the design and development phase throughout every process.

3. Quality and Trust
   When a quality-related problem occurs, working as a team to perform thorough root cause analyses and resolve problems as quickly as possible.

4. Continual Improvement
   Ensuring customer satisfaction and trust by establishing quality goals and performance indicators and by implementing continual improvement using the PDCA cycle.

5. Stakeholder Communication
   Listening to stakeholder expectations, providing timely product quality information and making adjustments as needed.

Continuous Improvement of Business Operations
We strive to implement own-process assurance systems by carrying out strict risk management and development/design inspections beginning at the development stage, and also by ensuring verification of customers’ operations using simulations. We have also built an important component traceability system as part of our effort to strengthen our information environment. By making it possible to use the One Platform to view such information as past problems and adjustment values used during manufacturing and assembly, as well as important component inspection information from suppliers, we have successfully strengthened our risk management (FMEA1) to prevent various types of non-conformance.

We believe that thorough implementation of these own-process assurance systems and prevention makes it possible for employees to focus on high-value-added business operations and promote initiatives that lead to Shift Left (front-loading). We will continue to strive to provide high-quality and high-value-added products and services to our customers.

In fiscal 2021, we made progress in communication and continuous-building that includes headquarters, manufacturing sites in Japan, and overseas subsidiaries, as well as partner companies, to form a globally unified team toward business innovation. In May 2021, the new ERPs began operation, primarily at our headquarters. While making the most of the knowledge gained from this process and the results, we plan to realize a true globally integrated system, with project members and all our employees working as one.

ERP: Enterprise resource planning. A system that integrates the core business operations of an enterprise, such as accounting, personnel, production, logistics and sales, for better efficiency and centralized information.

Overview of the New Enterprise System

<table>
<thead>
<tr>
<th>System</th>
<th>Description</th>
<th>Overview</th>
<th>Key Processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>ERP (Sales, Invoicing, Accounting)</td>
<td></td>
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</tr>
<tr>
<td>Order Management</td>
<td>ERP (Order Management)</td>
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<tr>
<td>Product Lifecycle Design (Design)</td>
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<tr>
<td>Supplier Management</td>
<td>ERP (Supplier Management)</td>
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<tr>
<td>Manufacuring Execution System (Manufacturing)</td>
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<tr>
<td>Warehouse Management</td>
<td>ERP (Warehouse Management)</td>
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<tr>
<td>Global Trade Management</td>
<td>ERP (Global Trade Management)</td>
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<tr>
<td>CRM (Customer Relationship Management)</td>
<td>ERP (CRM)</td>
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</tr>
<tr>
<td>ERP (Enterprise Resource Planning)</td>
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<tr>
<td>MRP (Material Requirements Planning)</td>
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<tr>
<td>SCM (Supply Chain Management)</td>
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<tr>
<td>TCM (Technology Cost Management)</td>
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<tr>
<td>HRM (Human Resource Management)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CRM (Customer Relationship Management)</td>
<td>ERP (CRM)</td>
<td></td>
<td></td>
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</tbody>
</table>
Corporate Governance Framework
With over 80% of our sales coming from overseas, we regard building governance structure as essential in order to achieve success in global competition and sustainable growth. To that end, we have built a framework to maximize use of worldwide resources, and have worked to incorporate a wide range of opinions to strengthen our management foundation and technology base, establishing a governance structure capable of ensuring that we attain global-level earnings power. We have also established the Corporate Governance Guidelines, which outline this governance structure. We use the Audit & Supervisory Board System, which consists of a Board of Directors and an Audit & Supervisory Board, and has achieved effective governance based on the supervision of management by the Audit & Supervisory Board. Furthermore, in addition to the Board of Directors, whose role is to make major operational decisions and play a supervisory role in the executive management’s execution, and support appropriate risk-taking by them, we have established systems that facilitate growth-oriented governance directed at sustainable growth, including the following: (1) The Nomination Committee and Compensation Committee to ensure fair, effective, and transparent management, (2) the Corporate Senior Staff (CSS) to formulate and advance company strategy, and (3) the Business Execution Meeting, to play a role in deliberations of the executive management.

Our board structure consists of the Board of Directors and the Audit & Supervisory Board, and we have effective governance based on the supervision of management by the Audit & Supervisory Board. Furthermore, in addition to the Board of Directors, whose role is to make major operational decisions and play a supervisory role in the executive management’s execution, and support appropriate risk-taking by them, we have established systems that facilitate growth-oriented governance directed at sustainable growth, including the following: (1) The Nomination Committee and Compensation Committee to ensure fair, effective, and transparent management, (2) the Corporate Senior Staff (CSS) to formulate and advance company strategy, and (3) the Business Execution Meeting, to play a role in deliberations of the executive management.

Diagram of the Corporate Governance Framework, Internal Control System and Risk Management System

Composition and Results of the Board of Directors, Nomination and Compensation Committees (In fiscal 2021)

<table>
<thead>
<tr>
<th>Committee</th>
<th>Corporate Directors</th>
<th>Independent Outside Directors</th>
<th>Speaker/Chairperson</th>
<th>Number of Times Held</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board of Directors</td>
<td>8</td>
<td>3</td>
<td>Corporate Director (Non-Executive Director)</td>
<td>12</td>
</tr>
<tr>
<td>Nomination Committee</td>
<td>3</td>
<td>1</td>
<td>Corporate Director</td>
<td>10</td>
</tr>
<tr>
<td>Compensation Committee</td>
<td>2</td>
<td>2</td>
<td>Independent Outside Director</td>
<td>7</td>
</tr>
</tbody>
</table>

Policies for Allocation of Earnings
Our basic stance is for the appropriate allocation of company earnings to all stakeholders.

Our dividend policy to shareholders is to link dividend payments to business performance on an ongoing basis and maintain a payout ratio of around 50% based on net income attributable to owners of the parent company. Furthermore, we also set the minimum annual dividend at 150 yen per share in light of the stable distribution of dividends. We effectively use internal capital reserves to raise corporate value through earnings growth by concentrating investment in high-growth areas and provide returns directly to shareholders by linking dividend payments to business performance. Furthermore, we flexibly consider implementing repurchases of treasury stocks as part of returning earnings to shareholders.

Establishment of the Director Compensation System
As our basic policies on executive compensation, we emphasize (1) levels and plans for compensation to secure highly competent management personnel with global competitiveness, (2) high linkage with business performance in the short term and medium- and long-term increase of corporate value aimed at sustainable growth, and (3) securing of transparency and fairness in the decision process of compensation and appropriateness of compensation.

As our basic policies on executive compensation, we emphasize (1) levels and plans for compensation to secure highly competent management personnel with global competitiveness, (2) high linkage with business performance in the short term and medium- and long-term increase of corporate value aimed at sustainable growth, and (3) securing of transparency and fairness in the decision process of compensation and appropriateness of compensation.

Fixed Basic Compensation
Fixed basic compensation is determined in reference to the compensation standards of industry peers in Japan and overseas. For inside directors, it also depends on the scale of their responsibilities based on the job grade framework provided by the external specialist organization.

Annual Performance-linked Compensation
Annual performance-linked compensation consists of cash bonuses and stock compensation based on stock options at a ratio of approximately 1:1. The specific amounts paid and the numbers of stock options granted are determined based on the results of corporate business performance and individual performance evaluations for the relevant fiscal year. Net income attributable to owners of parent and consolidated ROE is adopted as evaluation indicators for corporate business performance.

Evaluation items for individual performance include the degree of contribution to the short-term and medium-term management strategy targets (including ESG).

Medium-term Performance-linked Compensation
Medium-term performance-linked compensation is a performance share (stock-based) compensation to motivate recipients to contribute to improving medium-term business performance and raise awareness for enhancing corporate value by sharing the perspective of shareholders through the holding of shares. The number of shares issued to each corporate director varies according to the payout rate based on their respective responsibilities and level of performance goal achievement over the relevant three-year period. Consolidated operating margin and consolidated ROE have been adopted as the indicators for measuring the levels of performance goal achievement which are linked to the Medium-term Management Plan.

Non-performance-linked (Stock-based) Compensation
Non-performance-linked stock-based compensation has been introduced for the purpose of making the compensation system for outside directors more consistent with their expected role of, in addition to supervising management, giving advice to management from the perspective of increasing corporate value over the medium to long term. Under this stock-based compensation system, shares are granted after the expiration of the applicable period (three fiscal years) which is set each year.

Fixed Basic Compensation

<table>
<thead>
<tr>
<th>Corporate Directors</th>
<th>Outside Directors</th>
<th>Audit &amp; Supervisory Board Members</th>
</tr>
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<tbody>
<tr>
<td>Cash Bonus</td>
<td>Stock Compensation-based Stock Options</td>
<td>Performance Share (Stock-based)</td>
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<tr>
<td>Restricted Stock Units (Stock-based)</td>
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Annual Performance-linked Compensation

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Medium-term Performance-linked Compensation

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Non-performance-linked (Stock-based) Compensation

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</table>
**Process for Evaluating the Effectiveness of the Board of Directors and Management Issues**

To evaluate the effectiveness of the Board of Directors, including the Nomination Committee and Compensation Committee, we conduct questionnaire surveys of all corporate directors and Audit & Supervisory Board members, as well as individual interviews with some corporate directors and Audit & Supervisory Board members. We also conduct opinion exchanges and deliberations with a group comprised mostly of outside directors and Audit & Supervisory Board members. The results of this questionnaire, summaries of interviews and the content of deliberations are then shared with the entire Board of Directors before deliberating and comprehensively evaluating the effectiveness of the Board of Directors. We appoint a third party to provide advice on setting assessment items and to conduct, aggregate and analyze the interviews in an effort to increase objectivity.

In terms of the evaluation results in fiscal 2021, open and dynamic discussions were held at Board of Directors meetings and off-site meetings. We recognize that the Board of Directors, including the Nomination Committee and Compensation Committee, is functioning in an effective manner.

In light of the results of this evaluation, we will continue our efforts to have fuller discussions regarding medium- to long-term management strategies, promote diversity, strengthen group governance at a global level and share appropriate information with the Nomination Committee, Compensation Committee and Board of Directors.

**Skill Matrix**

In view of our Corporate Philosophy that “We strive to contribute to the development of a dream-inspiring society through our leading-edge technologies and reliable service and support”, we are engaged in enhancing our governance structure and in sustainability-focused management in order to respond to changes in the global environment, achieve success in global competition, and realize sustainable growth and increased corporate value over the medium to long term to respond to the mandate from our stakeholders. We believe that our corporate directors and Audit & Supervisory Board members have the necessary qualifications to realize these initiatives. Described in detail below, all of them have knowledge of global business, governance, sustainability and so on. In addition to this matrix of individual skills, we also disclose the overall diversity of our Board of Directors in an easy-to-understand format.

**Diversity of Board Members**

**Experts and experience of Corporate Directors and Audit & Supervisory Board Members**

- **Corporate Management**: Having experience in managing an enterprise (experience serving as a representative director or chairperson/president)
- **Semiconductor/FPD**: Having knowledge of semiconductor/FPD-related industries
- **Manufacturing/Development**: Having knowledge in manufacturing and development at Tokyo Electron and other manufacturers
- **Sales/marketing**: Having knowledge in sales/marketing at Tokyo Electron and other manufacturers
- **Finance/accounting**: Having knowledge in financial accounting and M&A
- **Legal affairs**: Having knowledge in legal affairs, compliance and risk management

**Directors and Audit & Supervisory Board Members (As of July 1, 2021)**

**Independence and diversity of Corporate Directors**

- **Independent Outside Directors**: 4/12
- **Foreign national Corporate Directors**: 3/12
- **Female Corporate Directors**: 1/12

**Corporate Management**

- **Tetsuo Tsuneishi**: Corporate Director
- **Yoshikazu Nunokawa**: Corporate Director
- **Charles Ditmars Lake II**: Corporate Director

**Manufacturing/Development**

- **Kazushi Tahara**: Corporate Director
- **Sadao Sasaki**: Corporate Director
- **Kyosuke Wagi**: Corporate Director
- **Tatsuya Nagakubo**: Corporate Director
- **Sadao Sasaki**: Corporate Director
- **Sachiko Ichikawa**: Corporate Director

**Sales/marketing**

- **Masatake Hama**: Corporate Director
- **Ryota Miura**: Corporate Director

**Finance/accounting**: Having knowledge in financial accounting and M&A

**Legal affairs**: Having knowledge in legal affairs, compliance and risk management

**Chapter 3 Value Creation by the Value Chain**
Chapter 3 Value Creation by the Value Chain

Message from the Chairman of the Board

Further Pursuit of Board Effectiveness and Strengthening of Governance Structure Are the Foundation for Enhancement of Corporate Value

Tetsuo Tsuneishi
Corporate Director
Chairman of the Board

The most important duty of Tokyo Electron’s Board of Directors is making decisions on important matters toward enhancing short-, medium- and long-term shareholder value. In fiscal 2021, we achieved the highest net sales and operating income in our corporate history. This was due in large part to the tremendous effort of our executive management and employees. At the same time, I also recognize that the Board of Directors maintained a high level of effectiveness and made decisions on important directions and strategies after wide-ranging discussions, all of which also contributed to our good performance.

Priority issues for further growth, medium- to long-term management strategies and initiatives regarding sustainability were also discussed and deliberated in depth. All corporate directors and Audit & Supervisory Board members engaged in discussions based on their diverse insights and experience with a global perspective and strong awareness of Tokyo Electron’s corporate culture to arrive at our directions for growth and many important resolutions.

Through our discussions about short-, medium- and long-term value creation, we made the decision to issue the Integrated Report starting from this year in addition to our annual Sustainability Report to allow us to accurately communicate these initiatives to our stakeholders.

TOKYO ELECTRON Integrated Report 2021

Compliance

Approach to Compliance
To practice Tokyo Electron’s Corporate Philosophy, it is vital that each employee performs their daily duties with strong interest in and a deep understanding of compliance. We established “Tokyo Electron’s Code of Ethics” as a code of conduct to ensure that our employees are aware of the risks around them and conduct themselves appropriately. We have built a global system that can directly raise questions and concerns about compliance and business ethics to quickly address potential problems.

Compliance System
In order to effectively promote a global compliance program, we have appointed a Chief Compliance Officer (CCO) and established a dedicated Compliance Department at our headquarters. Additionally, people responsible for compliance (Regional Compliance Controllers) have been appointed at key overseas sites, creating a system for direct reporting to the Chief Compliance Officer and Compliance Department.

Compliance Initiatives

Business Ethics
In addition to establishing the Code of Ethics as standards of conduct by which executives and employees should abide and distributing it in the form of booklets, we also strive for understanding and awareness by regularly obtaining confirmation of compliance from all executives and employees. In fiscal 2021, we made a full-fledged revision on the content to what is required as a global company and changed the booklet design to make it easier to understand.

Initiatives for Anti-Bribery and Corruption and for Competition Laws
We have established the “Global Anti-Bribery and Corruption Policy” as well as the “Gifts and Entertainment Guidelines”, and the “Global Competition Law Policy” and the “Guidelines”. In addition, we also regularly conduct training to promote understanding and awareness.

Internal Reporting System
Preventing problems from occurring and resolving them before they become significant requires a system that allows employees to raise questions and concerns about business ethics and compliance without reservation or hesitation and to discuss them fully. For this reason, we have established an internal reporting system that ensures complete confidentiality, anonymity and the protection of retribution, so that employees can safely and reassuringly provide information and seek redress outside the chain of command about behavior that is, or may be, in violation of laws, regulations or business ethics.

Specifically, we have established and are operating the Tokyo Electron Group Ethics & Compliance Hotline—a global common internal point of contact that uses a third-party system that is also accessible to our suppliers—as well as an external point of contact that allows direct consultation with an outside law firm.

Reports and consultations received via these points of contact are handled with sincerity and investigations are undertaken in accordance with internal regulations. If a compliance violation is found, disciplinary action is taken in accordance with the Rules of Employment, and preventive measures and corrective measures, such as improvements to the workplace environment, are implemented as necessary.
Risk Management

Approach to Risk Management
Reflecting changes in society and the business environment, the risks facing businesses are growing increasingly complex and diverse. Tokyo Electron considers understanding and appropriately addressing the risks that it may face in its businesses, as well as their impacts, to be essential to its sustainable growth.

Risk Management System and Initiatives
In order to promote more effective risk management, we carry out enterprise risk management through a body established within the General Affairs Department at our headquarters. This body works with the respective departments responsible for each operation to identify a wide range of risks arising in business activities, such as compliance risk, human resource and labor risk, and business continuity risk. It then classifies risks with high impact and probability as our key risks.

The body also formulates and executes measures to minimize these key risks, monitors the effect of said measures, as well as works to understand the status of risk control, and implements the PDCA cycle for risk management.

In fiscal 2021 we introduced CSA: and started a risk management committee. We will continue these activities going forward. By continuing to strengthen and progress risk management activities throughout our Group, we will implement risk management that is more effective than ever before.

1. Enterprise risk management: Group-wide systems and processes related to risk management activities
2. CSA: Control Self-Assessment: Internal risks and controls are evaluated and monitored by those who are actually performing the duties with the goal of building and maintaining an autonomous risk management system

Auditing by the Internal Audit Department
The Global Audit Center serves as the internal audit department for the entire Group and implements audits based on the audit plan. Based on the results of these audits, it provides instructions for making improvements as needed, confirms the progress of these improvements, and provides any necessary support. The Group’s internal control over financial reporting in fiscal 2021 was also evaluated as effective by the independent auditors.

Risk Management Initiatives
We conduct Group-wide reviews to identify the current status of risk management as well as any potential and actual risks surrounding the Company in the future. Based on the results of these reviews, we have identified the following 18 risks as having potential to cause significant issues to our financial condition, operating results and cash flows, and are working to address them.

<table>
<thead>
<tr>
<th>Item</th>
<th>Main Potential Risks</th>
<th>Main Risk Management Initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Market Fluctuations</td>
<td>Rapid contraction of the semiconductor market could lead to overproduction or an increase in dead inventory. In addition, a rapid increase in demand could lead to an inability to supply products in a timely manner resulting in lost opportunities.</td>
<td>Periodically review market conditions and orders received at Board of Directors and other important meetings, and appropriately adjust capital investments, personnel/inventory planning and other aspects of business.</td>
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<tr>
<td>2. Geopolitics</td>
<td>Initiatives made by an individual country or region from such perspectives as industrial policy, national security or environmental policy in shifting to domestic production of semiconductor-related businesses, strengthening policies prioritizing domestically manufactured products or tightening of export controls and environmental laws and regulations could lead to restrictions on business activities.</td>
<td>Carefully watch policy and diplomatic trends to understand moves to introduce regulations.</td>
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<tr>
<td>3. Research and Development</td>
<td>Delays in the launch of new products or the mismatch of such products with customer needs could lead to a decline in the competitiveness of products</td>
<td>Establish the Corporate Innovation Division, and build a Group-wide development framework that integrates innovative technology development with the technologies of each development division.</td>
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<tr>
<td>4. Procurement, Production and Supply</td>
<td>Interruptions in production due to a natural disaster or delays in component procurement due to deterioration in the business conditions of a supplier or an increase in demand that exceeds the supplier’s supply capacity could lead to delays in the supply of products to customers.</td>
<td>Establish a quick response system and a world-class service system.</td>
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<td>5. Safety</td>
<td>Safety-related problems with the Company’s products could lead to damages suffered by customers, liability for damages and a decline in credibility.</td>
<td>Establish a quality assurance system and a system to prevent the same or similar defects from occurring.</td>
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<tr>
<td>6. Quality</td>
<td>The occurrence of a product defect could lead to liability for damages, costs for countermeasures and a decline in credibility.</td>
<td>Monitor the quality status of suppliers, conduct audits and provide support for improvement.</td>
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<tr>
<td>7. Laws and Regulations</td>
<td>Violations of the laws and regulations of the countries and regions where the Company does business could lead to diminished public confidence in the Company, fines, liability for damages or restrictions on business activities.</td>
<td>Advance the R&amp;D strategy, business strategy and intellectual property strategy in an integrated manner to build an appropriate intellectual property portfolio.</td>
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<td>8. Intellectual Property Rights</td>
<td>The inability to obtain exclusive rights to proprietary technologies could lead to reduced product competitiveness. Furthermore, infringement of the intellectual property rights of third parties could lead to liability for damages.</td>
<td>Establish an information security system that conforms to global standards by launching a dedicated security management department and introducing countermeasures.</td>
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<tr>
<td>9. Information Security</td>
<td>Breaches of information or the suspension of services due to unauthorized access by cyberattack, natural disasters or other factors could lead to diminished public confidence in the Company or liability for damages.</td>
<td>Stable globally standardized rules and regulations for information management.</td>
</tr>
<tr>
<td>10. Human Resources</td>
<td>The inability to recruit and retain necessary human resources at an ongoing basis or the inability to create an environment where people with diverse values and expertise can play an active role could lead to diminished public confidence in the Company or liability for damages.</td>
<td>Make ongoing improvements to work environments and promote health and productivity management, including having top management share direction through regular employee meetings, establishing training plans for the next generation of human resources, visualizing career paths for employees and offering attractive remuneration and benefits.</td>
</tr>
<tr>
<td>11. Environmental Issues</td>
<td>The inability to respond appropriately to each country’s climate change policies, environmental laws and regulations, and customer needs could lead to additional related costs such as for developing new products or changing specifications, as well as to reduced product competitiveness and diminished public confidence in the Company.</td>
<td>Establish an Environment Task Force headed by the CEO.</td>
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<tr>
<td>12. The Novel Coronavirus (COVID-19)</td>
<td>The spread of COVID-19 could slow the Company’s business activities or lead to the deterioration of global economic conditions.</td>
<td>Establish an Emergency Task Force headed by the CEO.</td>
</tr>
<tr>
<td>13. Other Risks</td>
<td>Business could be influenced by global and regional political conditions, economic conditions, financial and stock markets, foreign exchange fluctuations and other factors.</td>
<td>Take necessary measures to counter such risks.</td>
</tr>
</tbody>
</table>
Information Security

As the data society develops and the importance of information security increases, we take active measures to use data including digital transformation and achieve information security effectively.

Main activities

Creating engagement with capital markets

We established a system centered around the Vice President and General Manager, Information Security, and are implementing integrated security measures on a global scale.

Information security management

We identify risks by conducting periodic risk assessments and internal audits and implement technological, human, organizational and physical security measures.

Responses to security threats

To respond to cyberattacks and information leaks, which are major security threats in modern society, we actively introduce advanced technologies and have specialized organizations create systems to establish mechanisms for reliable monitoring.

Overview of Information Security

Mechanisms that support information security activities

- Information Security Management
- Information Security Governance
- Information Security Committee
- Information Security Personnel

Day-to-day activities implemented globally

- Security Monitoring Organization
- Early detection of signs of potential attacks
- Incident Response Organization
- Minimization of damage when an incident occurs

Systems established in preparation for emergencies

- Incident Detection (Act)
- Incident对策 (Check)

Supply Chain Security

To respond to customer requests and monitor the status of security at suppliers so that we can securely use confidential information and customer information in our business activities without compromising utility.

Increasing resilience

To prepare for the occurrence of security incidents, we established a specialized incident response organization and have established systems so that we can share incident information at an early stage and promptly respond and recover.

Establishment of global rules

We established global standardized information security rules and regularly conduct checks on compliance status and provide education for all relevant parties.

Supply chain security

We respond to customer requests and monitor the status of security at suppliers so that we can securely use confidential information and customer information in our business activities without compromising utility.

Evaluation from Third-party Institutions

Our sustainability initiatives have received high appraisal from evaluation organizations around the world. We have continued to be selected as a constituent stock under leading global ESG investment indices, including the DJSI Asia Pacific Index, FTSE4Good Index, MSCI World ESG Leaders Indexes, Euronext Vigeo World 120 Index and STOXX Global ESG Leaders indices, and in 2021, we were also rated as a low-risk company in Sustainalytics’ ESG Risk Ratings. We also ranked number 1 among Japanese companies in the second ROE50 Rankings (2020 edition) implemented by Nikkei Inc. and QUICK Corp. ESG Research Center, with our superior capital efficiency and dedication to ESG engagement earning a significantly high score. Additionally, all Group companies operating in Japan once again received recognition as top 500 companies under the 2021 Certified Health & Productivity Management Outstanding Organizations Recognition Program.

Engagement with Capital Markets

Our management actively engages in Investor Relations (IR) and Shareholder Relations (SR) activities to contribute to our sustainable growth and increase corporate value over the medium to long-term. The Chairman of the Board, CEO and corporate director in charge of finance serve as spokespersons as required at IR conferences in and outside Japan and strive to engage directly with investors. In addition to holding quarterly earnings release conferences, we actively share our business strategies and growth story at the Medium-term Management Plan briefings and on IR day.

The IR Department, which was established under the direct control of the CEO, also appropriately supplements the explanation through individual interviews and regularly reports opinions from investors to management so that feedback can be of use in management.

As a part of our shareholder relations activities, company executives play a central role in active and constructive dialogue with our major institutional investors and proxy-advisory firms. In addition to explaining the Shareholders’ Meeting agenda, we continuously engage in dialogue on a wide range of topics including the business environment, ESG and sustainability initiatives, and respond to business risks and opportunities including social and environmental issues in order to deepen mutual understanding. To encourage active discussion and facilitate smooth and efficient voting at Shareholders’ Meetings, we send convocation notices at an early-stage and also post the notice in both Japanese and English on our website to provide information to shareholders in a timely manner. In addition, we analyze the results of the exercise of voting rights and report to the Board of Directors to further enhance engagement with investors.