

# INTEGRATED REPORT 2019

Fiscal year ended March 31, 2019

JEOL Ltd.



# Evolving in the 70th Year

70 years since our founding in 1949.

Starting with the development of the electron microscope,

we at JEOL have continued to create unrivaled, world-leading technology.

Based on this core technology, we have developed a variety of scientific and metrology instruments, as well as industrial equipment and medical equipment.

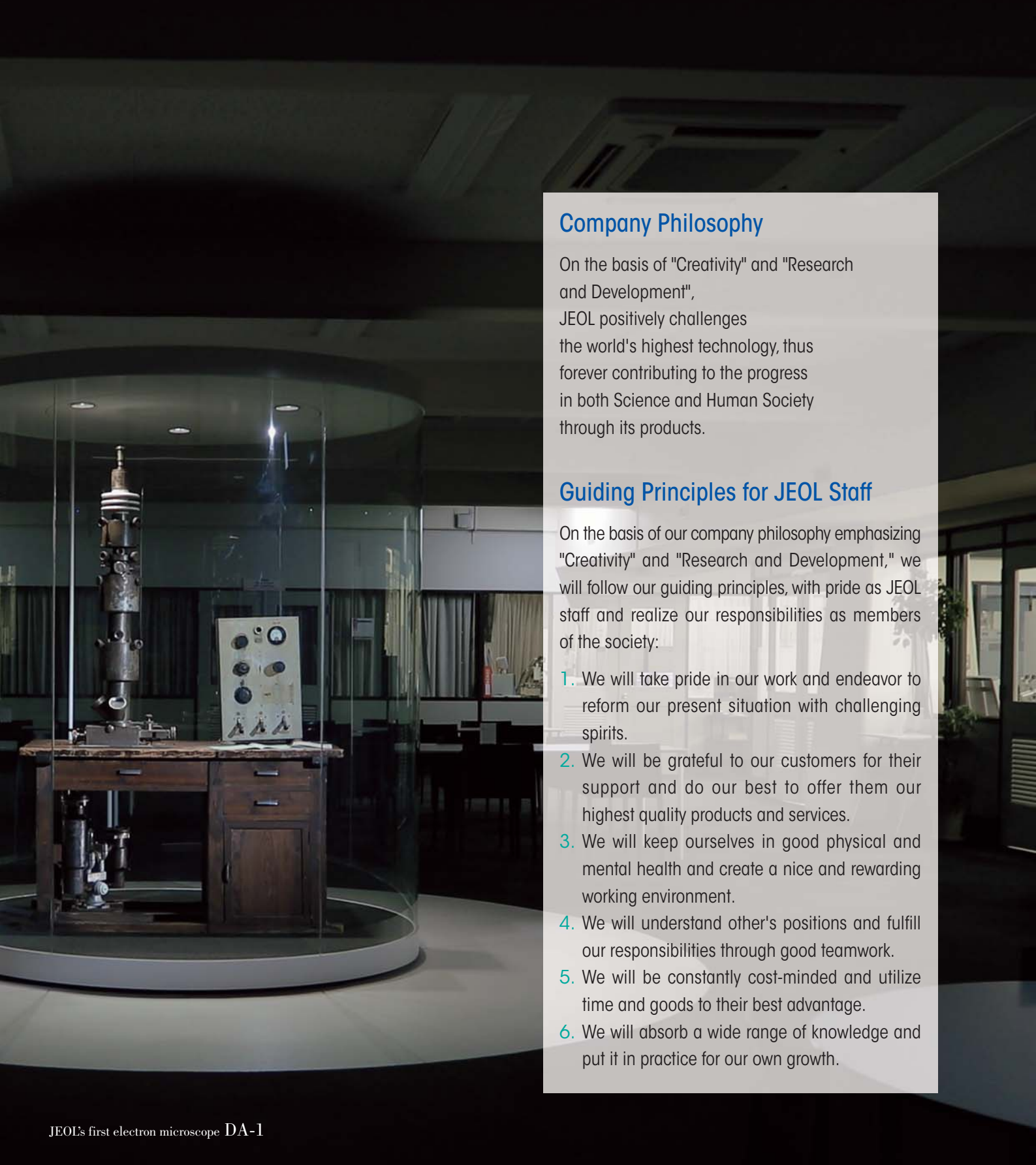
Our products support the work of many researchers, including Nobel Laureates and the top scientists in the world, contributing to the advancement of research and industry worldwide.

In 2019, the phrase adopted as a new key concept for guiding company was *“Evolving in the 70th Year.”*

Based on the spirit of our founding philosophy, “Creativity” and “Research and Development,” we will continue to pursue world-leading technology.

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JEOL's first electron microscope DA-1

## Company Philosophy

On the basis of "Creativity" and "Research and Development",  
JEOL positively challenges  
the world's highest technology, thus  
forever contributing to the progress  
in both Science and Human Society  
through its products.

## Guiding Principles for JEOL Staff

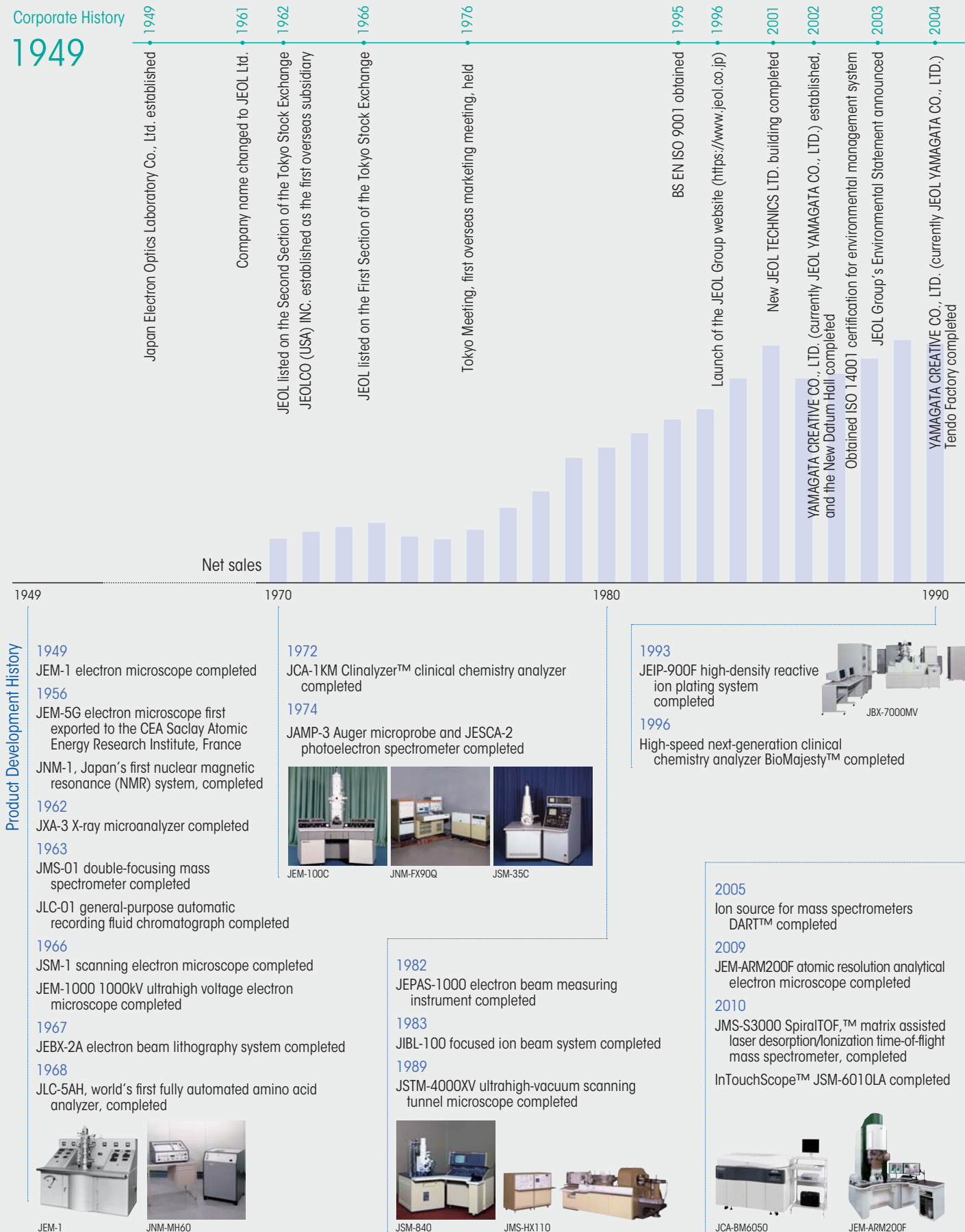
On the basis of our company philosophy emphasizing  
"Creativity" and "Research and Development," we  
will follow our guiding principles, with pride as JEOL  
staff and realize our responsibilities as members  
of the society:

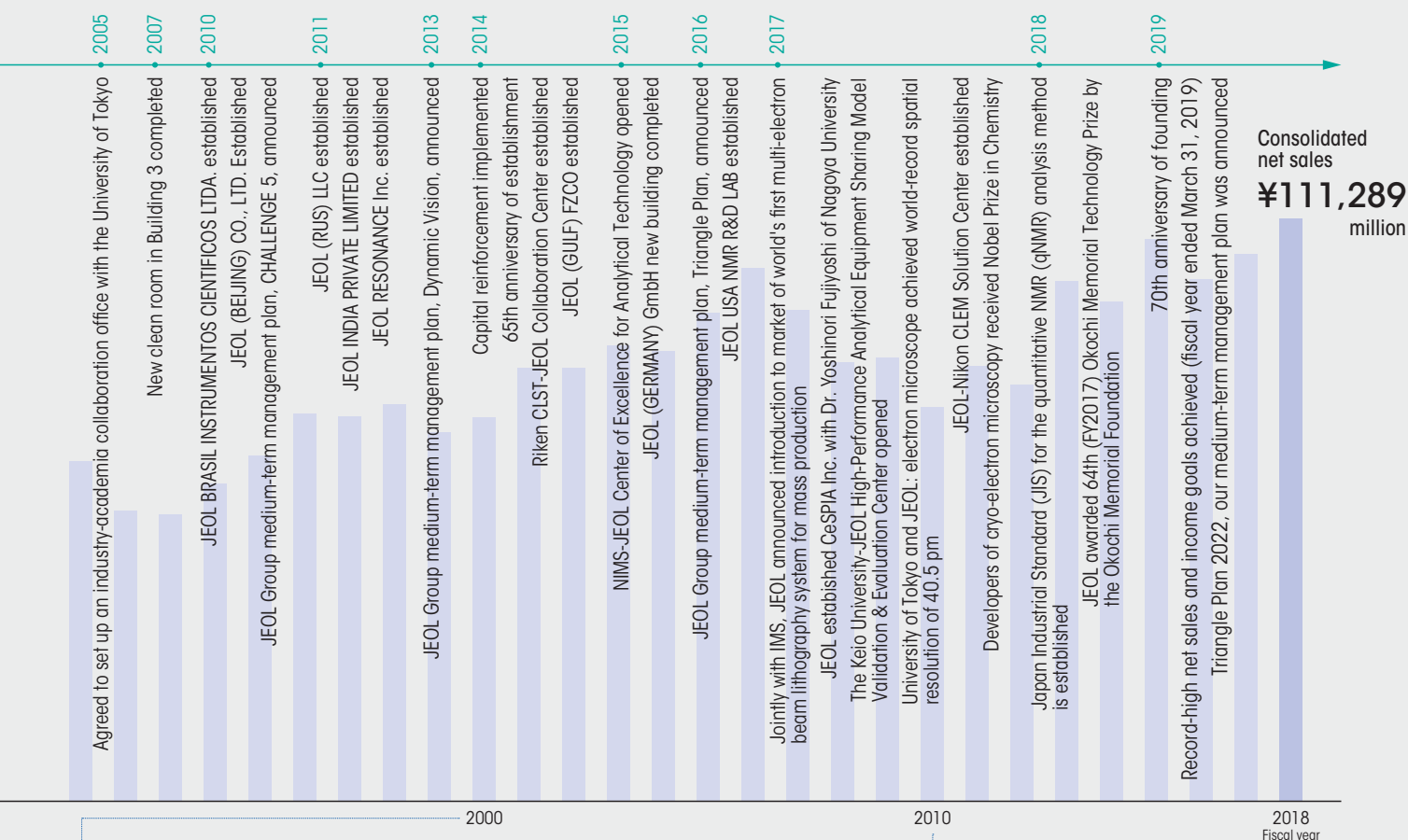
1. We will take pride in our work and endeavor to reform our present situation with challenging spirits.
2. We will be grateful to our customers for their support and do our best to offer them our highest quality products and services.
3. We will keep ourselves in good physical and mental health and create a nice and rewarding working environment.
4. We will understand other's positions and fulfill our responsibilities through good teamwork.
5. We will be constantly cost-minded and utilize time and goods to their best advantage.
6. We will absorb a wide range of knowledge and put it in practice for our own growth.

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# History of 70 years – History of JEOL –





**2011**  
JIB-4000 focused ion beam milling/imaging system completed

**2012**  
Thermal field emission scanning electron microscope JSM-7100F completed

Benchtop scanning electron microscope JCM-6000 NeoScope™ completed

JEM-1400Plus new electron microscope completed

**2013**  
Zero boil-off magnet for NMR system completed

**2014**  
Ultimate atomic resolution transmission electron microscope JEM-ARM300F completed

Nuclear magnetic resonance system JNM-ECZ series completed

JSM-7800FPRIME Schottky field emission scanning electron microscope completed

**2015**  
JMS-T200GC high-end gas chromatograph time-of-flight mass spectrometer completed  
JSM-IT100 InTouchScope™ scanning electron microscope completed  
JEM-F200 multi-purpose electron microscope completed  
JCA-ZS050 future generation clinical chemistry analyzer completed



JNM-ECZS

JCM-6000

**2016**  
JSM-IT300HR series InTouchScope™ scanning electron microscope completed

**2017**  
ROYALPROBE HFX™ completed

JSM-IT500 series InTouchScope™ scanning electron microscope completed

JBX-8100FS of spot electron beam lithography systems completed

JEM-Z300FSC/JEM-Z200FSC of spot electron beam lithography systems completed

JEM-Z200FSC field emission cryo-electron microscope completed

JSM-7900F Schottky field emission scanning electron microscope completed

Next-generation STEM detection system opened up new applications for aberration-corrected TEM 4DCanvas™ completed

JSM-IT500HR InTouchScope™ scanning electron microscope completed

JSM-7610FPlus new ultra-high resolution Schottky field emission scanning electron microscope completed

**2018**  
JSM-IT200 InTouchScope™ scanning electron microscope completed  
SMILE VIEW™ Map 3D Analysis Software for Scanning Electron Microscopes completed

JMS-TQ4000GC, a Triple-Quadrupole Mass Spectrometer completed

JEM-ACE200F High Throughput Analytical Electron Microscope completed

**2019**  
JIB-4000PLUS focused ion beam milling/imaging system was developed  
New benchtop scanning electron microscope JCM-7000 Series NeoScope™ was completed

\*Net sales on a non-consolidated basis until FY1976.



# To Our Shareholders



Gon-emon Kurihara  
Chairman & CEO

## Business Results during the Fiscal Year Ended March 31, 2019

The economic situation in Japan during the fiscal year under review was characterized by a continued trend toward a moderate recovery, despite an increasingly uncertain economic outlook. There was growing concern over a global economic slowdown due to trends in the US trade policy, including trade friction between the United States and China, as well as slowing growth in the Chinese economy.

Given these circumstances, the JEOL Group made a concerted effort to implement the strategic priorities outlined in the Triangle Plan, our medium-term management plan for fiscal years 2016–2018, aimed at enhancing corporate value, creating a more robust management base, and ensuring a higher number of orders and sales. The results of these initiatives are reported on the following pages.

## In Pursuit of Higher Corporate Value

The JEOL Group formulated Triangle Plan 2022, a new medium-term management plan covering fiscal years 2019–2021.

Under the Triangle Plan 2022, medium-term management plan, which is based on the direction of the original Triangle Plan, JEOL aims to achieve continuous growth by “Evolving in the 70th Year” to accelerate progress and take the next steps toward further growth, even after this new management plan.

Specifically, following the three axes of *speed*, *difference*, and *change*—the essence of the previous

We would like to express our heartfelt gratitude for your continuing support.

We begin the Integrated Report for the fiscal year ended March 31, 2019, with a message for all our stakeholders.

Izumi Oi  
President & COO



medium-term management plan—the YOKOGUSHI strategy continues to be the foundation of the plan. We will further evolve and deepen this strategy as we go through the “Evolving in the 70th Year” aiming at making JEOL a highly profitable company able to generate continual, solid profits.

The JEOL Group will continue to work all-out to revitalize the business foundation and set up a stable structure for revenue generation, while promoting environmental conservation, enhancing compliance, maintaining our commitment to corporate ethics, and reinforcing our management base for sustainable growth by fostering a favorable corporate culture on a Group-wide basis.

## Shareholder Return and Dividends

Our basic policy for profit distribution is to maintain consistent dividends from a long-term perspective based on our business initiatives to improve our financial standing and corporate structure.

For the fiscal year under review, in light of our business performance and financial condition, the year-end dividend was ¥12 per share.

To strengthen the JEOL management structure for further growth and to promote Triangle Plan 2022, our new medium-term management plan, Gon-emon Kurihara was appointed Chairman and CEO and Izumi Oi was appointed President and COO.

We will continue to boost our corporate value and improve our earnings base through profit-oriented management. For us to achieve these goals, we ask for your understanding and support.

# Triangle Plan

The new medium-term management plan, Triangle Plan 2022, based on the same direction as the original Triangle Plan, will implement the following measures to accelerate growth by “Evolving in the 70th Year” and will help us to take the next step toward further growth beyond other medium-term management plans, with the aim of continuous growth over the long term.

## Corporate Message

# Solutions for Innovation

Providing optimal solutions to support customer innovations

## Basic Approach

As we have reached the 70th anniversary since our founding, JEOL will focus on “Evolving in the 70th Year” through the following initiatives:

### 1 Enhance core technologies

We will continue to develop core technologies, the high-end measurement and analysis technologies that are the source of the added value provided to society by the JEOL Group.

### 2 Proactive entry into growth markets

Based on these core technologies, JEOL will proactively enter into large markets where growth is expected to accelerate (overseas markets as well as those for semiconductor, industrial, biotechnology, and medical equipment).

### 3 Provide total solutions

JEOL will provide total solutions, including services that lead to improved usability and efficiency, focused not just on equipment, but our customers’ entire workflow.

### 4 Make the required investments and improve profitability

We will make all necessary investments at the opportune time to take advantage of business opportunities as the scale and scope of our business grows. At the same time, we will promote efficiency and constantly improve profitability.

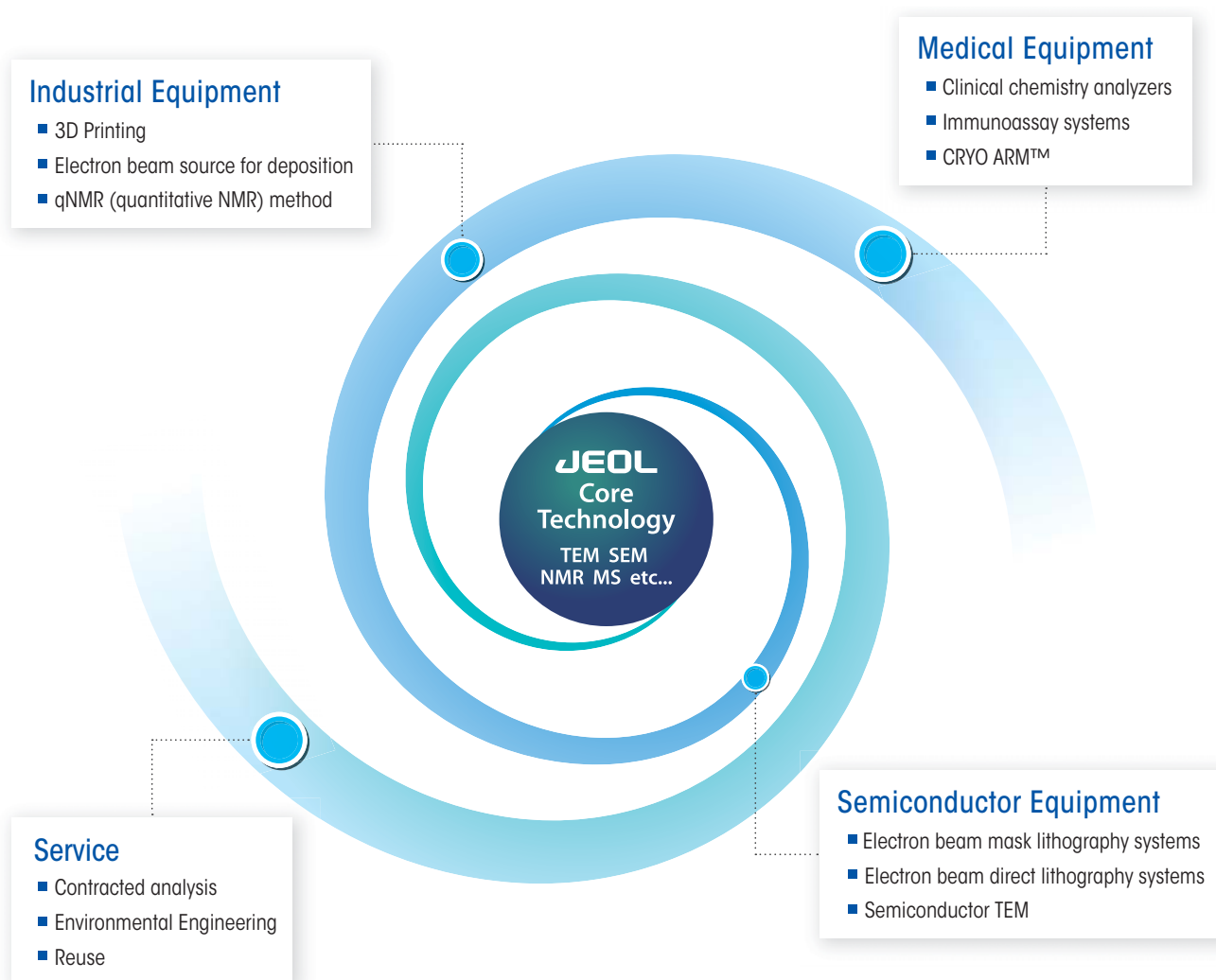


# 2022

(FY2019-2021)

## Evolving in the 70th Year

Based on technologies and expertise cultivated in the academic market so far, we aim to further expand business by providing new products and solutions in larger arenas, such as the semiconductor, industrial and medical equipment markets. In this way, JEOL will continue to move into new business domains.

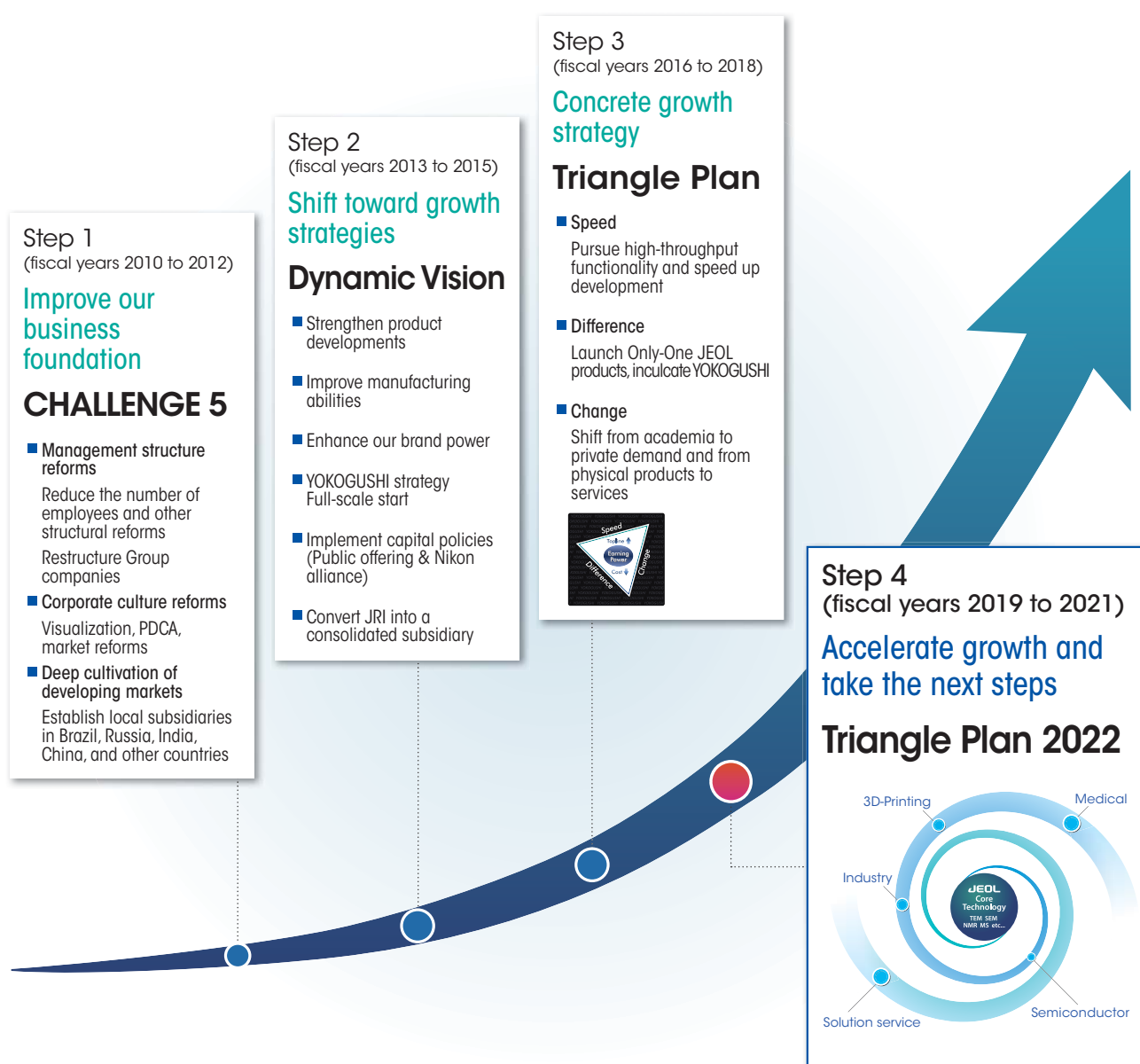


Going forward, and in line with the times, JEOL will continue to develop sales and service offices throughout the world and respond quickly to customer needs. We will provide optimal solutions to support customer innovations with *Solutions for Innovation* as our corporate motto.

## Triangle Plan 2022 Positioning

### Growth Acceleration and Next Steps

Based on the direction of the Triangle Plan, JEOL will implement the following measures to accelerate growth by “Evolving in the 70th Year” and by taking the next step toward further growth (after the current medium-term management plan), with the aim of continuous growth over the long term.



## Numerical Targets

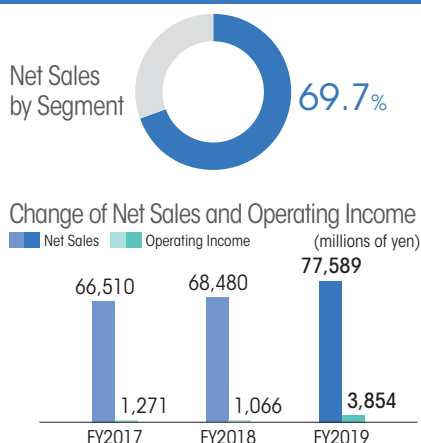
FY2021 targets:

consolidated net sales of ¥**134.0** billion,  
consolidated ordinary profit of ¥**10.0** billion

# Business Segments

## Overview of the Fiscal Year Ended March 31, 2019

### Scientific and Metrology Instruments Segment



Inquiries were strong, primarily for electron microscopes, while orders and sales were robust.

Net sales for this segment for the fiscal year were ¥77,589 million (a 13.3% increase over the previous year).

#### Main Products

##### Electron optics instruments

Transmission electron microscopes, Analytical electron microscopes, Electron probe microanalyzers, Photo electron spectrometers, Auger microprobes, and peripheral equipment for electron microscopes

##### Analytical instruments

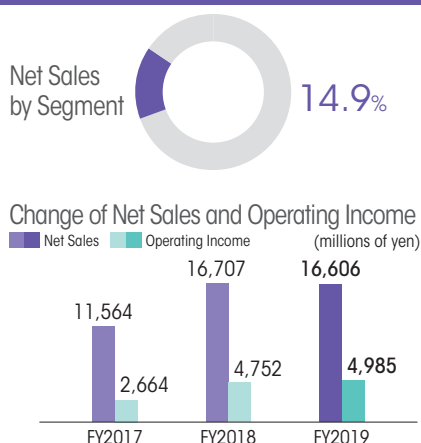
Nuclear magnetic resonance spectrometers, Electron spin resonance spectrometers, Mass spectrometers (MALDI-TOF spectrometers, Gas chromatograph mass spectrometers, Liquid chromatograph mass spectrometers), Portable gas chromatographs, and Micro CT structural analysis systems

##### Measuring instruments

Scanning electron microscopes, Analytical scanning electron microscopes, electron microscope peripheral equipment, Multi-beam systems, Focused ion beam milling/imaging systems, Ion Slicer™, CROSS SECTION POLISHER™, and Energy-dispersive X-ray spectrometers



### Industrial Equipment Segment



Orders for mainly electron beam lithography systems remained robust, continuing from the previous fiscal year, with net sales remaining at the same level as the previous fiscal year.

Net sales in this segment for the year were ¥16,606 million (a 0.6% decrease over the previous year).

#### Main Products

##### Semiconductor equipment

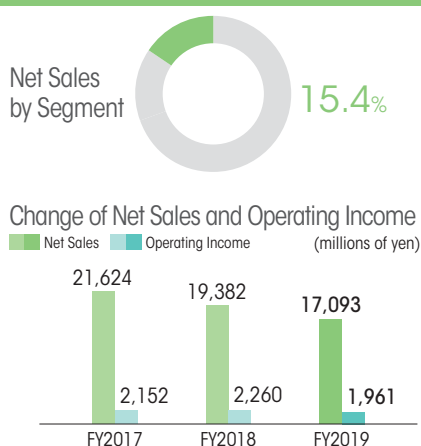
Electron beam lithography systems (spot beam lithography systems, variable shaped beam lithography systems)

##### Industrial equipment

High-power electron beam sources and power supplies, Electron beam sources and power supplies for deposition, RF power supplies for plasma generation, Built-in plasma sources and power supplies, and RF induction thermal plasma systems



### Medical Equipment Segment



Domestic sales of clinical chemistry analyzers and immunoassay systems supplied to OEM partner FUJIREBIO Inc., maintained steady growth. Overseas, orders and sales from our OEM partner Siemens continued to be slow.

Net sales for this segment for the year were ¥17,093 million (an 11.8% decrease from the previous year).

#### Main Products

##### Medical equipment

Clinical chemistry analyzers and Laboratory information systems



2018 April

## Clarifying Organic Solar Cell Interface Structures

— Elucidation the mixed state at the molecular-level using twin semiconductor polymers —

A research team from RIKEN and the RIKEN-JEOL Collaboration Center studied the elucidation of organic solar cell interface structures, clarifying molecular-level mixing of twin semiconductor polymers. This team found that the interface structure in a mixed state of semiconductor molecules in organic solar cells can be controlled through molecular design using a solid-state nuclear magnetic resonance (NMR) spectrometer to clarify the interface structure at the molecular level. The results of this research are expected to contribute to the development of new materials for improving the efficiency of organic solar cells.

2018 August

## Successfully Increased Spectral Intensity of Boron by More than 300%, Contributing to Improved Performance of Steel Materials and Semiconductors

JEOL collaborated with Professor Masami Terauchi and Assistant Professor Tadashi Hatano at Institute of Multidisciplinary Research for Advanced Materials of Tohoku University, and Visiting Researcher Masato Koike at the National Institutes for Quantum and Radiological Science and Technology, and Shimadzu Corporation. This team improved the soft X-ray emission spectrometer (SXES) used in electron microscopes and successfully increased the spectra intensity of boron by more than 300%. The analysis of trace amounts of boron is expected to contribute to R&D related to the production of lightweight, high-strength steel sheets and the improved efficiency of semiconductor devices.

## Launched Sales of JMS-TQ4000GC, the Gas Chromatograph Triple-Quadrupole Mass Spectrometer

As part of our gas chromatograph mass spectrometer lineup, we developed and launched sales of the GC-MS/MS system JMS-TQ4000GC equipped with a triple-quadrupole mass spectrometer. Using JEOL's proprietary Short Collision Cell technology, the GC-Triple QMS maximizes high throughput, and will be sold mainly in the quantitative analysis market for the analysis of pesticide residues in foods, among other uses. The introduction of the GC-Triple QMS to our GC-MS lineup is another initiative to further expand our market share in the GC-MS field.



2018

Apr.

May

Jun.

Jul.

Aug.

Sep.

2018 May

## Launched Open Lab Program for a High-End Electron Microscope Sharing Service

— A sharing service that supports advanced research using the latest equipment through a public-private partnership —

In cooperation with ORIX Rentec Corporation, JEOL launched support for the Open Lab Program, a shared public-private partnership service provided by the National Institute for Materials Science (NIMS). This program uses JEOL's high-end analytical instruments at the NIMS Technology Development, Shared Section Electron Microscope Station. Going forward, JEOL will continue to support research and development by providing an environment in which researchers from universities, companies, and public research institutions can easily use the advanced high-end analytical instruments to help improve Japan's science and technology competencies and industrial competitiveness.

## Launched Sales of SMILE VIEW™ Map 3D Analysis Software for Scanning Electron Microscopes

— Enabling 3D reconstructions and analysis of specimen surfaces from scanning electron microscope (SEM) images —

JEOL and Digital Surf (France) launched sales of SMILE VIEW™ Map 3D analysis software for scanning electron microscope users. SMILE VIEW™ Map is software that enables 3D reconstructions and the analysis of specimen surfaces from scanning electron microscope images. This software is expected to have a substantial impact over a wide range of applications, such as nanotechnology, metals, semiconductors, ceramics, medicine, and biology.

2018 November

## High-Temperature Superconducting Wire Permanent Current NMR with Superconducting Junctions

— Substantially contributing to the spread of NMRs —

A joint research group from RIKEN, Sumitomo Electric Industries, Ltd., Japan Superconductor Technology Inc., JEOL subsidiary JEOL RESONANCE Inc., and the Japan Science and Technology Agency succeeded in acquiring nuclear magnetic resonance (NMR) signals using permanent current NMR spectrometer with high-temperature superconducting junctions. These results are expected to spread the NMR method with compact size and higher performance, including quantitative NMR used for pharmaceutical testing and the realization of next-generation high-field NMR for structural analysis of amyloid  $\beta$  peptides (the cause of Alzheimer's disease) obtained from ultra-trace samples.

2018 December

## Launched Sales of JEM-ACE200F High Throughput Analytical Electron Microscope

Further miniaturized devices in the recent semiconductor industry require the transmission electron microscope (TEM) for various applications. Particularly the industry requests fast, stable, and highly resolved data acquisition for morphological observation, critical dimension measurement, and elemental analysis, in order to feedback those data to manufacturing processes. The JEM-ACE200F inherits hardware technologies of the JEM-ARM200F best-in-class high-end TEM and the JEM-F200 multi-purpose FE-TEM. This new high throughput analytical TEM meets the industry's requests due to its superbly high stability and analytical capabilities.



## Cryo-Electron Microscopy R&D Awarded the METI Minister's Award for Japan Medical Research and Development Grand Prize

For R&D related to cryo-electron microscopy, JEOL and CeSPIA Inc. were awarded the Ministry of Economy, Trade and Industry (METI) Minister's Award for Japan Medical Research and Development Grand Prize. The commendation ceremony was held at the Prime Minister's Official Residence on December 27, where Hiroshige Seko, the METI minister, presented JEOL with a certificate of commendation and commemorative gifts. Begun in 2017, this award recognizes significant contributions to the promotion of research and development in the medical field and is intended to deepen public interest and understanding as well as to provide an incentive to researchers. The METI Minister's Award recognizes unique, outstanding achievements from the standpoint of economic and industrial development.



2019

Oct.

Nov.

Dec.

Jan.

Feb.

Mar.

2019 January

## Launched Sales of JIB-4000 Focused Ion Beam Milling/Imaging System

— High-throughput FIB with automatic TEM sample preparation and amaximum irradiation current of 90 nA —

For nano-scale materials structure control, as well as the development and fabrication of power semiconductor devices and CMOS sensors, it is essential for morphological observation and configuration management of these materials and devices. The JIB-4000PLUS Focused Ion Beam (FIB) System features automation and high-speed processing. This new high-throughput FIB system enables automatic unattended multi-specimen preparations for observations with a scanning electron microscope (SEM), a transmission electron microscope (TEM) and a scanning transmission electron microscope (STEM). Also, a large ion-beam current of 90 nA is produced by the JIB-4000PLUS, thus meeting users' needs of increased efficiency, shortened time and reduced costs for specimen pre-treatment for smooth microscope observations.



2019 February

## Sales Tie-Up with FUJIFILM Corporation for Clinical Chemistry Analyzers

JEOL agreed with FUJIFILM to promote a sales tie-up on biochemical test fields for overseas markets. This is the first tie-up between the companies.

We will first launch our Clinical Chemistry Analyzer (model: JCA-BM6010/C) in the Middle East and Africa, and then introduce the products which meet regional characteristics in the Asian region particularly in emerging markets.



2019 March

## Launched Sales of New Benchtop Scanning Electron Microscope JCM-7000 Series NeoScope™

— Benchtop SEM offering advanced high operations, from optical images to SEM observation and elemental analysis —

The benchtop scanning electron microscope (SEM) is used in fields ranging from electrical, electronics, automobiles, machinery, chemical, and pharmaceutical industries, with expanded applications for R&D, quality control and product inspection. Under these circumstances, a new JCM-7000 has been developed based on our highly successful InTouchScope™ SEM, with a focus on seamless operation from optical to SEM imaging, and elemental analysis. The features of the JCM-7000 series include simple GUI, small footprint, seamless transition from optical to SEM imaging, and real-time elemental analysis during image observation. Thus, this benchtop SEM provides improved work efficiency, faster and easier operation, and a higher degree of analytical capabilities.



# Consolidated Five-Year Summary

JEOL Ltd. and consolidated subsidiaries, for the years ended March 31, 2019, 2018, 2017, 2016, and 2015

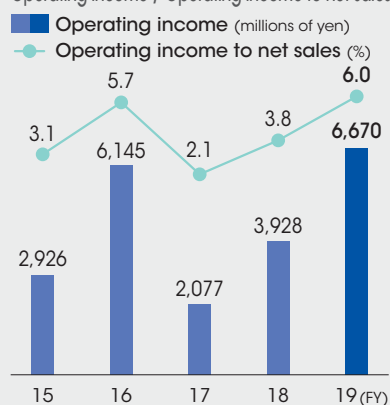
For the year	(millions of yen):	2019	2018	2017	2016	2015
Net sales		111,289	104,570	99,699	107,373	95,380
Scientific and metrology instruments		77,589	68,480	66,510	73,909	69,221
Industrial equipment		16,606	16,708	11,565	9,988	7,436
Medical equipment		17,093	19,383	21,624	23,476	18,723
Selling, general and administrative expenses		35,761	33,562	32,798	34,129	31,918
Operating income		6,670	3,928	2,077	6,145	2,926
Ordinary profit		7,440	4,363	1,724	5,370	3,532
Net income attributable to owners of the parent		5,940	4,532	596	4,090	1,991
Capital expenditures		2,800	2,727	3,267	2,859	3,014
Scientific and metrology instruments		1,943	1,939	2,735	2,216	2,191
Industrial equipment		517	354	178	200	386
Medical equipment		134	284	188	302	319
Eliminations/Corporate		205	150	166	141	118
Depreciation expense		2,755	2,668	2,526	2,877	2,718
Research and development costs		7,184	6,044	6,130	6,479	5,515
Scientific and metrology instruments		4,599	4,185	4,404	4,671	4,065
Industrial equipment		1,674	1,125	787	668	633
Medical equipment		910	734	939	1,140	817

At year-end*1	(millions of yen):	2019	2018	2017	2016	2015
Total assets		122,665	114,629	109,045	113,501	115,869
Total equity		41,593	37,387	32,285	32,087	30,450

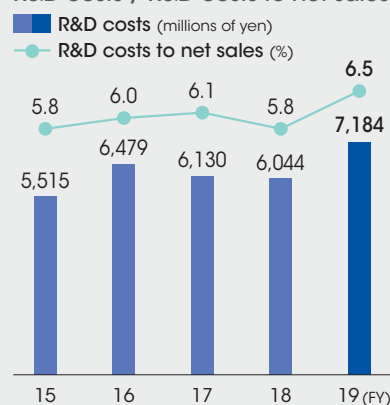
Per share data*2	(yen):	2019	2018	2017	2016	2015
Net income (loss) attributable to owners of the parent		122.95	93.81	12.33	84.64	37.16
Total equity		860.90	773.84	773.84	664.10	630.21
Cash dividends						
Common stock		21.00	16.00	14.00	12.00	10.00

Value indicators	(%)	2019	2018	2017	2016	2015
Return on equity (ROE)		15.0	13.0	1.9	13.1	6.7
Return on assets (ROA)		6.3	4.0	0.5	3.6	1.8

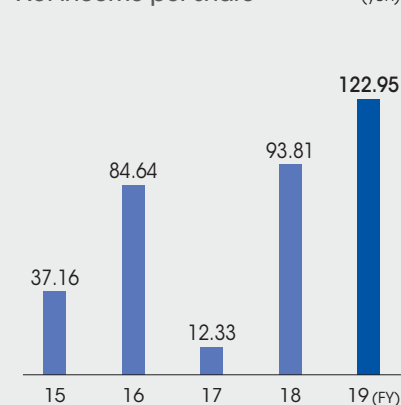
Operating income / Operating income to net sales



R&D costs / R&D costs to net sales



Net income per share\*2 (yen)





## Overview of the Fiscal Year Ended March 31, 2019

The economic situation in Japan during the fiscal year under review was characterized by a continuing trend toward a moderate recovery, despite an increasingly uncertain economic outlook amid growing concern over a global economic slowdown due to trends in US trade policy, including trade friction between the United States and China, as well as slowing growth in the Chinese economy.

Under these circumstances, the JEOL Group made an all-out effort to implement the strategic priorities outlined in the Triangle Plan, our medium-term management plan for the fiscal years 2016 to 2018 aimed at boosting corporate value, creating a more robust management base, and ensuring more orders and sales.

Net sales for the consolidated fiscal year under review were ¥111,289 million (up 6.4% compared with ¥104,570 million in the previous year). Looking at profit and loss, operating income was ¥6,670 million (up 69.8% compared with ¥3,928 million in the previous year), ordinary profit was ¥7,440 million (up 70.5% compared with ¥4,363 million in the previous year) and net income attributable to owners of the parent was ¥5,940 million (up 31.1% compared with ¥4,532 million in the previous year).

## Overview of the Financial Position

Total assets at the end of the consolidated fiscal year under review came to ¥122,665 million, up ¥8,036 million from the end of the previous consolidated fiscal year. The major factors behind this rise were an increase in trade notes and account receivables of ¥2,021 million, growth of ¥7,224 million in inventories, and an increase of ¥9,466 million in current assets.

Total liabilities were ¥81,072 million, up ¥3,830 million from the end of the previous consolidated fiscal year. The major reasons behind this move were a decline in long-term bank loans and an increase in advances received.

Total equity grew ¥4,205 million, to ¥41,593 million, reflecting the recording of ¥5,940 million in net income attributable to owners of the parent. As a result, the shareholders' equity ratio as of March 31, 2019 rose 1.3 percentage points, to 33.9%.

## Overview of Cash Flows

As of the fiscal year ended March 31, 2019, cash and cash equivalents ("cash") amounted to ¥9,261 million at the end of the fiscal year, down ¥552 million from the previous fiscal year end.

Cash flow activities in the consolidated fiscal year under review are shown below.

### Cash flow from operating activities

For the consolidated fiscal year under review, net cash provided by operating activities was ¥4,757 million, compared with ¥6,524 million provided in FY2018. Income before income taxes, trade notes and accounts payable and advances received also increased, despite a rise in trade notes and accounts receivables and inventories..

### Cash flow from investing activities

Net cash used in investing activities totaled ¥1,461 million, compared with a net cash inflow of ¥468 million in FY2018. The main reasons for this decline included purchases of property, plant and equipment.

### Cash flow from financing activities

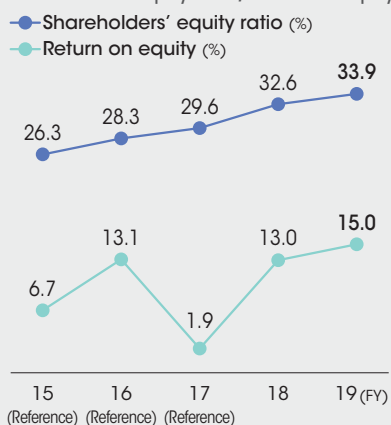
Net cash used in financing activities was ¥3,716 million, compared with a net cash outflow of ¥7,512 million in FY2018. The primary reason for this was the repayment of loans.

## Outlook for the Next Fiscal Year

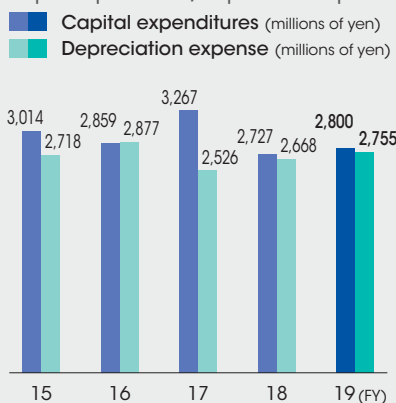
Looking toward the future, although the global economy is stable overall, we expect that our outlook will remain uncertain. Given these conditions, we will solidly promote various measures in line with our medium-term management plan Triangle Plan 2022 (FY2019 to FY2021), and secure orders and sales, while steadily implementing cost improvements in an effort to realize this plan.

For the consolidated operating forecasts for the fiscal year ending March 31, 2020, we expect ¥119,000 million in net sales (up 6.9% year on year), ¥7,100 million in operating profit (up 6.4%), ¥7,500 million in ordinary income (up 0.8%), and ¥5,000 million in net income attributable to owners of the parent (down 15.8%).

Shareholders' equity ratio / Return on equity



Capital expenditures / Depreciation expense



\*1 Partial Amendments to Accounting Standard for Tax Effect Accounting (ASBJ Statement No. 28, February 16, 2018) and related guidance have been applied from the beginning of the consolidated fiscal year under review. Management indicators and other data reflect the retroactive application of these revised accounting standards.

\*2 A 2-for-1 consolidation of common stock was conducted on October 1, 2018. Per share data (net income attributable to owners of the parent, net assets and annual dividends) are presented assuming that the share consolidation took place at the beginning of 2015.

# Outline of JGMS (JEOL Group Management System)

## JGMS Overview

JGMS is a management system that defines the actions JEOL must take to meet the requirements for ISO 9001:2015 and ISO 14001:2015, for which the Company has been certified by an outside certification authority. ISO 9001 is a quality management system that improves customer satisfaction and the quality of products and services. ISO 14001 is an environmental management system that defines environmental requirements, including monitoring and reducing waste and other environmental burdens as well as compliance with environmental laws and regulations. JGMS includes the rules, standards, and procedures specifically designated for operations that integrate these systems into Company management.

## Policy

The quality and environmental policies are clearly communicated both internally and externally through media such as the web site.

### Quality and Environmental Policy

In support of our Corporate Philosophy, offering advanced products and services to the users of scientific and metrology instruments, semiconductor equipment, industrial and medical equipment, and contributing to the development of a sustainable, recycling-based society.

### Commitment to Quality

- In support of our mission, the JEOL Group is committed to the role of a total solution provider, providing high quality products and well-organized services to best serve our clients.
- Continuously improve products and services in cross-departmental approach.
- Promote quality control initiatives through execution and continuous improvement of our quality management system in compliance to international standards.

### Commitment to Environmental Protection

- Product development and process control in an environmentally friendly manner.
- Continuous effort in environmental quality improvement

at every step of our business from development to production to service.

- Compliance with laws and regulations as a socially responsible global corporation.
- Promote environmental control initiatives through execution and continuous improvement of our quality management system in compliance with international standards.

## JGMS Operation

Senior management assesses the conditions, issues, and needs—in and outside the Company—and then evaluates risks for basic, quality, and environmental policies. Then precise guidance is provided to the people responsible in the divisions. Every division then sets the goals and plans for their departments based on this guidance and develops, manages, and evaluates them, making continual improvements so that the PDCA\* cycle can be implemented throughout the Company. In this way, senior management guidance permeates all levels of the organization. These activities are managed as one JGMS system to ensure better products and services and to protect the global environment.

\* PDCA: plan, do, check, act cycle (continual improvements)

## Audits

### External Audits

The activities of the JEOL Group are regularly audited by an external audit company, and the audit company provides an evaluation of the continuing certification, including assessment of the effectiveness and conformance to international standards and JGMS. The issues that are pointed out in the audits are regarded as opportunities for improvement, and we make full use of them as a tool for improving business operations.

### Internal Auditing

Two internal auditing periods are scheduled every year so that the JGMS activities conducted in every division can be independently audited. Internal auditing is done objectively from a neutral perspective by certified internal auditors who have completed education and training and who meet certification standards.

Recommendations made for improving operations during internal audits are not limited to improvements in a specific division, but are deployed horizontally across the Company.

## Publication of International Certification

Not only the JEOL headquarters in Japan, but the entire JEOL Group received ISO 9001 certification in December 1995, and ISO 14001 certification in December 2002. Since then, the ISO standards have been revised to ISO 14001:2015 and ISO 9001:2015, and the JEOL Group has

remained certified under the new standards without interruption. Details of the certification related to JGMS are shown below. The latest certification information can always be viewed on the JEOL website.

Certification authority: Bureau Veritas Certification Holding  
SAS UK Branch

Registration numbers ISO 9001: 4380808 1.0  
ISO 14001: 4380809 1.0

## Compliance Measures

### CSR Committee

Recently corporations are being required to comply with regulations concerning "Pollution Control, Chemical Reduction, Quality/Environmental Control" as part of their corporate social responsibility (CSR).

JEOL organized a committee to address this issue in 2006. The CSR Committee, headed by the president and advised by JEOL's attorney, meets quarterly. The committee's purpose is to promote JEOL's activities to continuously improve and reinforce compliance, quality control, social contribution, corporate ethics, and risk management.

### Environmental Regulations Committees

The Environmental Regulations Committees have been established to handle issues of environmental regulations that apply to JEOL products, starting with the RoHS directive.

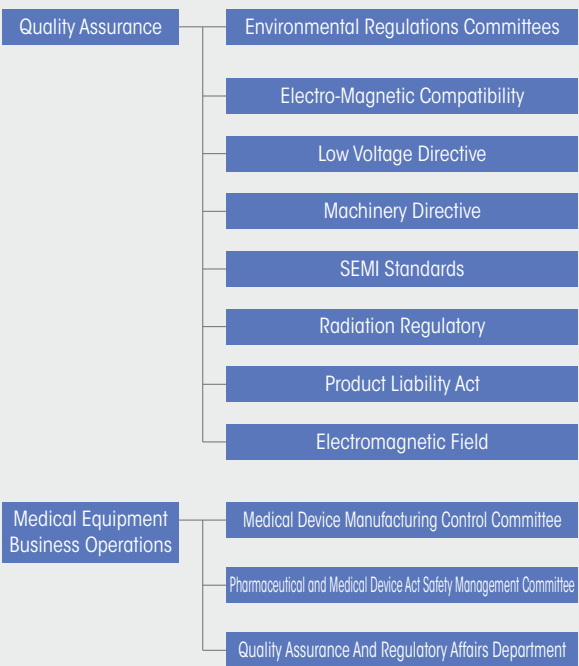
### Technical Regulation Committees

Our Engineering Division organized a number of committees to study and comply with regulations and directives worldwide.

All departments related to products, including sales, development, design, procurement, manufacturing and service, participate and are working on legal compliance.

Laws and regulations change over time. Any provisions affecting the JEOL Group are discussed in the committee specializing in that area, and a review is quickly distributed among all concerned through the Quality Control Office.

For medical equipment, RA (Regulatory Affairs), along with QA (Quality Assurance) is responsible for the ME quality assurance within the Medical Equipment Division, and ensuring compliance with the various rules and regulations throughout the world.



# ■ Together with the Environment

## Environmental Protection through Products

### Measures to Decrease the Burden on the Environment

The JEOL Group contributes to improving the global climate by developing and marketing environmentally conscious and environmentally contributing products in accordance with the company mission statement "Contribute to the advancement of science and society through our products."

#### Environmentally conscious products:

Products designed to reduce the burden on the environment at each step of the product cycle, from materials purchase, production, distribution, through operation, disposal and recycling.

#### Environmentally contributing products:

Products used by customers that are effective for analysis and evaluation in areas of environmental protection and pollution control.

### Development & Distribution of Environmentally Conscious Products

Since 2002 it has been a company rule to perform product assessment, focusing on saving energy, resources, and space, as part of every new product development project.

Recently, there has been progress in modularization in the production of electron microscopes, and for several of our current models a 20% reduction in the construction time compared with previous models has been achieved.

The field emission transmission electron microscope JEM-F200 was developed based on a concept of energy conservation and CO<sub>2</sub> reduction, and is the first model to be equipped with an ECO mode in the standard configuration. This ECO mode is a system for maintaining the instrument in an optimal standby state while reducing energy consumption to the minimum during periods when the instrument is not being used. In the ECO mode status, energy consumption is reduced to about one-fifth the level used during instrument operation. There is also a scheduling function, which allows

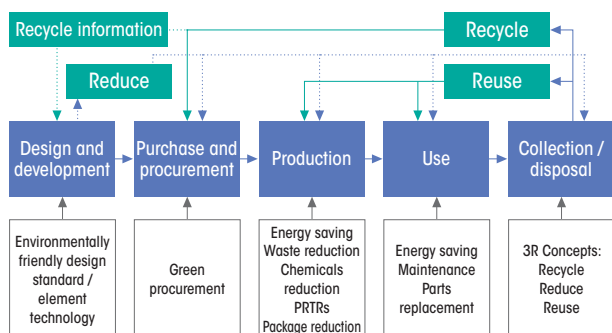
users to specify the date and time for restoring the instrument to a normal operating status from the ECO mode state.

In addition, the compact, fast JCABM6010G automated biochemical analyzer not only offers the most compact footprint in its class, but it is also equipped with a reagent management function, shorter cleaning cycle, and the ability to analyze micro-volume 1μL samples. Blood tests can be performed on extremely small specimen volumes with a minimal amount of reagent, contributing to society through better health and protection of the environment.

### Environmentally Contributing Products

JEOL is a supplier of research tools such as electron microscopes and NMR systems that are essential for research and development of green devices, including LEDs, solar batteries, organic ELs, etc. We also provide components needed for green device manufacturing equipment, including electron guns for LED electrode fabrication. In addition to the products supporting the green device industry, we manufacture and distribute various instruments directly contributing to environmental improvement including 1) dioxin analysis mass spectrometer, JMS-800D, a total solution for dioxin analysis; 2) portable gas chromatography: GC-8610T, enabling analysis in the field for the Type 1 hazardous substances (11 substances) specified in the Soil Contamination Countermeasures Law, and equipped with dry purge and trap functions to support analysis of chloroethylene, which was added in April 2017; 3) quadrupole mass spectrometer (QMS), JMS-Q1500GC, capable of qualitative and quantitative analysis with high accuracy and sensitivity for various isomers, such as brominated flame retardants like PBB and PBDE, 4) X-ray fluorescence spectrometer, JSX-1000S, which can be used to easily measure harmful substances that are subject to regulation, such as for soil contamination measures, 5) transmission electron microscope JEM-1400Flash, which is widely used for asbestos testing in Europe, and 6) electron probe microanalyzer JXA-iHP200F, used in studies for the decommissioning of nuclear reactors, as well as PM 2.5 component analysis surveys and environmental surveys, such as of soil pollution.

### Scope of JEOL Product Assessment



### Environmentally Contributing Products



## Green Procurement

The JEOL Group communicates our environmental policies to our clients and business partners and asks for their cooperation in complying with environmentally preferable (green) purchasing requirements.

JEOL Group companies promote the development and design of products that do not contain certain chemical substances. Our suppliers provide services without adding specified chemicals and deliver goods that do not contain the specified chemical substances, in accordance with the terms of their contracts with us.

JEOL Group companies provide information related to chemical regulations to their business partner companies, and assist in achieving the targets by working with their partners and helping with analysis of the chemical substance content.

### JEOL Group Green Purchasing Requirements [excerpts]\*1 Version 5 (June 2010)

The JEOL Group is committed to activities to encourage environmental protection throughout the business cycle from material purchasing, product delivery, service, maintenance, and disposal.

We form an alliance with our clients, vendors, and partners to establish environmentally preferable purchasing worldwide. To insure green purchasing from our supply chain, we have defined a set of rules as the JEOL Group Green Purchasing Requirements.

## RoHS Compliant Products

There are a variety of regulations on the substances contained in products being enforced, such as the RoHS directive in Europe, and similar regulations are becoming adopted throughout the world.

A system has been built to maintain and continuously improve RoHS compliance efforts by incorporating RoHS-related mechanisms into the integrated quality and environment management system, JGMS, in order to provide products that conform to the RoHS directive, and RoHS compliant products are being delivered.

We are committed to the development, production, and distribution of environmentally contributing products and environmentally conscious products to comply with these standards throughout the entire product lifecycle, from procurement to final disposal\*2.

## Environmentally Contributing Products



\*1 Visit JEOL site for the entire document <https://www.jeol.co.jp/corporate/envi/activity/> (Only available in Japanese)

\*2 Visit JEOL site for more details on our environmental projects <https://www.jeol.co.jp/en/corporate/envi/report/>

## Protecting the Environment through Business Activities

### Reducing Greenhouse Gases

The JEOL Group, in compliance with the Global Warming Policy promoted by the Tokyo Metropolitan Government, implemented various measures through the Energy Saving Committee to reduce the amount of CO<sub>2</sub> emissions.

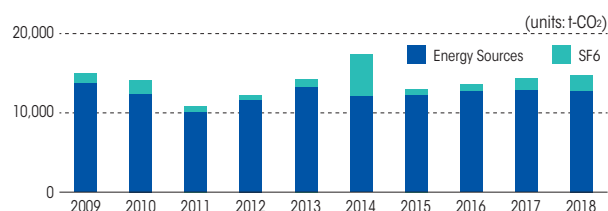
In cooperation with initiatives from the Tokyo Metropolitan Government aiming for Zero Emissions Tokyo, on October 15, 2019 JEOL donated 23,077 tonnes of CO<sub>2</sub> credits based on the metropolitan cap and trade system. For details of these initiatives by the Tokyo Metropolitan Government, please see the Bureau of Environment website.

### Improving Efficiency of Energy Use

JEOL is working to improve energy efficiency, starting with electricity and fossil fuels. Specific examples include upgrading air conditioning systems, introducing some separate air conditioners, clean room equipment renovations, progressive upgrading to LED lighting, more effective use of nighttime electricity by introducing ice storage air conditioners, light-shielding sheets and films installed on buildings to reduce the burden on cooling in summer, and using heat-shielding coatings.

In addition, Company-wide initiatives aimed at reducing energy consumption include Cool Biz and Warm Biz office clothing campaigns as well as managing the amount of electricity used in every building.

### Transition of CO<sub>2</sub> Emissions



### Storage and Disposal of PCB Waste

We store the PCB waste used in high voltage capacitors, transformers, and stabilizers. We have continued this storage for over 40 years since (1972). In some older buildings, PCBs are still used as a lighting equipment stabilizer. However, they are being replaced according to a systematic plan.

In 2001, two acts concerning PCBs became effective: Act on Special Measures concerning Promotion of Proper Treatment of PCB Wastes and Tokyo Metropolitan Government's Guidelines for Proper Management of PCB. We comply with these regulations, filing various documentation including the annual Storage/Disposal of PCB Wastes report for the Tokyo Metropolitan Government.



## Management of Chemical Substances

- For the substances used in the manufacturing process that are treated as toxic materials, JEOL educates managers and controls storage containers, locations, and volumes, as well as restricts the handling of toxic materials under the guidance of the Toxic Materials Control Committee and the Safety and Health Group. The goal is to fully protect employees and prevent inappropriate distribution or leaks. The amount of toxic substances received and used in special substance storage units is recorded and managed using a Company-wide database.
- PRTR Law (Pollutant Release and Transfer Register) and Tokyo Metropolitan Environmental Preservation Code  
The reporting on the specified chemical substances that are subject to reporting is made by two companies within the JEOL Group, which have received environmental certification. These materials are carefully managed, even at JEOL Group companies that do not handle reportable quantities, so that the quantities at each business location can be continuously monitored.

### Waste Materials

For waste materials, the issue is to improve the rate of recycling, and efforts continue to achieve this goal. Through measures such as completely separating waste products by the type of material, improving the rate of recycling of waste plastics, and adopting reusable packing crates and materials, we are currently recycling more than 84.3% of all the materials being used (main office, Akishima factory). In addition, at JEOL Yamagata Co., Ltd, a recycling rate of 80.9% has been achieved.

### Reporting to the National Government

Reporting business locations of the certified company: 2 companies (1 substance)

Substance name: dichloropentafluoropropane

(unit: tonnes / year)

	Output destination	FY2015	FY2016	FY2017
Emissions amount	To the atmosphere	0/0.65	0/0.14	0/0
	To public waterways	0/0	0/0	0/0
	Into the ground	0/0	0/0	0/0
	Reclamation processing	0/0	0/0	0/0
Transferred amount	Into the sewer system	0/0	0/0	0/0
	Transferred externally	0/0.85	0/0.29	0/0

### Reporting to the City of Tokyo

Reporting business locations of the certified company: 1 company (2 substances): JEOL

(Unit: kg / year)

Substance / year (amount used)	FY2015	FY2016	FY2017
1) methanol	137	123	100
2) acetone	—	—	—
3) sulfuric acid	—	—	100

### Waste Material Processing /Verification of Processing Results

For the disposal of waste materials, we monitor the final disposal method, even for those items that are handled outside the company grounds. We do not rely solely on the control manifests for industrial waste. Waste materials disposal managers ensure compliance with Japan's Wastes Disposal and Public Cleansing Act, as well as those of local regulations. We also perform on-site checks to confirm that the disposal of waste materials is being conducted properly.

### Measures at JEOL Yamagata Co., Ltd.

Employees of multiple enterprises on the same site perform all the production tasks, from parts assembly to production completion, as part of an effort to develop environmentally friendly manufacturing processes, by reducing and eliminating the need for packaging materials to transfer parts and materials between companies, as well as the fuel consumption and exhaust gases usually associated with transportation.



JEOL Yamagata Co., Ltd.



# ■ Together with Employees

JEOL strives to create a workplace in which employees can engage in rewarding and meaningful work, a working environment that recognizes various ways of thinking and that values enabling every employee to fully demonstrate their abilities. To this end, all employees work together under the following five behavioral standards.

1. Comply with labor-related laws and regulations related to working conditions, such as those governing employment, personnel, work, and wages.
2. Support the balance between work and private life (work-life balance) by realizing various workstyles and by using several leave systems.
3. Respect the diverse qualities of every employee, always

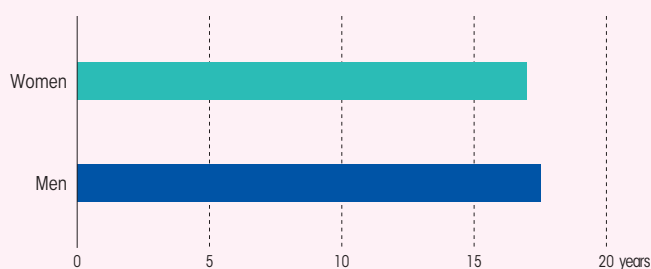
strive to give your best effort, and take advantage of self-directed learning. Supervisors will conduct fair and appropriate management, providing guidance and training for subordinates to help increase their abilities.

4. Strive to develop an open-minded, free, and relaxed workplace culture that fosters mutual respect for every employee's work duties as well as frank communication without being limited by organizational "walls."
5. Comply with all laws and regulations related to safety and hygiene, and ensure safety and health in the workplace. In the unlikely event of an accident, the prescribed procedures must be implemented to minimize the impact of accidents and to prevent a reoccurrence.

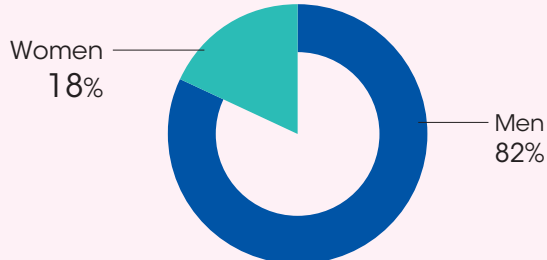
## Special Feature: About Women's Workstyles

JEOL is keenly engaged in hiring female employees and creating workplaces where female employees can work comfortably over the long term, while aiming to develop their careers. The average length of employment for both men and women is about 17 years, with many employees working for many years regardless of gender. As a result of life events such as marriage and childbirth, employees may be forced due to anxiety about their work-life balance to leave the Company, despite their desire to continue working or when a spouse relocates. To alleviate these anxieties, we create work environments enabling employees to give birth and raise children with peace of mind, provide systems supporting both work and family, and we offer career support so that every employee can maximize their abilities.

Average Length of Employment



Assistant Manager Ratio

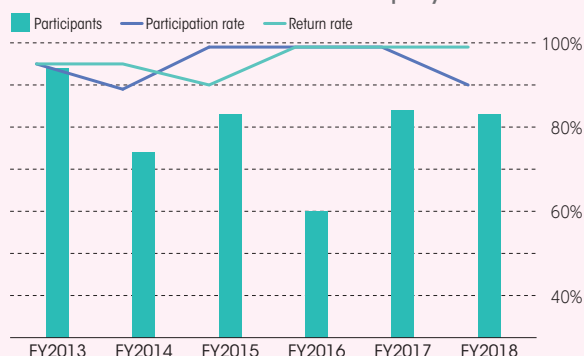


## Childcare Leave and Childcare Support

Nearly 100% of women taking childcare leave later return to work, with few employees leaving the Company because of childbirth. Many employees who return to work after childbirth or childcare leave take advantage of our system of shortened work hours.

In addition, as part of our employee welfare program, we have formed a business alliance with a Company-led childcare center near our offices. The cost for childcare at this facility is the same as a licensed nursery school, and offers safe services for employees to use when there are no childcare centers near their home or when someone wants to return to work immediately after giving birth.

Childcare Leave for Female Employees



# ■ Together with Local Communities

## Contributions to Society

### Science Class Support and Math and Science Special Programs

The Science Class Support Project was started in October 2007 as part of the commemoration of the 60th anniversary of the JEOL Group. Initially, the activities were held at nearby elementary schools, but was later expanded to include teachers, and is now being conducted at a variety of sites, not just elementary schools. Through FY2017, a total of 411 demonstrations on 240 days have been performed. The Science Class Support programs are mainly conducted in classrooms by demonstrators sent from the JEOL Group using benchtop scanning electron microscope (NeoScope™). Students are able to observe pollen, insects and various mechanisms of the body in detail. Students seeing electron microscope images for the first time display a lot of interest, making comments like "It was so interesting to see the bugs so clearly and the different pollen shapes," and "I really liked being able to see what goes on inside the human body in the micro world." By actively participating in local community events and workshops for elementary and junior high school teachers we hope to provide a chance for many people to become more familiar with the microscopic world.

Examples of activities include:

73rd Annual Meeting of the Japan Society of Microscopy and Public Lectures (Sapporo Convention Center)

JAIMA Science Summer School: Experiments with Analytic Instruments for Junior High-School/High-School Students  
National Museum of Emerging Science and Innovation

2017 Youngsters' National Science Festival (Science Museum)

Suginami City Future Science Club for Junior High School Students (Suginami City Koenji Junior High School)

Institut Culturel Franco-Japonais. Ecole Japonaise de Paris (Paris, France)

Tsuchiura City Tsuwa Elementary School Nakamura Elementary School Science Special Class (Tsuchiura City)

In 2017, there were also visits to two elementary schools in the city of Ishinomaki, two in Kesennuma City, and one in Taga Castle City to work with some of the children affected by the Great Eastern Japan Earthquake.

In the future, we hope that everyone, including teachers, students, and the general public will be interested in science. Additionally, the JEOL Group worked in collaboration with universities and other businesses to increase the number of children with an interest in math and sciences, through a two-year special support program organized by the Tokyo Board of Education starting in FY2015. After the end of Tokyo Board of Education program in 2017, JEOL activities have

continued through a Math & Science Special Support Program organized in Hino City. JEOL Group instructors use benchtop scanning electron microscopes (NeoScope™) for science support classes. In 2018, three elementary schools and one junior high school in Hino City were visited (20 classes with 378 students) giving the children a chance to experience the micro-world using an electron microscope.



Science support class

### Support of the Kazato Research Foundation

The Kazato Research Foundation was established in 1969 in commemoration of the 20th anniversary of JEOL Ltd. funded by a contribution from Kenji Kazato, the founder of JEOL Ltd. The purpose of the organization is to promote the R&D for electron microscopes and other related devices, as well as application research using these instruments (medical science, biology, physics, chemistry, materials science, nanotechnology, and others). The foundation has helped many young researchers over the years, and JEOL continues to support the foundation activities with annual donations. (<http://www.kazato.org/english/>) The young researchers below received awards in FY2018.

#### Kazato Prize

**Satoko Arakawa, Junior Associate Professor,**  
Department of Physics and Electronics, Medical Research Institute,  
Tokyo Medical and Dental University  
"Discovery of alternative autophagy using ultramorphology"

**Yoshiaki Sugimoto, Associate Professor,**  
Graduate School of Frontier Sciences, The University of Tokyo  
"Characterization and manipulation of single atoms and molecules by scanning probe microscopy"

#### Kazato Research Encouragement Prize

**Daisuke Inoue, Postdoctoral Fellow,**  
the Biodesign Institute, Arizona State University  
"Design of microtubule structures by DNA origami"

**Takao Oi, Assistant Professor,**  
Graduate School of Bioagricultural Sciences, Nagoya University  
"Clarification of the functional morphology of salt glands in Grasses by three-dimensional electron microscopy"

**LinYung-Chang Lin, Researcher,**  
Nanomaterials Research Institute, National Institute of Advanced Industrial Science and Technology  
"Investigation of the magnetic moment of single transition metal atoms by scanning electron vortex beam"

**Eita Tochigi, Associate Professor,**  
School of Engineering, The University of Tokyo  
"Investigation of local deformation and fracture phenomena by atomic-resolution in situ TEM mechanical test"

Prize winners are expected to play active roles in the fields of materials research and life sciences.

## Local Community

### Don't Litter Campaign (Commute Route Clean-up)

The Don't Litter campaign, a volunteer community service that JEOL employees have been performing since 1994, has become a regular part of the routine. About once every two months, employees "clean-up" during their morning commute. Employees will continue these activities, never forgetting the original spirit and enthusiasm that prompted the start of the Don't Litter campaign.

*"It was depressing to see cigarette butts and other trash littering the sidewalks around the company, and along the paths to the train station. Believing that there must be something that we could do, something that we should do, we began to regularly clean the commuting routes. The name given to this clean-up activity is the Don't Litter Campaign."*



Don't Litter Campaign

### Participation in the Akishima Environment Consideration Enterprise Network

The activities of the Akishima Environment Consideration Enterprise Network were started in April 2005, with 16 member organizations. By the end of FY2019, the organization had grown to 41 member enterprises.

JEOL has been involved as an executive member since the inception of the network. During the major revision of the organization between FY2009 and FY2010, JEOL filled the role of chairman of the network, continued in the role of vice chairman for FY2011 and FY2012, and as executive secretary in FY2015, continuing to promote environmentally friendly activities and practices in collaboration with network members.

Exhibits were halted and many other activities were limited in FY2011 due to the Great East Earthquake, but the activities were revived in FY2012.

The activities are low profile but we intend to continue to make steady dedicated efforts to promote environmentally friendly practices in the local community.

### Activities at JEOL Yamagata Co., Ltd.

JEOL Yamagata Co., Ltd. is a production base of the JEOL group located in Tendo City, Yamagata Prefecture. To be able to continue working for many years to come, and earn the goodwill of everyone in the region, the following activities take place:

- 1) We are accepting on-the-job trainees from high schools and colleges every year and provide factory and carrier experiences to assist the development of human resources and professional awareness.
- 2) Factory tours are offered to provide opportunities to see the products being produced. In FY2018, 278 visitors from 16 organizations visited our site.
- 3) Crossing guards and patrols are provided on the roads around the company during the traffic safety campaigns in the spring and autumn. The goal is not only to prevent traffic accidents during the commute to school by the young students, but also to improve traffic awareness and practices of the employees.
- 4) Active participation in local festivals, social gatherings and events. In particular, for the local autumn festival, a benchtop scanning electron microscope was prepared at the festival site to allow visitors to see magnified images of insects and other objects.



Traffic safety on school commuting routes



Students from a Yamagata City elementary school

# Board of Directors, Audit & Supervisory Board Members, and



Gon-emon Kurihara

Chairman & CEO

## Career summary

Apr. 1971 Joined the Company  
 Apr. 2000 General Manager of Medical Sales Division  
 Jun. 2002 Director  
 Apr. 2004 Assumed the position in charge of sales  
 Jun. 2004 Managing Director  
 Apr. 2005 Head of Sales Division  
 Jun. 2005 Senior Managing Director  
 Apr. 2006 Assumed the position in charge of analytical instruments  
 Jun. 2006 Director and Senior Executive Officer  
 Jun. 2007 Executive Vice President  
 Jun. 2008 President  
 Apr. 2012 Assumed the position in charge of overall management (to the present) and Corporate Planning & Strategy Office  
 Jun. 2019 Chairman and Chief Executive Officer (CEO) (to the present)



Izumi Oi

President & COO

## Career summary

Apr. 1986 Joined the Company  
 Apr. 2012 General Manager of Management Strategy Planning Office  
 Jun. 2013 Corporate Officer of the Company  
 Jun. 2015 Director and Corporate Officer of the Company  
 Jun. 2016 Director and Executive Officer of the Company  
 Apr. 2019 Assumed the assistant position in charge of overall management  
 Jun. 2019 President and Chief Operating Officer (COO), in charge of overall management (to the present)



Koichi Fukuyama

Director & Senior Executive Officer

## Career summary

Apr. 1982 Joined the Company  
 Apr. 2005 General Manager of Management Strategy Planning Office  
 Apr. 2006 General Manager of Internal Auditing Division  
 Jun. 2006 Corporate Officer  
 Jun. 2009 Director and Corporate Officer  
 Jun. 2011 Director and Executive Officer  
 Apr. 2016 Assumed the position in charge of sales (to the present) and the position in charge of brand strategy  
 Jun. 2016 Director and Senior Executive Officer (to the present)  
 Apr. 2017 Assumed the position in charge of brand communication (to the present)  
 Apr. 2018 Assumed the position in charge of the Business Operation Center (to the present)



Atsushi Seki

Director & Executive Officer

## Career summary

Apr. 1983 Joined the Company  
 Oct. 2009 Assistant General Manager of General Affairs Division, General Manager of Human Resources Dept., and Manager of Recruitment and Training Group  
 Apr. 2012 General Manager of General Affairs Division  
 Jun. 2014 Corporate Officer  
 Apr. 2015 Manager of Internal Auditing Division (to the present)  
 Apr. 2018 Assumed the position in charge of General Affairs (to the present)  
 Jun. 2018 Director and Executive Officer (to the present)



Satoshi Nagakubo

Outside Director

## Career summary

Jun. 2001 Executive Officer of Nissho Iwai Corporation (currently Sojitz Corporation)  
 Jun. 2003 President and Representative of Nissho Iwai Plant Equipment Co., Ltd. (currently Sojitz Machinery Corporation)  
 Jun. 2009 Director and Chairman of Sojitz Machinery Corporation  
 Oct. 2012 Corporate Adviser of the Company  
 Jan. 2015 Representative Director and President of HR Consultant Co., Ltd. (to the present)  
 Jun. 2016 Outside Director of the Company (to the present)



Koji Nakao

Outside Director

## Career summary

Jun. 2007 Director and Senior Managing Executive Officer of Terumo Corporation  
 Jun. 2010 Director and Executive Vice President of Terumo Corporation  
 May 2011 Chairman of the Board of Terumo Corporation  
 Apr. 2013 Chairman of the Japan Federation of Medical Devices Associations  
 Aug. 2013 Director of Biodesign Japan (to the present)  
 Jun. 2018 Outside Director of the Company



# Corporate Officers (As of June 26, 2019)



**Hideyuki Nimura**  
Director & Senior Executive Officer

## Career summary

Jul. 2004 Joined the Bank of Tokyo-Mitsubishi, Ltd. (currently MUFG Bank, Ltd.)  
Director-General of Thailand Region and General Manager of Bangkok Branch  
Dec. 2006 General Manager of International Compliance Division of the Bank of Tokyo-Mitsubishi UFJ, Ltd. (currently MUFG Bank, Ltd.)  
Apr. 2009 Joined the Company  
Councillor of Finance Division  
Jun. 2009 Executive Officer in charge of finance  
Jun. 2011 Director and Executive Officer  
Apr. 2016 Assumed the position in charge of finance, IT and export trade control (to the present)  
Jun. 2016 Director and Senior Executive Officer (to the present)



**Atsumi Nakamura**  
Director & Senior Executive Officer

## Career summary

Jan. 2001 General Manager of Manufacturing Division, Instruments Company of Nikon Corporation  
Jun. 2012 Operating Officer and General Manager of Business Planning Department and Bioscience Marketing Department, Instruments Company of Nikon Corporation  
Jun. 2014 Corporate Vice President, General Manager of Microscope Solutions Business Unit and Department Manager of Marketing Department of Nikon Corporation  
Oct. 2015 Corporate Vice President and General Manager of Microscope Solutions Business Unit  
Jun. 2017 Director and Senior Executive Officer in charge of corporate planning of the Company (to the present)  
Corporate Adviser of Nikon Corporation (to the present)



**Toyohiko Tazawa**  
Director & Senior Executive Officer

## Career summary

Feb. 1984 Joined the Company  
Apr. 2009 General Manager of SA Business Unit  
Jun. 2011 Corporate Officer  
Apr. 2013 Assumed the position in charge of Advanced Fundamental and Core Technology Center (to the present)  
Peripheral Equipment, SA, SM, & IB Business Units, in charge of SA & SM design, & General Manager of IB Business Unit  
Jun. 2013 Executive Officer  
Apr. 2014 Assumed the position in charge of MS Business Unit (to the present) and EM Business Unit  
Apr. 2015 Assumed the position in charge of R & D Management Center (to the present), Scanning System Business Operations, Design Management, and Cost Center  
Apr. 2016 Assumed the position in charge of Application Management Department and 3D Additive Manufacturing Business Project (to the present)  
Jun. 2016 Director and Executive Officer  
Apr. 2018 Assumed the position in charge of administration of development technology and intellectual property (to the present)  
Jun. 2018 Director and Senior Executive Officer (to the present)  
Apr. 2019 Assumed the position in charge of EX Business Unit (to the present)



**Takashi Wakasa**  
Audit & Supervisory Board Member



**Kazunori Fukushima**  
Audit & Supervisory Board Member



**Akifumi Goto**  
Outside Audit & Supervisory Board Member



**Norio Kuroiwa**  
Outside Audit & Supervisory Board Member

## Executive Officers

Susumu Saito  
Katsumoto Yaguchi  
Yoshihiro Ohkura  
Hiroaki Fukuda  
Yasuo Hijikata  
Tadashi Komagata

## Corporate Officers

Peter Genovese  
Mitsuru Takahashi  
Akihiro Kobayashi  
Tadashi Okubo  
Shintaro Yazuka  
Kiyotaka Fujino  
Toshikatsu Kaneyama  
Osamu Wakimoto  
Masayuki Kobayashi

# Corporate Governance

## Basic Approach

JEOL's basic approach to corporate governance is to build a stable profit structure and to realize basic management policies that focus on enhancing corporate value while achieving future-oriented development and growth. These goals will be reached by implementing various measures, including setting up an organizational management structure with efficient, highly transparent management that upholds our responsibility to respect the position of shareholders and all other stakeholders.

## Corporate Governance Structure

The Company has adopted a corporate audit & supervisory board system, with the Board of Directors and the Board of Corporate Auditors supervising and auditing business execution.

JEOL has introduced an executive officer system to quickly respond to changes in the business environment with the aim of streamlining management using an optimal number of board members (the maximum number is limited by the articles of incorporation) and to facilitate rapid decision-making and efficient business execution. In FY2018, the Board of Directors met 18 times.

The Company's governance structure has of a mechanism for efficient supervisory functioning by corporate auditors consisting of an audit and supervisory board whose members have considerable knowledge of finance and accounting. This board, which audits the execution of duties by Board of Director members, includes outside corporate auditors who are independent of management to supervise affiliated companies and branches. This board also participates in Board of Directors' meetings.

As part of the revisions to management meetings begun in April 2006, the Executive Committee has been converted to a management council following the adoption of a system that enables more effective and immediate business operations.

In April 2018, the CSR Committee—chaired by the President and includes participation by outside lawyers—was established to promote and strengthen social contributions,

compliance, and risk management with an emphasis on corporate social responsibility. The CSR Committee, in response to reports from the Committee on Internal Control and Risk Management, the Internal Audit Department, JGMS and MDQMS, provides consultation and proposals on CSR activities that are then reported to the Board of Directors.

In addition, internal auditing, excluding JGMS and MDQMS, has been consolidated into the Internal Auditing Division.

As of June 26, 2019, the JEOL corporate organization consisted of nine directors (including two outside directors) and four Audit & Supervisory Board Members (including two outside corporate auditors).

### Internal Control System

#### Internal Control System Status

Listed below are the decision-making criteria and the operational status of the respective systems that confirm that the execution of duties by directors follow the laws and the articles of incorporation as well as the systems (internal control systems) that ensure the suitability of operations by the corporate Group, including JEOL subsidiaries and other companies.

#### Internal Control System Overview

##### 1 System for storing and managing information on the execution of duties by directors

- 1 Documents related to decisions made by the Board of Directors (including documents on the execution of



duties) are securely stored and managed in a way that is easy to search based on document management rules (stored for 10 years, in principle).

- ② JEOL responds promptly to requests from directors and corporate auditors regarding the inspection, copying, and submission of the documents mentioned above.

## 2 Rules and other systems for risk management to prevent loss

As a system dedicated to managing risks to prevent loss, JEOL already has the following compliance management rules in place and has established a compliance reporting hotline. In addition to the operation of the JEOL Group Management System (JGMS) and the Medical Devices Quality Management System (MDQMS), we have set up several committees: a health and safety committee, a crisis management committee, an export control committee the Information Security Committee, and the Business Continuity Plan (BCP) Promotion Committee.

### Status of Internal Audits, Audits by Corporate Auditors, and Accounting Audits

To ensure thorough legal compliance within the Company and at affiliated companies and to improve management efficiency, audits at affiliated company are conducted in accordance with the Internal Audit Rules for Domestic

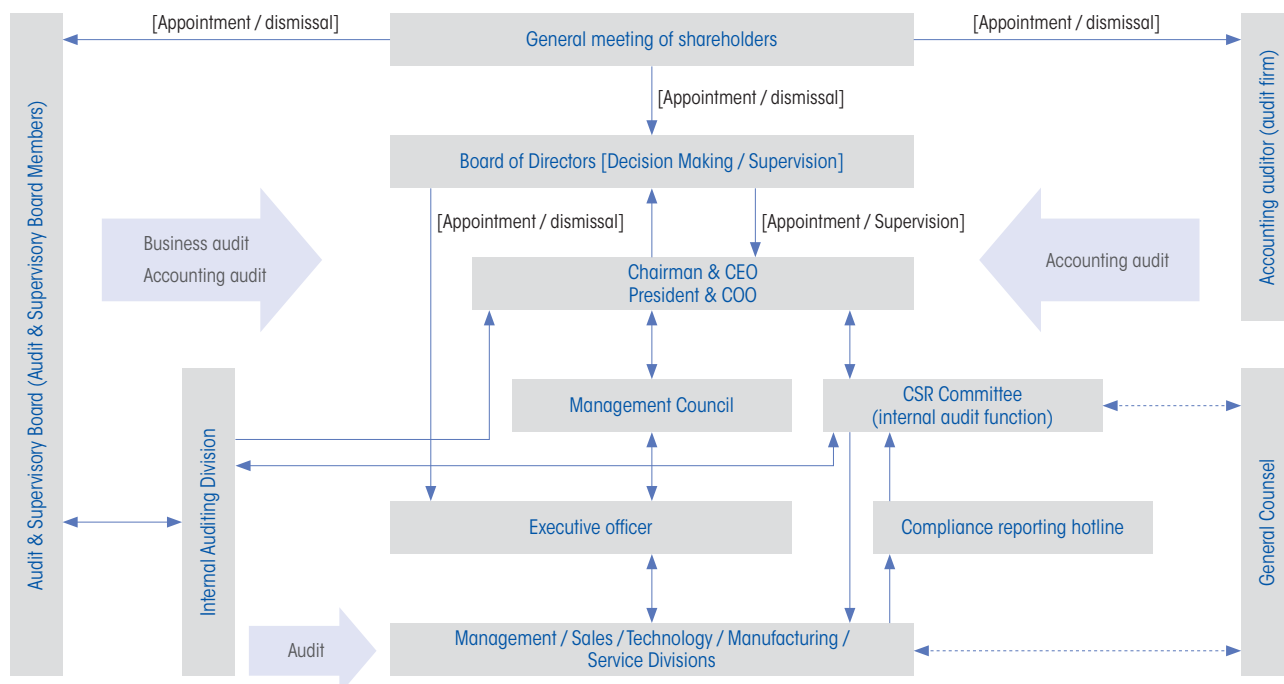
Affiliated Companies. For operations overseas, Tokyo meetings are held biannually to achieve mutual understanding through dialogue. In addition, internal auditing has been strengthened and a business supervision office (consisting of five members) has been established to supervise our head office and affiliated company operations, as well as to assist and coordinate with corporate auditors.

Corporate Audit & Supervisory Board Member Kazunori Fukushima has considerable knowledge of finance and accounting, including having served as an executive officer of the Company. Outside Corporate Audit & Supervisory Board Member Akifumi Goto is an attorney with deep knowledge of finance and accounting.

Outside Corporate Audit & Supervisory Board Member Norio Kuroiwa also possesses a high degree of finance and accounting knowledge, including serving as an executive officer of the Bank of Tokyo-Mitsubishi, Ltd. (currently MUFG Bank, Ltd.) and as an executive officer of Mitsubishi Tokyo Financial Group, Inc. (currently Mitsubishi UFJ Financial Group, Inc.).

Deloitte Touche Tohmatsu LLC has been appointed to conduct accounting audits, carried out in cooperation with Audit & Supervisory Board Members and the Internal Auditing Division.

## Corporate governance system



## Evaluating the Effectiveness of the Board of Directors

Since FY2017, JEOL has analyzed and evaluated the efficiency of the Board of Directors to ensure that it is functioning effectively. Based on the results of this analysis

and evaluation, we intend to improve the overall effectiveness of the Board of Directors through an ongoing process of identifying and improving issues and further augmenting the strengths of the Board.

The results of Board of Directors' analyses and evaluations in FY2018 have been compiled and are disclosed below.

### Evaluation Method

Self-assessment questionnaires evaluating the effectiveness of the Board of Directors were completed by all Directors and Audit & Supervisory Board members at the Board of Director meetings held in FY2018 (April 2018 to March 2019). The results were discussed and resolved at the Board of Directors meeting held on August 27, 2019.

### Evaluation Items

Evaluation items were categorized into three areas:

- ① Board composition
- ② Management of the Board of Directors
- ③ Provision of information to outside officers

### Summary of Evaluation Results

When implementing the self-evaluation questionnaires for all directors and all Audit & Supervisory Board members, every evaluation item was found to be above average and the overall effectiveness of the Board of Directors was found to be generally maintained.

### Issues raised by questionnaire results

- ① Additional time is needed to discuss medium- to long-term management issues.
- ② Although progress is being made on internal controls and risk management systems, steady efforts are required.
- ③ Following the results of the previous questionnaire, a method must be devised so that materials required for Board of Directors' meetings are provided before the meetings to allow enough time for a thorough review.
- ④ When there is a substantial amount of materials for Board of Directors' meetings, the information should be summarized at the beginning of the meeting.
- ⑤ The latest information on corporate governance and related laws and regulations should be introduced and opportunities provided to deepen understanding of these matters through training.

### JEOL Responses to the Above Issues

- ③ The amount of time allotted for Board of Directors' meetings has been increased, starting in April 2019, to ensure enough time for deliberations, and the time allowed for prior review of the materials will be increased.
- ④ Some materials that include summaries and explanations of main points with details attached for reference that will be expanded, as needed.
- ⑤ Outside directors gave lectures and conducted study sessions on governance during FY2018. We will continue to create these and other opportunities going forward.

### Future Responses

The Board of Directors will respond to issues based on the results of these evaluations and will continue to conduct evaluations and further analysis to improve the efficiency of the Board of Directors.

## Status of the Risk Management System

JEOL's risk management system complies with all laws and regulations, and there is close cooperation among the Management Strategy Planning Division, Internal Auditing Division, Security Export Trade Control Division, General Affairs Division, Finance Affairs Division, Information Technology Division, Intellectual Property Strategy Division, Quality Assurance Division and other divisions. Related committees collaborate to educate and raise awareness within the Company. The CSR Committee is also responsible for internal control and risk management committees as well as internal audit departments, and in response to reports from JGMS and MDQMS, consults and makes proposals on CSR activities and reports to the Board of Directors. JEOL formulates Company rules and creates committees in line with Group management, including establishing Compliance Management Rules, the JEOL Code of Ethics and Conduct, and the protection of personal information by observing our information security policy.

We also established a compliance reporting hotline and business continuity plan (BCP), initiatives that will be promoted throughout the entire Group.

In addition, to foster a healthy corporate culture, we are striving to thoroughly implement Action Guidelines for our employees, to instill corporate ethics, and to develop KF Activities (activities aimed at improving the corporate culture).



## Executive Compensation

### Basic Policy on Executive Compensation

JEOL executive compensation improves the motivation to help achieve our management goals, in turn raising awareness of contributions to boost performance through medium- to long-term enhancements to corporate value. Our compensation system is designed to share profit awareness with shareholders and to raise shareholder-oriented management awareness.

### Basic Compensation Level

JEOL establishes incentives appropriate for improving business performance after considering the business environment surrounding the Company, the salary level of employees, and salary levels at other companies in the same industry.

### Compensation Composition

Compensation for directors consists of basic compensation and performance-linked stock compensation.

- ① Basic compensation: Monetary compensation proportionate to the position and Company performance, as well as individual responsibility and performance.
- ② Performance-linked stock compensation: A stock compensation system that reflects medium- to long-term company performance and potential risks, and that contributes to a healthy entrepreneurial spirit.

The executive retirement allowance system was eliminated at the conclusion of the 71st Ordinary General Meeting of Shareholders held on June 27, 2018.

See our website for more details. (Japanese only) <https://www.jeol.co.jp/corporate/outline/governance/index.html>

# Corporate Outline (As of March 31, 2019)



Corporate Name	JEOL Ltd.	
Address	3-1-2, Musashino, Akishima, Tokyo 196-8558, Japan TEL: +81-42-543-1111 FAX: +81-42-546-3353	
Establishment	May 30, 1949	
Capital	¥10,038 million	
Number of Employees	Consolidated: 3,029 Non-consolidated: 1,907	
Head Office and Branch Offices	Head Office/Factory	Tsukuba Branch
	Tokyo Office	Nagoya Branch
	Tokyo Second Office	Osaka Branch
	Yokohama Office	West Japan Solution Center
	Tokyo Branch	Hiroshima Branch
	Sapporo Branch	Takamatsu Branch
	Sendai Branch	Fukuoka Branch
Domestic Subsidiaries and Affiliated Companies	JEOL TECHNICS LTD.	
	JEOL TECHNOSERVICE CO., LTD.	
	JEOL YAMAGATA CO., LTD.	
	JEOL INSTRUMENTS INC.	
	JEOL RESONANCE Inc.	
Overseas Subsidiaries	JEOL USA, INC. [USA]	
	JEOL (EUROPE) SAS [France]	
	JEOL (U.K.) LTD. [U.K.]	
	JEOL (EUROPE) B.V. [the Netherlands]	
	JEOL (Nordic) AB [Sweden]	
	JEOL (GERMANY) GmbH [Germany]	
	JEOL (ITALIA) S.p.A. [Italy]	
	JEOL ASIA PTE. LTD. [Singapore]	
	JEOL TAIWAN SEMICONDUCTORS LTD. [Taiwan]	
	JEOL (AUSTRALASIA) PTY. LTD. [Australia]	
	JEOL DE MEXICO S.A. DE C.V. [Mexico]	
	JEOL CANADA, INC. [Canada]	
	JEOL BRASIL Instrumentos Científicos Ltda. [Brazil]	
	JEOL (MALAYSIA) SDN. BHD. [Malaysia]	
	JEOL (BEIJING) CO., LTD. [China]	
	JEOL Shanghai Semiconductors Ltd. [China]	
	JEOL DATUM Shanghai Co., Ltd. [China]	
	JEOL (RUS) LLC [Russia]	
	JEOL INDIA PVT. LTD. [India]	
	JEOL GULF FZCO [UAE]	
	JEOL SEMICONDUCTORS KOREA Co., Ltd. [Korea]	
	JEOL ASIA (THAILAND) CO., LTD. [Thailand]	
	JEOL KOREA LTD. [Korea]	
	IonSense, Inc. [USA]	

# Stock Information (As of March 31, 2019)

## Stock Information

Authorized shares	100,000,000
Issued shares	48,857,800
Number of shareholders	4,785

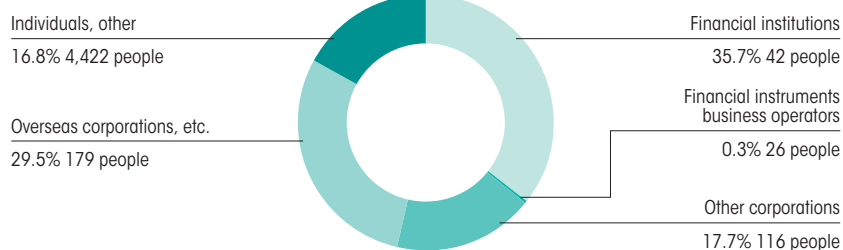
## Major Shareholders

Name	Number of shares owned (thousand)	Ownership ratio (%)
Nikon Corporation	4,300	8.8
The Master Trust Bank of Japan, Ltd (Trust account)	3,293	6.8
Japan Trustee Service Bank, Ltd. (Trust account)	3,154	6.5
Oppenheimer Global Opportunities Fund	2,500	5.1
MUFG Bank, Ltd.	1,504	3.1
JEOL Mutual Prosperity Association	1,298	2.7
JEOL Group Employee Stock Ownership Association	1,284	2.6
Japan Trustee Services Bank, Ltd. (Trust Account 4)	1,234	2.5
Nippon Life Insurance Company	1,042	2.1
Mitsubishi Electric Corporation	1,000	2.1

Ownership ratio is calculated by subtracting treasury stock.

## Breakdown of Shares

### By type of shareholders



### By number of shares owned

