

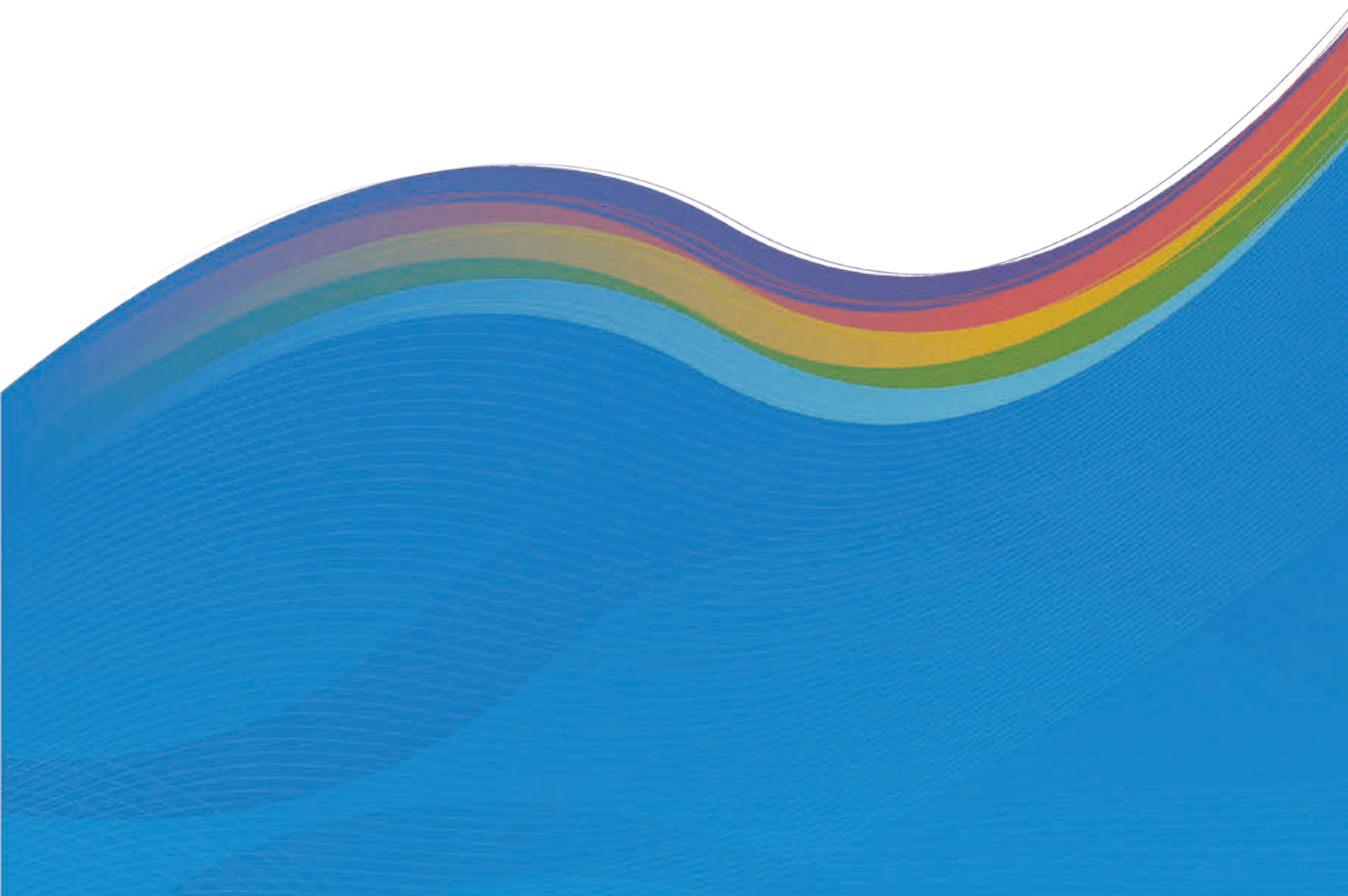
Omoshiro-okashiku
Joy and Fun

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HORIBA Report 2018

Year ended December 31, 2018



Omoshiro-okashiku
Joy and Fun

おもしろおかしく

眞峰





Everything begins with measurement

Sustainable growth in society is established through technological innovation.

Engineers' dreams, passions, and persistent efforts are intertwined with the conditions that enable them, including investment opportunities and social demand.

“Measurement Technologies” that distinguish unknown materials and phenomena help accelerate innovation by engineers.

Everything begins with measurement.

HORIBA's “Measurement Technologies” and analysis solutions are consistently at the frontlines of innovation.





Corporate philosophy

Business Operations

At HORIBA, our mission is to contribute to the progress of science and technology, and the preservation of the global environment and resources through the provision of highly original products, analytical and measurement solutions, and engineering services that utilize our world renowned measurement and analytical technologies. We are engaged in the fields of engine emissions, scientific analysis, industrial and process measurement, environment monitoring, semiconductor process control, medical and health-care, and biotechnology. The new businesses and new products we may initiate shall also satisfy our aim to develop scientific technology, improve the life of the community, and minimize the impact on the environment. We put priority on ensuring a safe business environment and strictly abide by applicable laws, regulations, and our articles of incorporation. We have established and adopted a quality management system and environmental preservation system. We strive to deliver high value-added products and services in the shortest possible time to customers all over the world while combining the unique development, production, sales, and service functions of all HORIBA Group companies throughout the world.

We aim to be a leader in the global market in the fields in which we operate by consistently satisfying our customers' needs and effectively maximizing our resources through investments in the carefully selected fields.





Customer Responsiveness

We maintain a philosophy of pursuing cutting edge technology in order to supply products and services that consistently satisfy customers' requirements. We are committed to offering top-quality, highly reliable products and services with a consistent level of excellence throughout the world. Meanwhile, we strive to understand the true needs of customers and proactively propose solutions.

Responsibility to Shareholders and Investors

We recognize that maximizing the returns to shareholders by consistently raising HORIBA's long-term corporate value is one of the priority objectives of management. Our basic policy is to target total returns (the combination of dividend payments and share buybacks) to shareholders to be at a certain ratio of HORIBA's consolidated net income, and consistently deliver them. In addition, we are committed to create opportunities for constructive dialogues with investors and stakeholders, regularly reporting our operating performance, fairly and promptly disclosing information whenever an important business or managerial issue arises, and maintaining transparency in our management. HORIBA Group companies, having adopted a unified accounting standard and system and a common information base, shall maintain a timely and responsive management control system.

The managements of group companies also share responsibility in generating profit, delivering dividend payments, establishing and managing the internal control system, and developing human resources.

Employees (HORIBARIANs)

We are proud of the entrepreneurial spirit that has led to the creation of HORIBA Group companies. Each group employee is made aware of this heritage and we actively encourage ideas and innovations from individual employees. HORIBA promotes an open and fair business environment, with attention to safety and health, which allows all group employees to achieve their individual goals and maximize their talents and potential. We strive to foster an environment of mutual respect so that diverse talents and viewpoints can flourish. At the same time, to further everyone's personal and professional growth, we encourage intercultural understanding and thinking from a global perspective. We create a work environment for employees to achieve their growth potential and exert their talents to the maximum by accelerating diversity management and expanding our international core human resources development and exchange program. The basis of our performance evaluation is the merit count principle, (not the demerit mark principle), as we value each and every employee who makes efforts to improve his or her performance with a challenging spirit.



HORIBA Report 2018

Editorial policy

In this integrated HORIBA Report 2018, we have presented how HORIBA investments in invisible values are contributing to actual business growth and creating social value. In order to facilitate understanding, related activities are on each business segment page. Please see the ESG marks in the Business outline section of this report, which begins on page 41.

■ Regarding our use of the term “Owners” (shareholders)

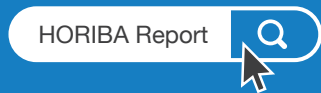
HORIBA fully recognizes the importance of its shareholders and frequently refers to them as “Owners.”

Regarding the importance and comprehensiveness of information in HORIBA Report 2018

We have selected financial and non-financial information that we believe to be of high importance for inclusion in HORIBA Report 2018.

For more detailed information, please see our website.

The PDF version of HORIBA Report 2018 is also available through our website.



Notation of HORIBA and HORIBA, Ltd.

In this HORIBA Report, the HORIBA Group of companies is described as “HORIBA” and the parent company as “HORIBA, Ltd.”

Disclaimer regarding future plans and forecasts

This HORIBA Report contains certain statements describing future plans, strategies, and performance forecasts of HORIBA, Ltd. and its affiliated companies. These statements reflect forecasts based on management’s assumptions and beliefs based on the available information as of February 12, 2019, when business results were announced. Actual performance may differ due to unforeseen circumstances in the operating environment and other factors.

Change in Revenue Recognition Standard

HORIBA, Ltd. and its domestic consolidated subsidiaries had formerly recognized revenue mainly on a shipping basis. However, starting from fiscal 2016, HORIBA, Ltd. and its domestic consolidated subsidiaries changed its revenue recognition method to recognize revenue on a completion-date-of-installation or delivery-date basis under the terms and conditions of the relevant contracts. The amounts in or before fiscal 2015 are not retrospectively revised.

Market Share

Market shares stated in this report are HORIBA’s estimates as of fiscal 2018.

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Global growth through reliable technology and proactive M&As

HORIBA has achieved continuous growth since its foundation, by specializing in “Measurement Technologies” and entering new markets. We now have a new management team focused on responding to varied requests from our customers and society and seeking to raise our corporate value while navigating the rapid changes in various areas of technology.



Development of the technology and products that form HORIBA's foundation



1950
HORIBA pioneers the first glass electrode pH meter manufactured in Japan.



1964
Launch of “MEXA,” a global brand for emission measurement systems.



1970
OLSON-HORIBA, INCORPORATED, a joint venture company, was established in the U.S. HORIBA begins overseas expansion.



1975
Emission measurement systems were delivered to the U.S. Environmental Protection Agency (EPA).



1980
Launch of the first mass flow controller manufactured in Japan.

■ Sales outside of Japan
■ Sales in Japan
— Operating income

Results up to 1977 are on a non-consolidated basis and results from 1978 are on a consolidated basis. Sales from 1991 are divided into overseas sales and domestic sales.

1945 1950 1955 1960 1965 1970 1975 1980

1945
HORIBA RADIO LABORATORY was established.

1953
HORIBA, Ltd. was established.

01

1st President (Founder)
1953—1978
Masao Horiba

02



Launched as a student venture

Masao Horiba founded HORIBA, Ltd. along with eight employees, gaining a foothold with the first glass electrode pH meter manufactured in Japan. Also, he established HORIBA's corporate motto, “Joy and Fun,” in 1978.





Global growth through M&As



Press conference on the announcement of the new management structure

1996



Acquired ABX S.A. (now HORIBA ABX SAS) in France.

1997



Acquired Jobin Yvon S.A. (now HORIBA France SAS) in France.

2005



Acquired MCT (Mechatronics) business of Carl Schenck AG in Germany.

2015



Acquired MIRA, Ltd. (now HORIBA MIRA Limited.) in the U.K.

2018



Acquired FuelCon AG (now HORIBA FuelCon GmbH) in Germany.

2018



Acquired ROHM Co., Ltd.'s micro-blood analysis system business.

2019



Acquired MANTA Instruments, Inc. in the U.S.

Moving up to the next stage under the new management structure



2nd President
1978—1992
Masahiro Oura

03

3rd President
1992—2017
Atsushi Horiba (serving as Chairman & Group CEO since 2018)

04

4th President
2018—
Masayuki Adachi

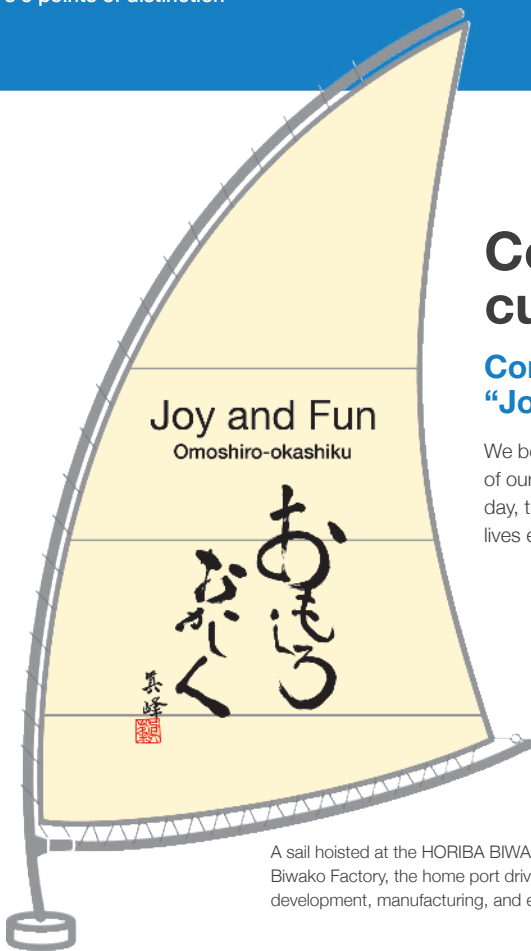
Development of products popular around the world

Full-fledged development of the emission measurement systems and mass flow controllers that currently support HORIBA's earnings began during this period.



Business expansion through M&As

Thanks to proactive M&As and synergy maximization, sales have grown by more than five times in the 26 years since Chairman and Group CEO Horiba assumed the office of president.



Corporate culture

Corporate motto "Joy and Fun"

We believe that if we take interest and pride in the work that occupies so much of our lives, and in the workplaces where many of us spend a large part of each day, then our satisfaction with life will increase, and we will be able to enjoy our lives even more as a result.

01

R&D expenditures in 2018

15.1 billion yen (7.2%)
 (): Ratio of R&D expenditures to net sales

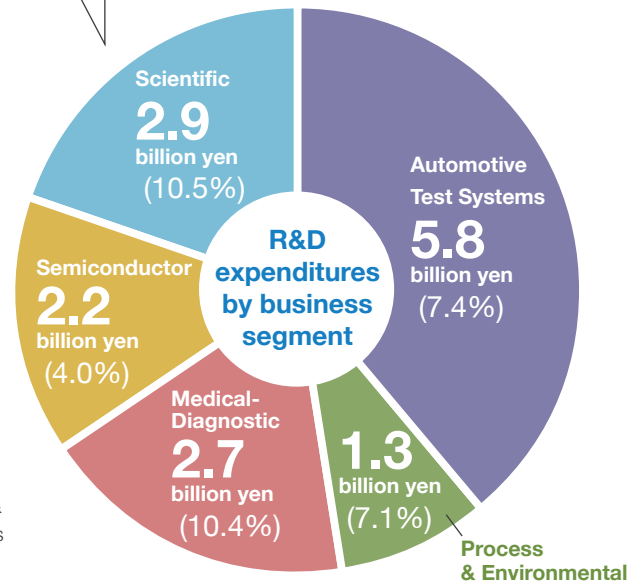
A sail hoisted at the HORIBA BIWAKO E-HARBOR, Biwako Factory, the home port driving research and development, manufacturing, and engineering at HORIBA.

Balanced management

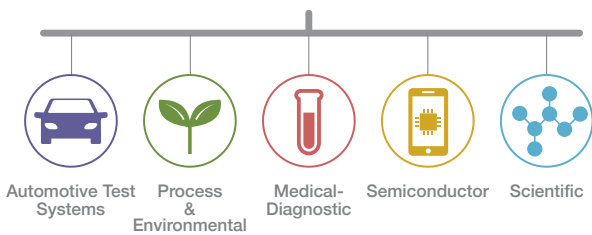
02

Sustainable growth with well-balanced investment in five business segments

HORIBA is an analytic and measurement equipment manufacturer with five business segments: Automotive Test Systems as well as Process & Environmental, Medical-Diagnostic, Semiconductor, and Scientific Instruments & Systems. After launching our first product, the pH meter, we expanded our fields of technology and products, which resulted in strong growth.



(): Ratio of R&D expenditures to net sales by business segment

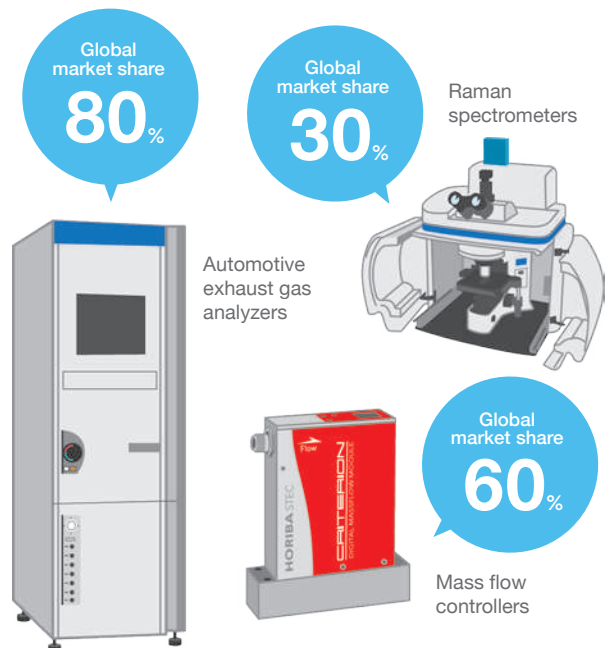


Development-oriented company

Demonstrating HORIBA's presence in the niche markets of analysis and measurement services

03

Through its five business segments, HORIBA has developed 1,000 products in a variety of markets. We provide several products that capture top-level global shares, including automotive exhaust gas analyzers essential for automotive development, mass flow controllers necessary for the manufacture of semiconductors, and Raman spectrometers used at many academic institutions.

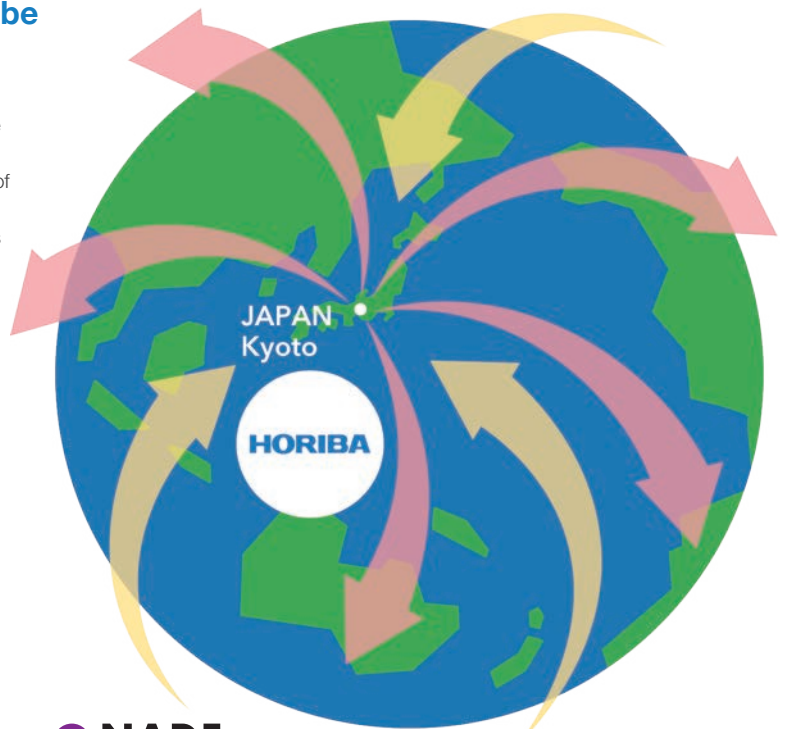


Note: Market shares quoted are HORIBA's estimates.

HORIBA's

5 **points of distinction****04** **HORIBA-style global management**
Spreading our Kyoto-born corporate culture around the globe

HORIBA got its start in Kyoto with a venture spirit. We have ultimately distinguished ourselves and achieved business growth through our original strategy of capturing the top global share in the world. Since the late 1990s, HORIBA has expanded its business scale and geographic scope through M&As. At present, over 60% of sales and employees are based outside of Japan. Our business in Japan has grown through the domestic development of businesses acquired through overseas M&As.

JAPAN
Kyoto

HORIBA

05 **Diversified human resources**

HORIBA's corporate growth is supported by a variety of individual characteristics and abilities

HORIBA is expanding its businesses on a global scale and has diverse human resources working in countries worldwide who consistently come up with fresh ideas and share information regarding technologies and their expertise. HORIBA's initiatives promoting diversity are held in high regard and were selected for inclusion in the FY2018 Nadeshiko Brands (more on page 36).

**Number of group companies**

(As of December 31, 2018)

**49**
companies**Overseas sales ratio**

(For the year ended December 31, 2018)

**69%****Overseas employee ratio**


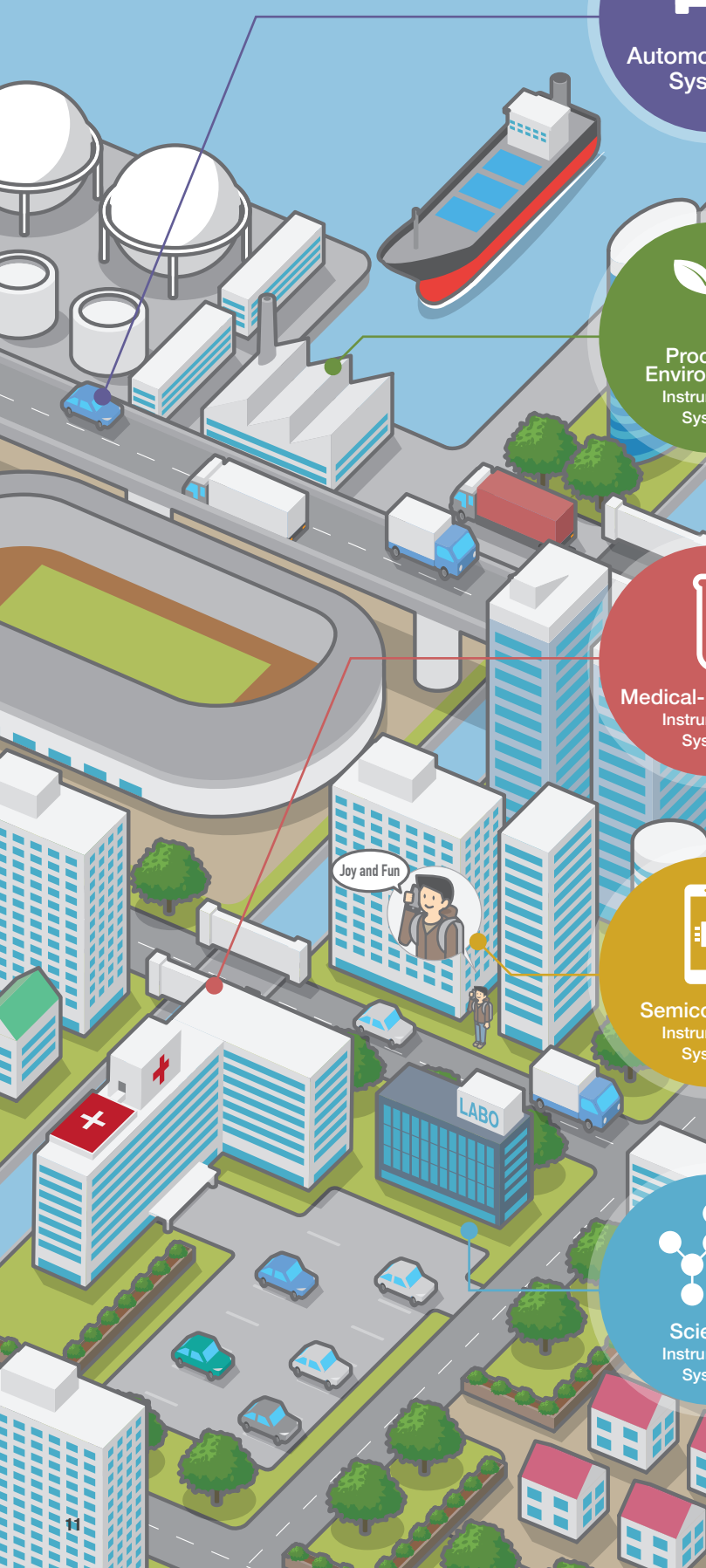
(As of December 31, 2018)

**62%****Number of employees with doctoral degrees**

(As of December 31, 2018)

**220**
persons

HORIBA's five business segments in analysis and measurement field that are essential for society



Automotive Test Systems




Process & Environmental Instruments & Systems



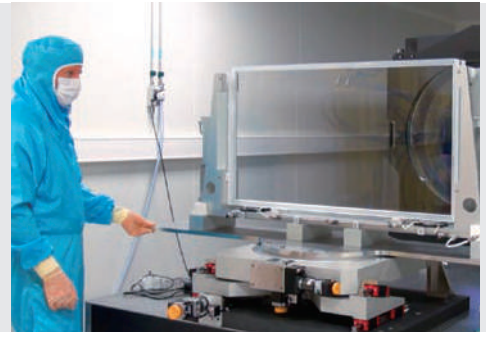
Medical-Diagnostic Instruments & Systems



Semiconductor Instruments & Systems



Scientific Instruments & Systems



Principal products

Emission measurement systems
Automotive emission analyzers
Onboard emission measurement systems
Driveline test systems
Engine test systems
Brake test systems
Fuel cell test systems
Battery test systems
Transport management system
Vehicle development engineering
Testing engineering
Lease and management of R&D facilities



Major customers

Automotive manufacturers
Automotive component manufacturers
Government agencies

Product applications

Development of new gasoline, diesel, and hybrid powertrains
Vehicle certification and quality control
In-use vehicle inspections

Major risk and opportunities

Changes in emission gas regulations
The automotive industry's capital spending and R&D investments

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Stack gas analyzers
Water quality analysis and examination systems
Air pollution analyzers
Environmental radiation meters
Process measurement equipment



Electric power companies
Government agencies
Manufacturers

Measurement of wastewater and gaseous emissions
Environmental pollution monitoring

Changes in environmental regulations by government agencies
Developments in energy efficiency improvement at factories and power generation plants

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Hematology analyzers
Immunology analyzers
Clinical chemistry analyzers
Blood glucose analyzers



Medical testing centers
Small to medium-sized hospitals
Medical practitioners

Health and diagnostic testing
Disease diagnosis

Changes in total healthcare expenditures caused by changes in populations and other factors
Changes in medical insurance systems in different countries

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Mass flow controllers
Chemical concentration monitors
Reticle/mask particle detection systems
Residual gas analyzers



Semiconductor production equipment manufacturers
Semiconductor device makers

Flow control of gases and liquids
Monitoring of cleaning fluid concentrations in semiconductor manufacturing processes
Semiconductor and LCD quality control inspections

Capital spending of semiconductor manufacturers and others in association with fluctuating demand for semiconductors
Production trend of semiconductor production equipment manufacturers

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pH meters
Particle-size distribution analyzers
X-ray fluorescence analyzers
Elemental analyzers
Raman spectrometers
Fluorescence spectroscopy/fluorescence lifetime spectroscopy
Optical components; spectrometers and detectors
Gratings



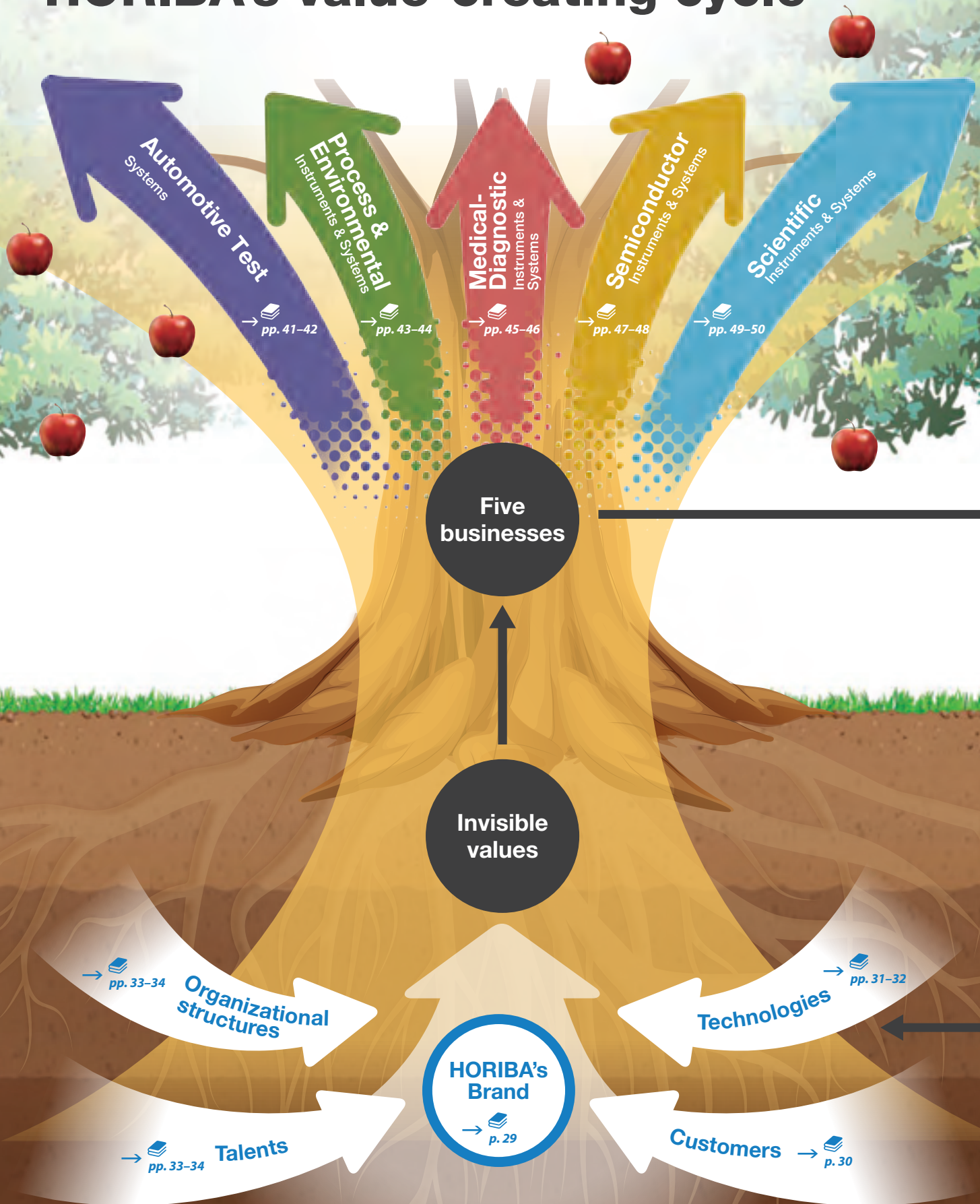
Manufacturers/Research institutions
Universities/Government agencies
Electric power companies

R&D
Product quality testing
Criminal forensics

Changes in R&D budgets at government agencies, universities, and research institutions
Changes in the private sector's R&D spending and capital spending for production

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HORIBA's value-creating cycle



Our five business segments are represented by a strong and growing trunk that receives nourishment from thick roots (invisible values) that have firmly spread throughout a plot of rich soil (corporate culture). The bountiful fruit (economic value) is produced through our business activities and brightens people's lives with beautiful colors (social value). The fruit's seeds eventually return to the rich soil, creating new value _____.

Global business making and selling more than 1,000 products of various kinds

Top-level shares in niche markets

Profit generated year after year
(Maintained an operating income level above 10%)



Business growth supported by continuous investment

Creating economic value

Creating social and economic value

Social issues confronted by HORIBA

To contribute to building a sustainable society

To improve the global environment

To realize a safe, pleasant society

To empower regions

To create jobs

To promote diversity

To initiate activities to prevent corruption

Related goals in the SDGs*



Creating social value

* "SDGs" refers to the Sustainable Development Goals unanimously adopted by the United Nations General Assembly in 2015.

HORIBA's corporate motto:

Omoshiro-okashiku
Joy and Fun



Ownership and Challenging Spirit

2 Unique products and services

3 Sustainable supply chain

1 Super Dream Team

Contribution to secure well-being for future society by using cutting-edge "Measurement Technologies"

4 Construction of governance, slim and solid internal control

6 Participation in society and growth of individuals

5 Communication with internal/external stakeholders

Open and Fair

CSR framework of activities that shape HORIBA's invisible values → p. 35



Chairman & Group CEO

A handwritten signature in black ink, appearing to read 'A. H. Li', positioned below the title.

HORIBA will achieve sustainable growth and open up pathways toward a new era through its spirit of “Joy and Fun”

HORIBA started a new management team in 2018, the 65th year since its founding, and achieved sales of over 200.0 billion yen. During an era in which technologies are undergoing significant changes in a variety of fields, HORIBA will continue to work to create products and services with high added value, focusing primarily on its core business of “Measurement Technologies.”

Sales exceed 200.0 billion yen, inspiring confidence regarding the achievement of MLMAP2020 targets

We started a new top management team in fiscal 2018 and achieved record-highs in terms of both sales and operating income at 210.5 billion yen (up 7.8% year-on-year) and 28.8 billion yen (up 7.5% year-on-year), respectively. In particular, sales of over 200.0 billion yen inspired strong confidence that we can fulfill the goals outlined in our Mid-Long Term Management Plan (MLMAP2020) by its target year 2020 (more on page 23).

If I were to summarize 2018, I would say that HORIBA was able to take a large step toward creating new markets and business models, conducting proactive investment in the future. This investment included expansion of the Aso Factory in Japan where construction has been completed and full-fledged operation has begun, enhancement of our development and production base in New Jersey in the United States, and our acquisition of FuelCon AG in Germany, which develops and manufactures our battery test and fuel cell test systems. For fiscal 2019, we anticipate that we will achieve sales of 218.0 billion yen (up 3.5% year-on-year) and operating

income of 29.0 billion yen (up 0.6% year-on-year), once again achieving record highs in both categories*1. We also forecast higher sales and income (year-on-year) in the Process & Environmental, Medical-Diagnostic, and Scientific Instruments & Systems segments while the Semiconductor Instruments & Systems and Automotive Test Systems segments continue to drive results.

Looking at the current business environment, we realize that emission gas and environmental regulations are strengthening around the world. As represented by the word “CASE”², the automotive industry is facing a type of dynamic paradigm shift said to only occur once per century. In addition, various Asian nations, such as China and India, are achieving growth with a momentum rivaling that of developed nations, and market structures are beginning to undergo large changes. HORIBA will further refine its management capabilities in order to compete on a stage different from those it has experienced up until now.

*1 Forecast as of February 12, 2019

*2 “CASE” is a general term used to describe next-generation vehicle technology and stands for “Connected,” “Autonomous (autonomous driving),” “Shared & Services,” and “Electric (development of electric vehicles).”

HORIBA will raise its corporate value through “balanced management” based on a long-term vision



Photo taken at Gasen-an, a tea ceremony room established inside of the HORIBA BIWAKO E-HARBOR, Biwako Factory (more on page 18)

Bringing multifaceted points of view to enhance decision-making during an era of changing trends in technology

One year has passed since we formed our new management team, with me as Chairman and Group CEO, Juichi Saito as Executive Vice Chairman and Group COO, and Masayuki Adachi as President and COO. Throughout this year, we worked through a division of roles under which Mr. Saito conducted oversight of global management and business operations; Dr. Adachi performs cross-sectional observation of business segments while supervising basic technologies and research and development in order to enhance HORIBA as a provider of technology; and I ensured balance throughout the entire group. I also had the opportunity to gain a better picture of what was happening outside than ever before, and aimed to spread our corporate culture further by actively visiting group companies and sharing my own thoughts. Furthermore, I was able to build a wide range of new relationships in countries around the world by meeting many customers and individuals representing academic institutions and national government agencies. When viewing circumstances in the operating

environment, I observe that technologies and customer needs in a wide variety of fields are rapidly changing and once again become keenly aware that trends in technology can and will change. I feel very confident that our new structure will hold up under these conditions, as it has enabled us to conduct swift decision-making based on multifaceted viewpoints, including decisions regarding acquisitions, base enhancement, and investment in technological development.

During the five years leading up to 2023, which will mark the 70th year since the establishment of HORIBA, Ltd., changes in technologies and markets larger than ever before are forecast in industries such as automotive. We will combine our resources, which are spread over our five business segments, and utilize them in a coordinated fashion to speedily comprehend customer needs while opening new paths forward into the next generation by establishing new business models.

Demonstrating collaborative synergies with acquired companies by nurturing people and technologies

HORIBA has achieved growth by welcoming companies with businesses projected to synergize with its proprietary technologies and markets into its group.

When conducting corporate acquisitions, it goes without saying that products and services are important points of consideration. However, more vital than anything else are the people that work at the companies targeted for acquisition and the knowledge and technologies they create. When conducting acquisitions, I view the characteristics of not only management but also employees working at the target companies, as well as what motivates them in their

daily work. I believe that this ability to assess and understand people is of paramount importance to global management. MIRA, Ltd. in the United Kingdom joined HORIBA in 2015, followed by FuelCon AG in Germany in October 2018. Our management team, myself included, is trying to directly meet with the employees of companies who join our group as new members. We believe that we can create strong synergy and grow together with the employees of our group companies by placing technology and people at the center of our brand strength and by sharing and creating sympathy for our unique corporate culture, which embodies our corporate motto of “Joy and Fun.”

Achieving sustainable growth through investment made from a long-term perspective

HORIBA has conducted well-balanced investment across its five business segments. Previously, we were able to avoid a lapse into the red during a period of stagnation in the semiconductor industry, thanks to contributions from the Medical-Diagnostic Instruments & Systems and Scientific Instruments & Systems segments. However, we continued to invest in the Semiconductor Instruments & Systems segment out of consideration for the future and were able to develop it into what is now our largest source of growth. We have also been able to achieve

well-balanced business expansion on a global scale through proactive M&As conducted primarily overseas, as we continue to invest in acquired companies after they join HORIBA. In order to achieve sustainable growth, it is essential to conduct investment from a broad perspective. Results may take five to ten years to appear when conducting this style of investment, but persevering in continuous and tenacious management will enable it to bear large fruit in the future.

Gasen-an—A tea ceremony room

Gasen-an is a tea ceremony room established inside of the HORIBA BIWAKO E-HARBOR. The name of the tea ceremony room is a portmanteau of two Chinese characters, one taken from “Masao Horiba,” HORIBA’s founder, and the other from the Japanese word “sengu,” which means “the tradition of passing on shrine-building skills from one generation of carpenters to the next” and encapsulates HORIBA’s philosophy of handing down technologies from one generation to the next. We paid attention to the selection of authentic items and also style in designing the interior of the tea ceremony room, from the selection of its building materials to determining its structure. As such, it now serves as a place in which a great number of guests visiting from both inside and outside Japan can experience traditional Japanese culture and HORIBA’s original and distinctive hospitality.



Brilliantly unique human resources who respond to a diverse range of customer needs

Many of HORIBA's clients are global leaders at the forefront of fields, such as automotive and semiconductors, that demand sophisticated technology. Naturally, demand levels are extremely intense, and we must continue to consistently refine our technical capabilities in order to respond to these needs. These needs are not related to a limited number of fields but instead span a wide range of industries, creating an environment in which we are able to regularly conduct business with some of the top customers in the world while making full use of the technical capabilities we have raised up until now. I believe that being able to work in an environment like this has an exceedingly large appeal for a company. At HORIBA, we have established a cycle. In this cycle, many excellent human resources, which we call HORIBARIANS that range from new university graduates to mid-career hires gather to utilize their own individual specialties to create unique products and services, and they respond to new customer needs.

Currently, more than 60% of 8,000 HORIBA Group employees are non-Japanese, and 220 group members hold doctoral degrees. These diverse members are what support HORIBA's growth today. We are additionally focusing on initiatives, such as the HORIBA Stained Glass

Project (more on page 34), in which people of various backgrounds and ways of thinking come together to demonstrate their unique abilities and create pleasant working environments.

The management team at HORIBA is keenly aware of our mission to develop a great number of HORIBARIANS that will lead the next generation and believes that it is important to compete in overseas business environments from an early stage and accumulate many experiences in a wide range of posts and regions, as Mr. Saito, Dr. Adachi, and I have done. Of course, working overseas necessarily includes experiencing many difficulties and failures, but there is no greater method of human resource development. In addition, facing many challenges while living abroad allows us to discover new social issues that HORIBA should solve and widens our fields of view as business people. More than 90% of our internal directors and corporate officers have experienced overseas assignments, and HORIBA prepares systems that will also offer the current generation of young employees many chances through a posting system offering opportunities such as overseas training.



Atsushi Horiba

Chairman & Group CEO



Juichi Saito

Executive Vice Chairman &
Group COO



Masayuki Adachi
(Doctor of Engineering)

President & COO
Chairman of Supervisory Board of
HORIBA FRANCE SAS



Masao Okawa

Managing Director and
General Manager of
General Administration Division

Contributing to society through “Measurement Technologies”

The United Nations formulated the Sustainable Development Goals (SDGs), which it currently advocates, in 2015. These goals mention a variety of social issues, and I believe that finding the solutions to many of these issues will start with measurement.

Fortunately, customers have described HORIBA as a “partner,” rather than as a “supplier” these days. Making use of various analytical methods and core measurement technologies, such as automotive exhaust gas analyzers and monitoring systems for wastewater produced in factories, we are offering products that provide assistance in resolving social

issues. In other words, I believe that providing high-quality “Measurement Technologies” as a true partner to our customers is precisely how we will contribute to society moving forward. We will fulfill our social responsibilities by always behaving out of consideration for how we can activate society through business growth.

I sincerely hope for your continued support for HORIBA and its employees, as we unite to accomplish our goal of contributing to an affluent society through “Measurement Technologies” and pursue a prosperous future.

April 2019

Atsushi Horiba
Chairman & Group CEO



Takashi Nagano

Director, Board Leader
of GLOBAL ATS BOARD
Chairman of
HORIBA KOREA Ltd.
(South Korea)



Jai Hakhu
(Doctor of Engineering)

Executive Corporate Officer
Chairman & CEO of HORIBA
Instruments Incorporated (U.S.)
President of HORIBA ABX SAS
(France)



Hideyuki Koishi

Senior Corporate Officer
President of
HORIBA STEC Co., Ltd. (Japan)



Yuichi Muroga

Senior Corporate Officer
President of HORIBA
Techno Service Co., Ltd.
(Japan)



George Gillespie
(Doctor of Engineering)

Senior Corporate Officer
Executive Chairman of
HORIBA MIRA Limited (U.K.)

To be at the top of global niche markets and sustain

As Group COO, looking at HORIBA from a higher point of view

Since I was appointed as Group COO in January 2018, I've been leading the group operations from a higher point of view. Through this appointment, I'm able to guide the group management more quickly than before. In the last one year, HORIBA has expanded business by inviting FuelCon AG in Germany to our group and by acquiring technologies from MANTA Instruments, Inc. in the United States and ROHM Co., Ltd in Japan. In HORIBA, Ltd. in Japan, we have created the new "Global Business Division*" in order to centralize the planning and implementation of group strategies. We also promoted highly skilled marketing resources from group companies to enhance our competitiveness. I will manage the group proactively in an effort to achieve sustainable growth in the future.

Continuous effort to gain top-level shares in global niche markets

HORIBA has been growing by finding niche markets where we can be competitive and supplying "more accurate," "faster," and "easy-to-operate" technologies. Also, we are taking high global shares for many products in many different applications. To keep growth through this strategy, HORIBA is investing continuously and very aggressively. Moving forward, we will try to expand our business through unique and advanced technologies and products combined with strong services support as one team.

* The Global Business Division is an organization that was established in January 2018 for the purposes of observing all business segments and regions on a global scale and promoting the optimization of operations across the entire group while integrating marketing and information systems both inside and outside Japan. It is a consolidation of strategic divisions and divisions in charge of core systems from each business, as well as Sales Division functions for opening new markets and carrying out reforms.

Pursuing ultimate technologies and

Continue to develop core technologies and enhance R&D capabilities

From the time of incorporation, HORIBA has been growing globally by consistently offering original analytical values that are essential to the advancement of world society. Evidently, our original core technologies have been the driving force of the growth. One year has passed since I was appointed as president, and since then, I have been encouraging our colleagues to revisit and refine the core technologies from the fundamental principles in addition to their immediate responsibilities to develop new technologies and new products. In the past year, we have successfully launched the new products that exceeded market expectations, including XGT-9000 (more on page 50) and FTX-ONE (please see the link on page 22), which have been typical outcomes of the core technologies enhancement of HORIBA, Ltd., our corporate headquarters.

In order for us to generate innovative technologies, it is an absolute necessity to foster motivated people. I believe that my personal mission is to continue delivering new and high-value-added products and services through deepening and widening our core technologies. One of the actions we take is the "sengu*" on a global scale. Moving forward, I will work toward fulfilling this mission with all of my power.

* "Sengu" is the translocation process of shrines in Japan carried out every couple of decades. With that, indescribable traditional skills and know-how are transferred and maintained through the series of ever-lasting generations. In HORIBA, we promote the younger generation to re-establish the long-existing production processes with their own new technologies. It helps to deeply understand the technology development in HORIBA's history and accelerates the innovation for our future.



President & COO

Masayuki Adachi
(Doctor of Engineering)

growth

Never forget the challenging mind

In the future, my challenge is to develop next-generation talents and share with them my “omoi,” the passion I have held as a “HORIBARIANS.” Currently, HORIBA is maintaining a good position in each market, but our business environments, including technology trends, demand structures, and other elements, are drastically changing. It is very important to construct the strong organization that can follow these rapid changes. Therefore we need to develop strong HORIBARIANS to lead the group to the right direction. HORIBA is globalizing every year, and the diversity of talented human resources is increasing. We will promote HORIBARIANS who have accumulated business and management experiences with a strong passion for a higher management level so that they will have higher and broader views and experiences. Furthermore, we will continuously transfer our business and management experiences not to repeat the same failure for them. As for myself, I will also continue challenges, accumulate new experiences and pass down to them. I believe it is my mission to create a continuous cycle of growth for HORIBA.

April 2019



Executive Vice Chairman & Group COO

Juichi Saito

delivering HORIBA-only solutions

Promoting academic partnerships for further possibilities

HORIBA is promoting global academic partnerships, as it is the ideal approach to advanced research and businesses in each region of the world. In 2018, we agreed on a donation to support a new institute at the University of California, Irvine (UCI; more on page 28). UCI offers high-level education and research opportunities, and through the institute to be established, it will promote advanced research for connectivity between power grids and mobility with the control of producing, transporting, storing, and using energy. We believe HORIBA is the only company in the world to be able to support such research since we cover all the analysis and measurement solutions that can be used in the entire energy process. Through such collaboration with academia, we will work to create new business opportunities together with fostering talented human resources by interacting on a personal level.

Contributing to society through expansion in the data business

Measurement and analysis are essential elements for creating innovation. Also their data are becoming more and more important as innovations in IoT, AI, and automation rapidly expand. HORIBA's products are acting as data generators that produce vast amounts of high-quality data through analysis and measurement. Big data acquired by our instruments in the fields of advanced material, life science, energy, and environment will help analyze the mechanisms of our world and contribute to solving social problems.

I will expand our business fields by delivering more solutions to build our future utilizing our growing core technologies with data control and management.

April 2019

Please see our website for details regarding FTX-ONE.

Web Link



Click!



HORIBA is maximizing corporate value over the long term through high-level investment and asset efficiency improvement initiatives

Managing Director and
General Manager of General Administration Division

Masao Okawa



Profile Masao Okawa joined HORIBA, Ltd. in 2017. He had worked for the Bank of Japan since 1988 and accumulated global experience serving in a variety of positions, including at Harvard Law School (LL.M. '94) and the Bank for International Settlements in Basel, Switzerland, as well as Chief Representative of the office in Frankfurt, Germany and Branch Manager of the Kyoto Branch of the Bank of Japan. Taking advantage of insights on finance, governance, and global experience at the Bank of Japan, he is currently engaged in forming a global financial strategy and enhancing compliance and corporate governance as HORIBA's General Manager of General Administration Division.

Distributing our highest-ever dividend per share in the wake of favorable results

During the fiscal year ended December 31, 2018, which marked the 65th year since our establishment, we recorded more than 200.0 billion yen in sales and finished with record-high operating income and net income attributable to owners of parent, as well as ROE of 14.3%. In accordance with these results, we distributed our highest-ever dividend, which consisted of a regular dividend of 125 yen per share and a commemorative dividend of 20 yen per share celebrating our 65th anniversary, as shareholder returns for the fiscal year ended December 31, 2018. HORIBA has adopted a policy of setting its total shareholder return ratio, which includes dividends and share buybacks, to about 30% of consolidated net income attributable to owners of parent. Moving forward, we intend to raise corporate value through business growth and continuously provide returns to all of our owners (shareholders).

Numerical targets under the Mid-Long Term Management Plan (MLMAP2020)

Assumed exchange rates for 2020: 115 yen per U.S. dollar; 125 yen per euro



Basic capital policy

Point 1 | Achieve higher ROE

As stated in our MLMAP2020, HORIBA is on target to achieve ROE of 10% or more by 2020. ROE is one of our most important management metrics.

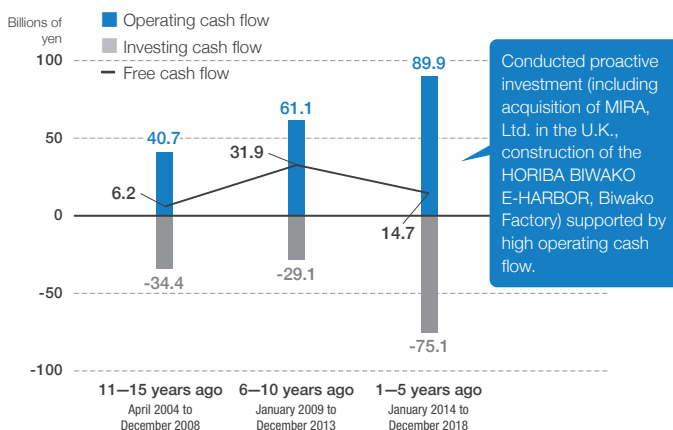
Point 2 | Link shareholder return to earnings growth

We set total returns (the combination of dividend payments and share buybacks) to shareholders as approximately 30% of consolidated net income. This payout ratio reflects due consideration given to ensuring stable management and retaining earnings as capital for aggressive business development.

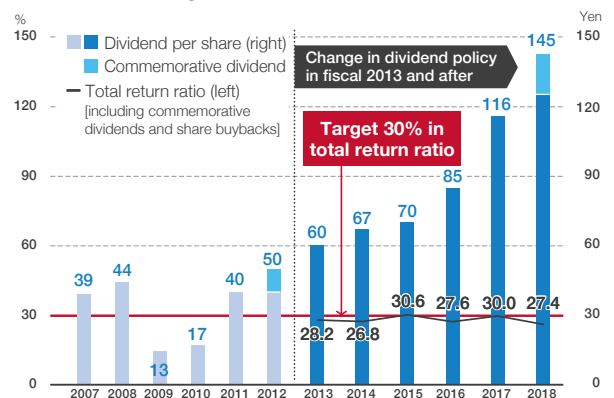
Point 3 | Improve capital efficiency to maximize corporate value

We are conducting proactive investment, which is expected to result in creating future corporate value. Additionally, each group company and each business segment are setting their own capital efficiency targets and managing efficiently in order to maximize HORIBA's corporate value.

Free cash flows for every five years



Dividend payments and total return ratio



In fiscal 2013, we switched from a non-consolidated dividend payout ratio, which is based on non-consolidated net income at HORIBA, Ltd., to a total return ratio, which is based on HORIBA's consolidated net income.

Leading the group with a financial approach and a global perspective

We must view opportunities and risks from a more global perspective in order to support HORIBA's businesses expansion. From a risk management point of view, balanced management achieved through our five business segments, which collectively form one of HORIBA's major strengths, functionally contributes to risk diversification. Furthermore, the General Administration Division, which I am in charge, monitors our businesses across the segment. I firmly believe that leading HORIBA from a global point of view is a challenge worth undertaking.

Conducting effective investment from a long-term perspective

HORIBA has conducted high-level investment in production facilities, R&D, and human resources from a long-term perspective. Recent investments include the establishment of the HORIBA BIWAKO E-HARBOR, Biwako Factory and the acquisition of MIRA, Ltd. in the United Kingdom in 2015; the expansion of HORIBA STEC Co., Ltd.'s Aso Factory, in 2017; and the acquisition of FuelCon AG in Germany in 2018. We are also projecting 16.0 billion yen in both capital spending and R&D expenditures in 2019*.

We invest proactively to overcome challenges posed by rapid changes in technological trends. However, when conducting this investment we also need to carefully and thoroughly examine a number of factors, including our cash flow forecast, and verify that our assets are being utilized effectively. In 2017, we introduced HORIBA Premium Value, a HORIBA original benchmark that has been formulated in considerations of operating income and the weighted average cost of capital (WACC), in order to raise asset efficiency. This benchmark aims to maximize returns on invested capital for each business segment. In the mean time, we have paid thorough consideration to ensure that it does not inhibit investment. We have currently spread the application of this benchmark throughout the entire group.

* Projection announced on February 12, 2019

Measures aimed at establishing the enhanced CFO team

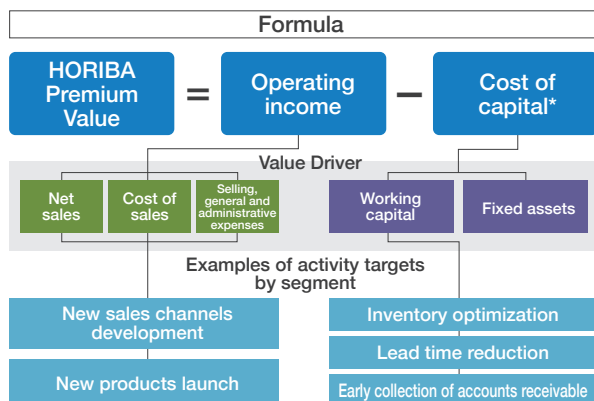
At the HORIBA's Board of Directors' meetings, major investment projects have been discussed thoroughly and decided accordingly. HORIBA's Board of Directors demonstrates its functional contribution to governance through carefully investigation of specific investment projects, in addition to comprehensively reviewing management strategies.

On the other hand, it is important that we remain the kind of organization that can achieve speedy decision-making. Our General Administration division must engage with our business segments to fully comprehend the special characteristics of all of their operations, as well as those of all regional businesses. We have currently implemented an internal policy that requires General Administration division employees to experience overseas work more actively in an effort to cultivate next-generation human resources.

I will act as an intermediary to deepen cooperation between the management team and business segments and promote measures related to improving asset efficiency and optimizing asset allocation in order to further raise corporate value.

April 2019

■ HORIBA Premium Value



* Invested capital × In-house rate of cost of capital. We apply an original benchmark that is based on HORIBA's WACC and comparable with operating income in connection with our cost of a capital target. Currently, evaluation is conducted by applying the same rate to all regions and businesses and monitoring degrees of improvement.

■ Examples of capital efficiency improvement initiatives

At HORIBA Europe GmbH's HORIBA Czech Olomouc Factory, a production base for the Mechatronics (MCT) business*¹, we drastically revised the production process and supply chain for chassis dynamometers and employed a pull production system*². These changes resulted in an approximate 25% reduction in production lead times.

*¹ Mechatronics (MCT) refers to measuring instruments for vehicles

*² Pull production: refers to a system under which production is conducted according to demand



HORIBA's businesses that contribute to a sustainable mobility society

As the world population increases, the number of passenger cars sold is projected to increase moving forward. Tightening of fuel consumption and emission regulations worldwide have caused demand for even more fuel-efficient and clean internal-combustion engines, which continue to be one of the most important power sources for vehicles. These internal-combustion engines are expected to remain at the center of the automotive industry as they continue to be used in vehicles equipped with electric technologies, such as hybrid or plug-in hybrid vehicles. In recent years, the development of zero-emission electric vehicles, which are expected to contribute to improving the global environment, has proceeded at a tremendous pace, and automotive development as a whole is heading down the road to diversification. On the other hand, when considering that the burdens growth in the automotive industry has placed on the global environment, it becomes easy to realize that we must think about raising overall energy efficiency, while contemplating factors such as conditions concerning resources and power generation in various countries and regions, through well-to-wheel (oil well to tires) analysis that covers all stages of the energy cycle.

HORIBA holds an 80% global market share in emission measurement systems, securing a high market share in the emission measurement business, which combined with the MCT (Mechatronics) business,^{*2} covers the entirety of the automotive measurement equipment business. In addition to the acquisition of U.K. subsidiary HORIBA MIRA Limited for engineering business for vehicle development, we acquired FuelCon AG in Germany in 2018, which allows us to expand business domains related to electrification. Furthermore, we are utilizing technologies in three business segments outside of the Automotive Test Systems segment (Process & Environmental, Semiconductor, and Scientific) and offering multifaceted analysis and measurement solutions for every energy phase, from production to consumption.

By combining these diverse technologies, HORIBA is contributing to the construction of a sustainable mobility society through timely response to demand that continues to expand in various directions.

*1 HORIBA's estimates *2 MCT (Mechatronics): measuring instruments for vehicles

Improvement of efficiency throughout the energy process is necessary

HORIBA contributes to all stages of the energy



Petroleum refining



Power generation



Batteries, fuel cells

Flow leading to energy consumption

Production

Conversion and storage (Transmission)

Corresponding HORIBA products



Process measurement equipment (Management of petroleum refining process)



Stack gas analyzers (Raising efficiency of power plants)



Fuel cell test systems (Development of fuel cells)



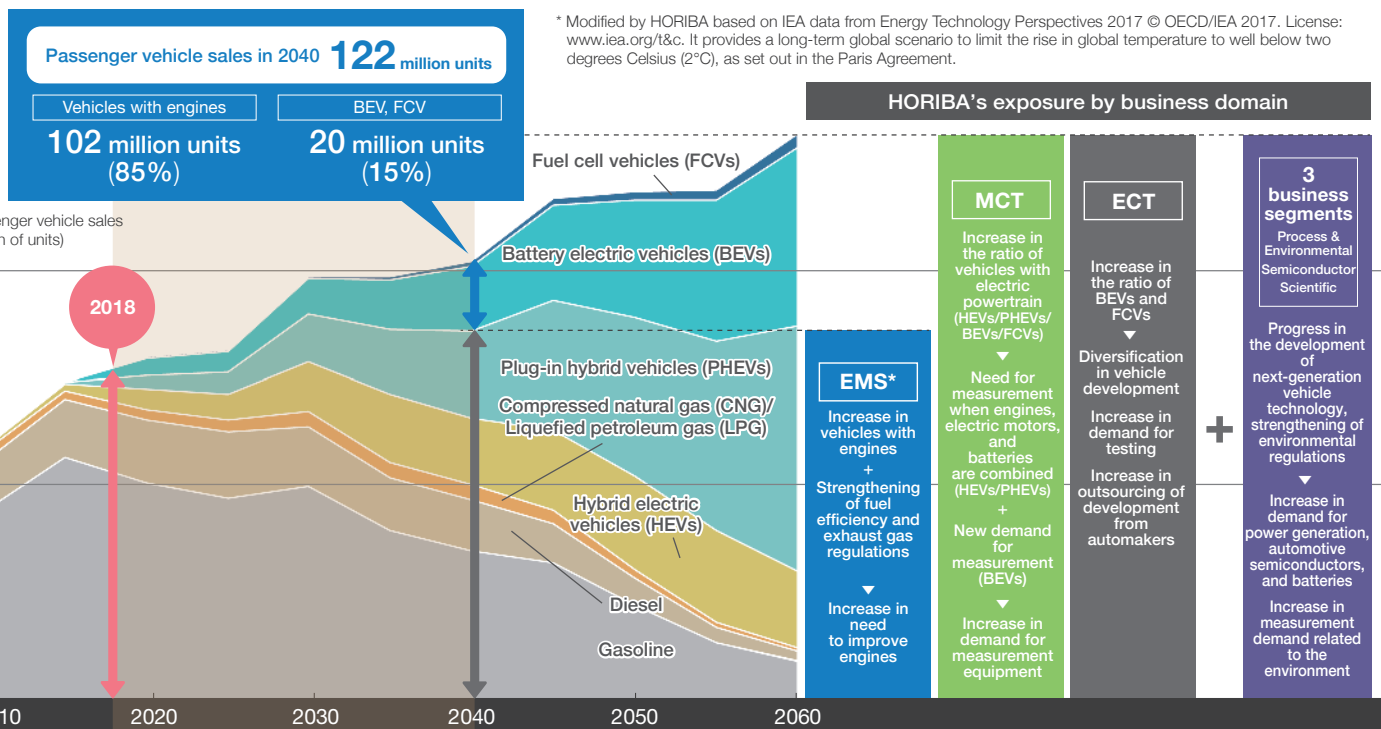
Battery test systems (Development of batteries)

Raman spectrometers (Analysis and evaluation of battery material components)



Structural changes of the automotive market targeting transition to a next-generation mobility society

Market forecasts of vehicles, by power source (prepared by HORIBA based on the IEA Energy Technology Perspectives 2017*)

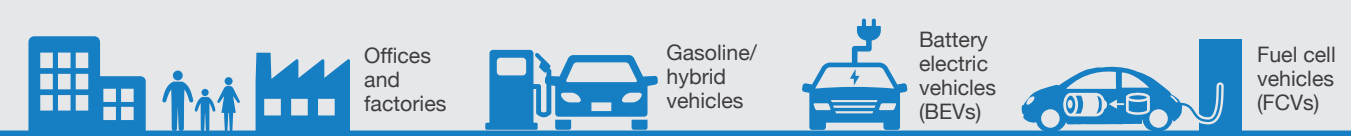


- Progress in vehicle electrification technology
 - Tightening of CO₂ emission regulations
 - Increase in HEVs and PHEVs
 - Increase primarily through sales of gasoline/diesel vehicles in emerging nations
- Promotion of BEVs and FCVs
- Internal-combustion engines will continue to be an essential source of power moving forward

HORIBA's estimated market size of its Automotive Test Systems segment: 2 trillion yen or more (HORIBA's estimates)

for transformation into a sustainable next-generation mobility society

process including production, transmission, and use



HORIBA's strategies related to next-generation vehicle technologies

Director, Board Leader of GLOBAL ATS BOARD **Takashi Nagano**

Profile Takashi Nagano joined HORIBA, Ltd. in 1985. Then he held positions such as General Manager of the Engine Measurement System Management Division at HORIBA, Ltd., and President of HORIBA Europe GmbH (Germany). In 2005, he became a corporate officer at HORIBA, Ltd. and was appointed to the position of director in 2016. Since joining HORIBA, he has consistently driven global business expansion through his involvement in the Automotive Test Systems business segment. As the Board Leader of the GLOBAL ATS BOARD, he is currently working to achieve further business growth by leading active investment and the creation of new business.



Energy efficiency, the environment, and safety: Three perspectives supporting the construction of new mobility societies

HORIBA's Automotive Test Systems segment has played a role in emission measurement throughout its history. We take great pride in this business segment's unparalleled and continuous contribution to society through our analysis and measurement technologies designed to respond to emission gas certification procedures and internal-combustion engine adaptation that have grown more complicated due to strengthened regulations. On the other hand, we believe that the three perspectives of energy efficiency, the environment, and safety are increasing in importance due to expectations that new mobility societies will be formed moving forward. It is also true that automotive manufacturers are facing demand for technology and product development from a variety of directions, for making the improvement of development efficiency imperative and partners who provide support in this regard essential.

Aiming for business expansion through forward-thinking and proactive investment and technological strength capable of responding to customer needs

HORIBA is conducting active investment in order to improve its ability to respond to market demand. Most recently, we obtained resources for battery and fuel cell test systems through our acquisition of FuelCon AG in Germany (more on page 28), which we combined with our existing products and services, enabling us to provide more wide-ranging and flexible applications. We will aim to establish new business models through the application of CELL 0 (more on page 28), which is slated to be put into operation at the HORIBA BIWAKO E-HARBOR, BIWAKO Factory in 2019, and the proposal of many analysis and measurement solutions aimed at raising energy efficiency in electric and other vehicles.

In order to secure continuous business growth, we will need strategies that are more deeply rooted in a long-term point of view. Our support for the establishment of a new institute at the University of California, Irvine (UCI) (more on page 28) is an investment that will provide opportunities for the creation of new businesses in the fields of energy efficiency, the environment, and safety. Through our collaboration with UCI, we will aim for business expansion in domains expected to make further progress moving forward, such as electrification and cybersecurity in conjunction with the advancement of next-generation power grids called "smart grids," which are projected to spread.

In terms of our response to diversifying automotive technology and product development, we are helping to streamline the development cycle and producing achievements in the provision of systems utilizing highly accurate simulation technology through a joint project with Subaru Corporation (more on page 28). We believe that this type of business model will serve the needs of customers such as components and materials manufacturers, in addition to those of automakers, and are working to expand into more business domains utilizing the engineering technology of U.K. subsidiary HORIBA MIRA Limited.

Contributing to the resolution of issues facing the automotive industry as a trustworthy partner

The GLOBAL ATS* BOARD, comprised of me and two members of management from HORIBA MIRA Limited and HORIBA Instruments Incorporated in the United States, was started in 2018 in pursuit of group integration. Through this board, we have established a framework that allows us to make immediate decisions and undertake quick action from an optimal global perspective in matters concerning business strategy. By conducting business operations through this new organization, we will promote the rollout of products and services more intimately related to actual development sites and establish our standing as a trustworthy partner within the automotive industry.

* ATS: Automotive Test Systems



Members of the GLOBAL ATS BOARD

Takashi Nagano (center)

George Gillespie
Executive Chairman of HORIBA MIRA Limited (right)

Ken Mitera
Executive Vice President of HORIBA Instruments Incorporated (left)

In pursuit of business expansion related to next-generation vehicle technologies

01 | FuelCon AG joined HORIBA Strengthening of battery testing field

In September 2018, we acquired FuelCon AG in Germany (now, HORIBA FuelCon GmbH), which develops, manufactures, and sells battery and fuel cell test systems. By demonstrating synergy through integrating HORIBA's long-held analysis and measurement systems and engineering technologies with FuelCon's amassed reliable record of supplying products to primarily German automotive manufacturers, HORIBA provides optimal measurement solutions in the field of electric vehicle development.

Business expansion through acquisition

	Electric vehicles (HEVs, PHEVs, BEVs, FCVs, etc.)*			
	Vehicles	Drivelines	Engines	Batteries/ Fuel cells
Measurement equipment	HORIBA	HORIBA	HORIBA	HORIBA FuelCon
Testing procedures	HORIBA	HORIBA	HORIBA	HORIBA HORIBA FuelCon
Engineering	MIRA	MIRA	MIRA	MIRA

* HEVs: Hybrid Electric Vehicles; PHEVs: Plug-in Hybrid Electric Vehicles; BEVs: Battery Electric Vehicles; FCVs: Fuel Cell Vehicles

Overview of FuelCon AG (now, HORIBA FuelCon GmbH)

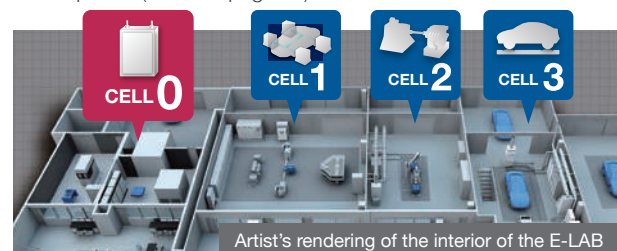
Establishment: 2001

Number of employees: 62 (as of December 31, 2018)

Primary customers: Automotive and automotive parts manufacturers mainly situated in Germany

02 | Establishment of CELL 0, an evaluative testing facility for batteries used in electric vehicles

We decided to establish CELL 0, an evaluative testing facility for power sources such as batteries used in electric vehicles and fuel cells, within the E-LAB development testing facility for automotive at HORIBA BIWAKO E-HARBOR. The facility is scheduled to begin operating in 2019. We will equip CELL 0 with battery development testing expertise from HORIBA MIRA Limited in the United Kingdom, as well as HORIBA FuelCon GmbH's wide variety of battery test systems, and respond to the diverse customer needs of the next-generation automotive industry through the development of electric vehicles and Model-Based Development (more on page 32).



Artist's rendering of the interior of the E-LAB

Providing various measurement solutions through the introduction of CELL 0

1. Tests measuring battery charging and discharging performance and evaluating the charging and discharging cycle
2. Connection testing for vehicles and powertrains (linked to CELL 1—3)
3. Test in the Loop*, a total evaluation system targeting energy optimization

* A system that enables the verification and development of vehicle performance through evaluation combining all test system varieties with simulation software

03 | Supporting the establishment of a new institute at University of California, Irvine

In August 2018, we concluded an agreement with the University of California, Irvine (UCI) in the United States to support the establishment of the HORIBA Institute for Mobility and Connectivity in connection with the University's Advanced Power and Energy Program. With this agreement, we will strengthen the collaborative academic and industrial relationship we have with UCI, which is viewed as a highly trustworthy organization by U.S. regulatory agencies, including the Environmental Protection Agency (EPA). Through this institute, we will integrate the fields of energy and mobility, which have previously been treated as separate domains, promote research aimed at resolving a variety of environmental issues and work to create businesses that will contribute to the entire energy industry.



Signing ceremony for the support agreement

Three research subjects investigated by the HORIBA Institute for Mobility and Connectivity

1. To develop vehicles, fuel supply chains, and mobility systems that emit no pollutants
2. System construction to connect zero-emission vehicles with a next-generation electric grid that incorporates renewable energies at a much higher level than exists today
3. To invent the next-generation of conveyances that can sense their surroundings and communicate with the traffic and energy infrastructures

04 | Providing test systems that help streamline the vehicle development cycle

We conducted a joint development project with Subaru Corporation that aimed at solving problems encountered during the vehicle development process. By enabling the new test system to conduct highly accurate on-road simulation, as well as comprehensive and elaborate data collection based on HORIBA's four-wheel drive test system, we succeeded in moving about 70% of vehicle testing into the laboratory. Moving forward, we will continue to provide richly diverse systems that assist in raising the efficiency of vehicle development.



Test system provided to Subaru Corporation

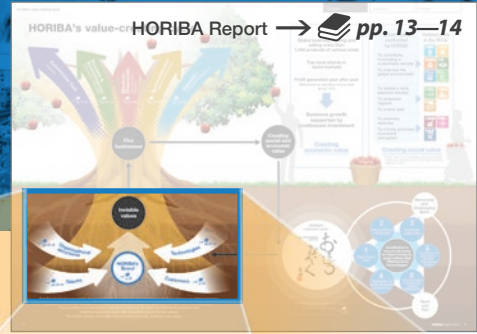
We offer more details regarding the test system we provided to Subaru Corporation on our website (in Japanese only).

Web Link



Invisible values

Creating value using invisible values is one of HORIBA's largest management themes. We believe in the importance of maintaining a trunk-and-branch situation in which the fruit growing on the branches of a tree represents the economic and social values generated each year through visible values, and the tree's trunk represents our businesses. However, the whole tree will topple over if we do not properly extend the thick roots that represent our invisible values into the abundantly fertile soil that represents corporate culture. HORIBA considers its brands, organizational structure, talents, technologies, and customers to be invisible values and invests in them continuously.



**HORIBA
Brand**

**Organizational
Structure**

Technologies

While pursuing numerical targets such as net sales and profits, HORIBA works to raise the value of its brand by carefully fostering the talents, technologies, and corporate culture that it encompasses, which are essential for securing eternal growth and act as a source for future earnings.

We believe that continuing the wide range of activities in which we engage to expand our other four invisible values, which are our "organizational structure," "talents," "technologies," and "customers," leads to higher customer confidence, which is equivalent to the HORIBA brand.

Talents

Customers

Invisible values

Customers

Source of corporate value

HORIBA helps improve the quality of life in a sustainable society by providing high-quality products and services to customers. We think it is important to provide solutions in addition to supplying hardware (instruments). In order to achieve this goal, HORIBA Group collaborate with suppliers in Japan and overseas.

Aiming to become a true partner of our customers

HORIBA maintains laboratories (showrooms) that allow customers to “see,” “use,” and “experience” its technologies. We are aiming to become a true partner of our customers by proposing analytical technologies in line with their demands and providing optimal services.

HORIBA BIWAKO E-HARBOR: A swift provider of flexible products and services

HORIBA BIWAKO E-HARBOR, Biwako Factory, in Otsu, Shiga Prefecture has consolidated all development, design, and production functions related to HORIBA's gas measurement technologies.

This base, which began full-fledged operation in 2016, has promoted reforms aimed at raising efficiency and productivity. Calling the process “sengu” or the translocation process of technology, we promote the younger generation to re-establish the long-existing production processes with their own new technologies. It helps to deeply understand the technology development in HORIBA's history and accelerates the innovation for our future. Furthermore, this base adopted a system that consolidates processes we had previously decentralized outside of the company, such as the components assembly process, onto one floor. We are currently aiming to reduce time spent waiting before processing begins, as well as impediments to the distribution of components. In addition, we are striving to raise overall quality while reducing lead times to one-third of levels before the factory was launched, and doubling productivity through the construction of a flexible and efficient supply system.



The HORIBA BIWAKO E-HARBOR receives many tour requests from customers, the national and municipal governments, and schools both inside and outside of Japan. The facility's total number of factory tour guests exceeded 10,000 in August 2018.

E-LAB

Attached HORIBA BIWAKO E-HARBOR is an automotive development test facility called “E-LAB.” In the facility's three laboratories, which are referred to as “CELL 1, 2, and 3,” customers can bring in test subjects, such as vehicles or engines, and use HORIBA's cutting-edge measuring equipment. Furthermore, CELL 0 will be newly added as an evaluation and testing laboratory for electric vehicle batteries in 2019 (more on page 28).

We have also consolidated information from our nine development testing facilities for vehicles worldwide into E-LAB and have established a system that allows for real-time comprehension of testing statuses at each of our bases.



HORIBA Analytical Laboratory (Kyoto)

HORIBA Analytical Laboratory: Where you can truly feel the value of our analysis and measurement technologies

HORIBA Analytical Laboratory, located in two bases: one in Kyoto and the other in Tokyo, primarily exhibits products from the Scientific Instruments & Systems segment. At this laboratory, about 20 analytical technicians conduct sample measurements and demonstrations for customers considering purchasing our products. Additionally, we provide a variety of advice for customers who are already using our analyzers, providing application data that allows for maximum demonstration of device performance and sharing recommendations regarding analysis methods. HORIBA Analytical Laboratory has achieved laboratory accreditation in the form of the International Organization for Standardization (ISO) Standard “ISO/IEC 17025”. This achievement ensures international credibility for the data we provide within the scope of the accreditation and also carries the advantage that certificates can be accepted not only in Japan but also from one country to another worldwide without the need for further testing.

Invisible values

Technologies

Source of corporate value

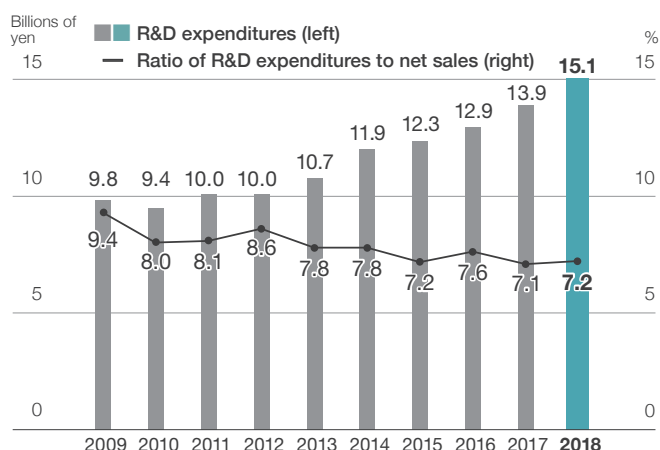
Technological development is one of the most important drivers for value creation and the lifeline of a manufacturer such as HORIBA. To make an analogy, technical capability is a form of basic physical fitness, which cannot be maintained without continuous training and exercise. We firmly believe that continuous investment will contribute to our future growth and profitability improvement. HORIBA aims to improve the efficiency of our R&D investments and realize a higher operating income.

Continuous investment in core technologies

HORIBA allocates 7–8% of its sales to investment in R&D and has expanded its market share during a period of demand recovery by continuing to invest during recessions, when many companies cut back on investment. In 2009, the year of global recession, the Semiconductor Instruments & Systems segment lapsed into an unprofitable territory. However, supported by stable earnings of the Medical-Diagnostic and Scientific Instruments & Systems segments, we were able to maintain the same level of overall R&D investment in the Semiconductor Instruments & Systems segment, which resulted in the segment's favorable operating performance today.

We firmly believe that this investment policy will contribute to our future growth and profitability improvement.

R&D expenditure and ratio of R&D expenditures to net sales



Application of core technologies to products

HORIBA focuses its R&D resources on developing specific technologies in analysis and measurement and implements effective product development in the five business segments of different markets by applying the obtained core technologies. In product development, we strive to provide flexible applications and to meet demands from customers and society crossing over the boundaries of the business segments.

HORIBA's major technologies (by scale of sales)

<p>Infrared measurement Technology to analyze components in gas in real time</p>					
<p>Gas flow control Technology to measure and control the flow of fluids instantly</p>					
<p>Particle analysis Technology to measure particles (diameter, number, weight, and components)</p>					
<p>Spectroscopic analysis Technology to analyze materials by using ultraviolet light, visible light, and near-infrared light</p>					
<p>Liquid analysis Technology to measure components or characteristics in liquid, such as pH, sodium, acids, alkalis, and glucose</p>					
	Automotive Test Systems	Process & Environmental	Medical-Diagnostic	Semiconductor	Scientific

Refining our cutting-edge technologies through industrial and academic partnerships

HORIBA believes that collaboration between academia and business is a large strength when it comes to responding to changes in industry. Accordingly, we are actively promoting partnerships with academic institutions worldwide, including our support for the establishment of the new institute at the University of California, Irvine (more on page 28).

Opening of MIRA Technology Institute at HORIBA MIRA Limited

In September 2018, we opened MIRA Technology Institute on site at HORIBA MIRA Limited in the United Kingdom. Collaborating with local universities, including Coventry University, we installed a fully-functioning educational facility within a space of over 2,000m². In addition to lectures from university faculty, this facility provides lectures that make use of HORIBA MIRA Limited's facilities. Through the operation of MIRA Technology Institute, we are cultivating superior engineers who will lead us during the next generation and contributing to the development of the automotive industry.



Research conducted jointly with the Dresden University of Technology

Model-Based Development (MBD)* is currently spreading throughout the automotive industry. Through the research that we are conducting with the Technical University Dresden in Germany, we are performing highly precise testing during the simulation stage of MBD and aiming to streamline development. In exchange for academic expertise, HORIBA provides the university with test facilities. We are conducting collaborative development with the university while aiming for future product commercialization.

* Model-Based Development (MBD): A development technique that develops and installs engines and vehicles using simulation technology, with the ultimate goal of mass production.



Prof. Dr.-Ing. Günther Prokop

Holder of the Chair of Automotive Engineering at the Technical University Dresden

Dr. Prokop has stated "Through HORIBA provision of the facility, the University can test technologically-sophisticated products by using the newest equipment and technologies."

200th anniversary of the establishment of Jobin Yvon S.A.

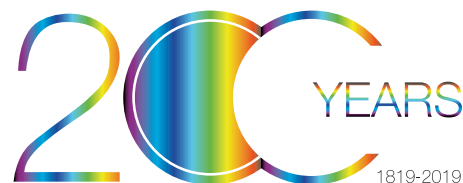
Jobin Yvon S.A. (now HORIBA FRANCE SAS), an optical instrument manufacturer that became a member of the HORIBA Group in 1997, celebrated the 200th year since its establishment in 1919.

HORIBA FRANCE SAS has cooperated with many celebrated scientists throughout its history, including Augustin-Jean Fresnel and Francois Arago, launching many products in a wide range of optical fields. Out of analytical products that make use of light, such as Raman spectrometers, the analytical products currently offered by HORIBA FRANCE SAS provide particularly high performance. Its products are used by some of the world's most advanced research institutions, including NASA. Additionally, HORIBA FRANCE SAS is actively engaged in its industrial and academic partnerships, which include product development through a joint project with Ecole Polytechnique, France's top educational institution in the field of science and engineering.

In the future, HORIBA FRANCE SAS will continue to promote new product development and the cultivation of new product applications as a leading optical systems company.



The Fresnel lens for lighthouses, a product of Jobin Yvon S.A. at the time of its founding



HORIBAJOBIN YVON

Sharing Light and Passion 200 Years of Optical Innovation



Amedee Jobin (left) and Gustave Yvon (right), two figures who expanded business at Jobin Yvon S.A. through strong working relationships with scientists.

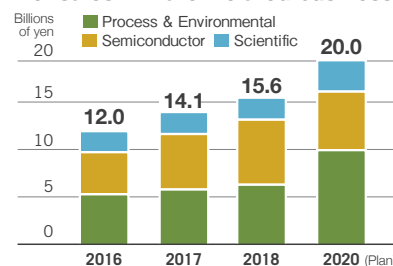
Consolidation of technologies related to water quality measurement in pursuit of business expansion



Beyond Water with You

In January 2017, we integrated our resources of water quality measurement business in Japan into HORIBA Advanced Techno Co., Ltd. to strengthen service and support networks, as well as technological capabilities related to water quality measurement that we accumulated within Japan. Moving forward, we will aim for business expansion by simultaneously utilizing water-related analysis and measurement technologies and sales networks from the Process & Environmental, Semiconductor, and Scientific Instruments & Systems segments. In 2018, we launched sales of "Hakaru EXpress", a service that installs water quality analyzers free of charge, collects measurement data, and then offers reports on this data in exchange for compensation. This system is revolutionary in that it provides assistance with the streamlining of water quality management for factories and other facilities by combining HORIBA's technologies and services.

Net sales in water-related business



Invisible values

Organizational Structure and Talents

Source of corporate value

Organizational Structure

HORIBA operates five business segments in 49* companies. We believe it is important that each business is promoted from the local region. With that aim, we are extending our “Joy and Fun” corporate motto throughout our global operations while promoting balanced management, matrix organization, and the HORIBA Stained Glass Project to build a Super Dream Team.

* As of December 31, 2018

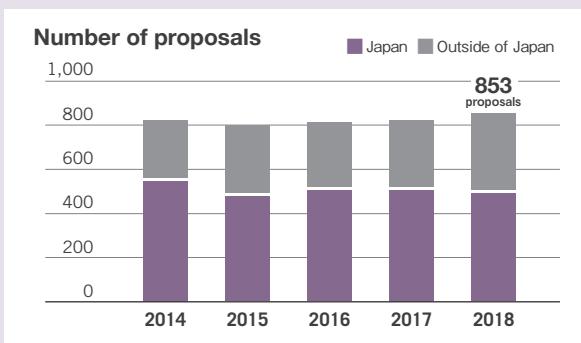
Balanced management attained through a matrix model of organization

HORIBA operates under a matrix framework, with its five business segments composing the vertical axis and three regions (Asia, Europe, and the Americas) making up the horizontal axis. This is a global organizational framework for executive decisions on strategies and plans of each segment, which removes barriers such as separation of countries, regions, or group companies.

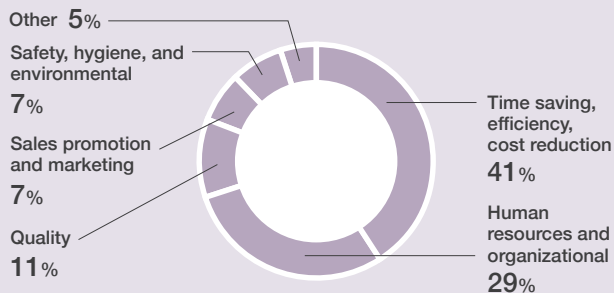
We have achieved continuous growth over the years by conducting balanced management that involves flexibly utilizing corporate resources and consistently investing in each business segment, even when one of them might be facing a sluggish business environment. We will continue to exploit the benefits of the multiplier effect from successful examples and strengths in one segment or one region to another and improve HORIBA's corporate values.

The BlackJack Project: Enhancing organizational capabilities through operational reforms

The BlackJack Project is HORIBA's unique operational improvement initiative which began in 1997 with the objective of changing the awareness and activities of employees. From the outset, a dedicated internal team worked to promote this initiative, which fulfills the vital role in providing opportunities for sharing global experience and knowledge and represents one of our most important initiatives aimed toward establishing a Super Dream Team. Over the last few years, we have registered about 800 proposals per year, as well as a total of over 9,000 proposals over the entire life of the initiative, which has spanned over 20 years. These proposals, which cover a variety of topics ranging from business-related concerns, such as raising operational efficiency on the manufacturing floor or cost reduction, to communication-related ideas, such as promoting cross-cultural understanding, help form HORIBA's corporate culture, which encourages employees to take initiatives in working toward reform. The BlackJack Project, which is also the best method we have for management to know what happens on site, is helping provide support for our current favorable business results.



Proposals submitted in 2018 (e.g., HORIBA, Ltd.)



Primary achievements of the BlackJack Project

BlackJack Award World Cup 2018

In 2006, we extended the activities of the BlackJack Project to include overseas group companies. Since 2007, we have held an internal World Cup competition that selects the best of candidate proposals from each country in which we operate, bestowing a corresponding award. This competition provides a forum through which candidates can present their accomplishments to management. In 2018, an overseas group company's project won the first prize for the first time since 2014.

First prize-winning proposals

Introduction of the HORIBA Care App for smartphones

It is important for hematology analyzers to monitor the usage of reagents consumed during laboratory tests. We developed and introduced a smartphone app that allows users to understand the locations of their end customers, as well as statuses of analyzer usage, as a means for simplifying and reducing required administration processes and times. Connecting end customers to HORIBA with the app's platform has enabled the simplification of order processes and the gathering of information regarding product usage. We are aiming to strengthen our supply system and raise customer convenience to ensure that we can respond to a rapidly expanding Indian market.



Jyoti Pant of HORIBA India, won first prize in 2018 with her project

Source of corporate value

Talents

At HORIBA, employees are our most important assets. In order for all employees to achieve “Joy and Fun,” we work to realize HORIBA’s five pillars of “*Omoi*”. HORIBA’s organizational success is due to our highly diversified employees’ practice of HORIBA’s five “*omoi*.”

HORIBA’s five pillars of “*omoi*”

- ① To be a part of a collaborative community, at the forefront of new ideas and creations.
- ② To achieve goals and make life memorable by fostering the highest intellectual potential.
- ③ To reach across the globe to expand learning that captures key business developments, wherever they occur.
- ④ To be proud of sharing what I do and what HORIBA delivers.
- ⑤ To be helpful to the world and its people.

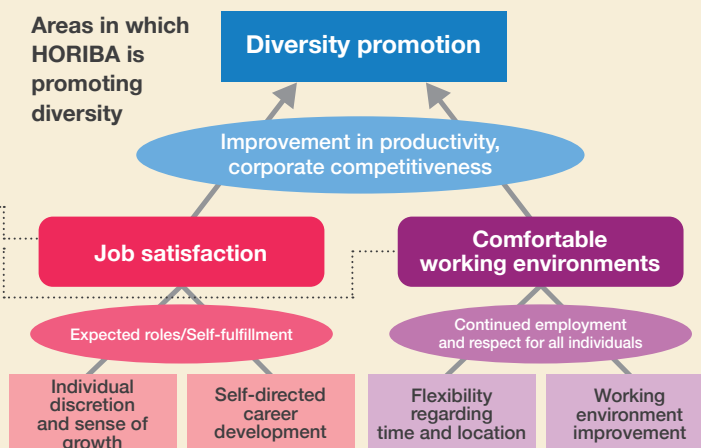
Organizing a Super Dream Team

Under the slogan “HORIBA Group is One Company,” since 2004, HORIBA has promoted “Balanced Management” through adoption of a matrix model of organization to manage the group companies as a single integrated entity. Under this management structure, we will establish a Super Dream Team of diverse human resources through the HORIBA Stained Glass Project. This project is geared toward promoting diversity by increasing awareness among employees regarding the value and significance of diversity in human resources in order to encourage each of them to utilize their abilities to their full potential. Through these changes, we will accelerate reform in existing businesses, as well as the creation of new businesses.

HORIBA Stained Glass Project

In January 2014, we launched the Stained Glass Project. Its mission is to make HORIBA stronger by the continual creation of new value through diverse human resources and skillsets, regardless of their gender, age, nationality, disability, or other differences.

We shifted our focus to improving job satisfaction and ensuring comfortable working environments and promoting activities that encourage our diverse human resources to contribute even more actively on a daily basis. To this end, we strengthened our Stained Glass Project initiative by launching the Stained Glass Project Office in 2017.



Primary activities of the HORIBA Stained Glass Project

Establishment of a telework program: The introduction of the Good Place Work System

In January 2019, we implemented the Good Place Work System (telework program), which expanded our previous work-from-home system, at all group companies in Japan. HORIBA has supported the continued employment of staff who have promising futures but face difficulty when coming to work. In 2006, we allowed these employees to begin working at home, enabling them to balance their work with concerns such as childcare and nursing care. We introduced this new system to further raise productivity while preserving the current work-life balance for employees.

2005

- Shortened working hour system
- ▶ Shortened working hours permitted only during times specified by the company

2014

- Launch of Stained Glass Project

2016

- Good Balance Work System
- ▶ Revisions allowing for more flexibility when deciding working hours

2019

● Good Place Work System

- ▶ Individuals who have received approval from their department heads are permitted to work outside of their respective workplaces. Approval is based on guidelines formulated by teams established in each department. When forming these guidelines, these teams consider factors such as work responsibilities, safety and health, and confidentiality.

Increasing visibility of project activities: Special website launch

We launched our website, “Stained Glass Project—Diversity at HORIBA,” in November 2018. On this site, we introduced the vision of the Stained Glass Project, which is promoting diversity throughout the company, as well as specific promotional activities related to diversity.



Web Link



HORIBA's CSR Building Invisible Values

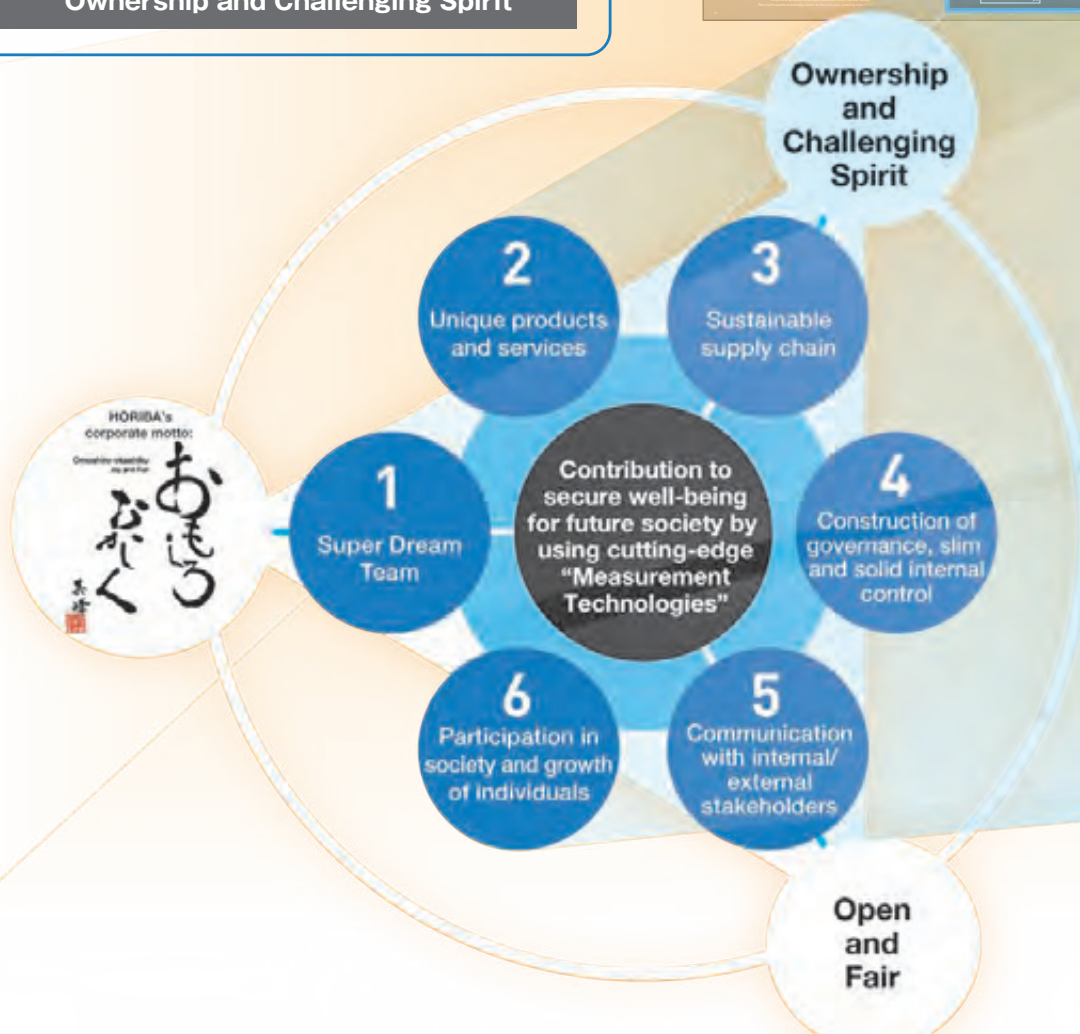
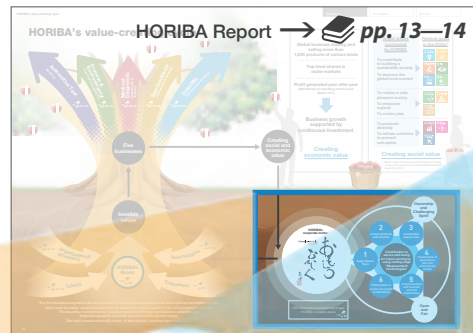
HORIBA believes in building invisible values through relationships between its business activities and its other wide-ranging activities. While focusing on the three backbone values that form the core of its management, HORIBA is adjusting its diverse business and identifying important and relevant issues. HORIBA considers these activities to be the starting point of its CSR initiatives.

The three backbone values that form the core of HORIBA's management

HORIBA's corporate motto: Joy and Fun

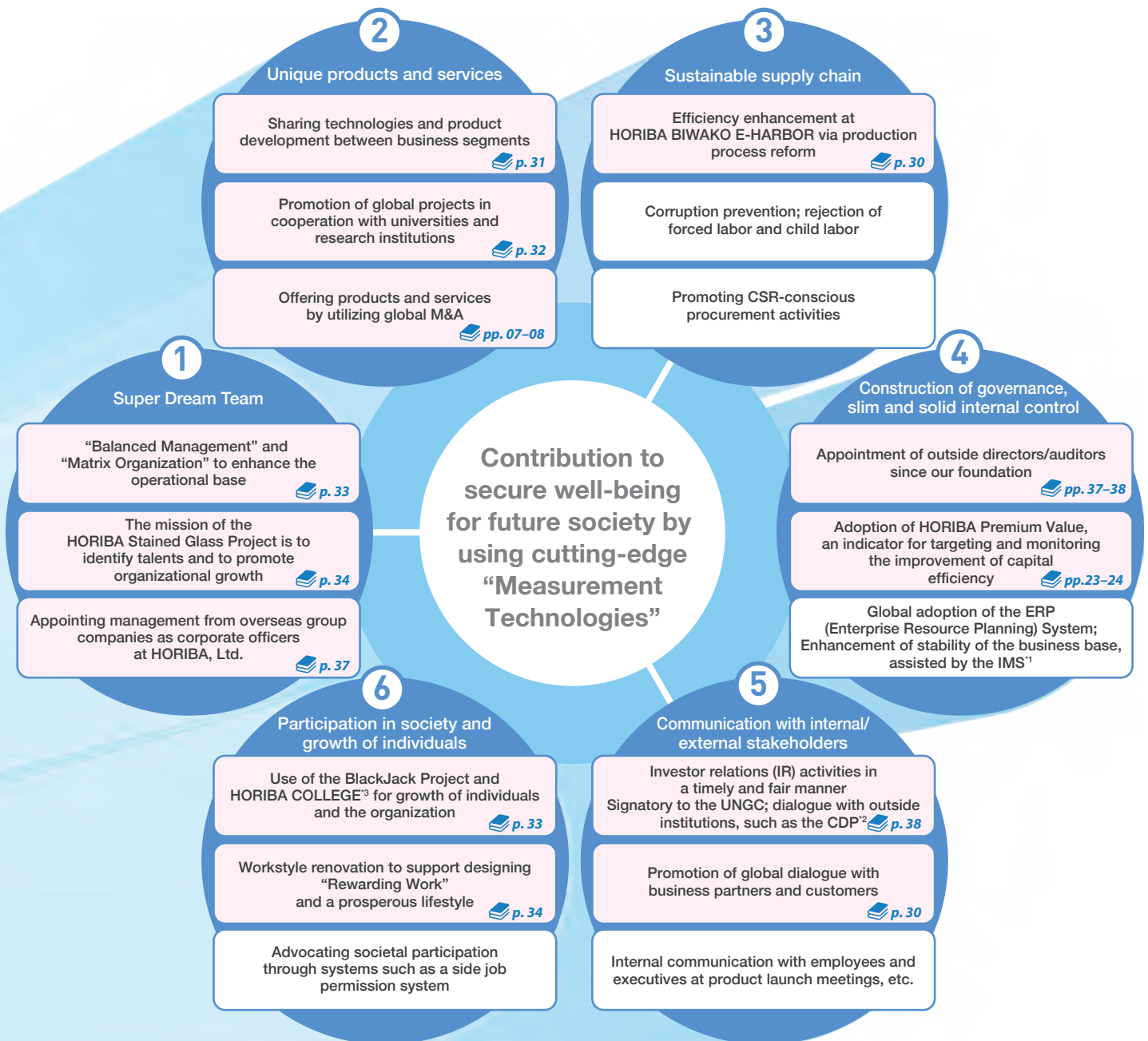
Open and Fair

Ownership and Challenging Spirit



Progress of HORIBA's CSR activities

2016	2017	2018	2019 (Plan)
<ul style="list-style-type: none"> The ESG Workshop, which is comprised of the Junior Corporate Officer in charge of CSR at HORIBA, Ltd. and core members of each segment, was launched. HORIBA's corporate philosophy and strength were confirmed, and the areas and frameworks where HORIBA can or should contribute in solving social issues or do so in terms of relation to stakeholders were studied. 	<ul style="list-style-type: none"> 25 ESG Workshops were held in one year. The ESG Subcommittee was established within the HORIBA Group CSR Promotion Committee. CSR activities by HORIBA's overseas group companies were surveyed. 	<ul style="list-style-type: none"> CSR activities were delegated to four subcommittees covering environment, social affairs, governance, and public relations. Each subcommittee formulated its own mission and conducted activities according to an annual plan. ESG Workshops were held as an avenue for reporting. Responded to client-led CSR audits and investigations with cooperation from each subcommittee. Reconstructed HORIBA's CSR website. 	<ul style="list-style-type: none"> Clarify HORIBA's CSR policy and transmit it both internally and externally through the Mid-Long Term Management Plan. Strengthen external transmission by enhancing the CSR website. Hold our 50th ESG Workshop.



External evaluation

We received our first selections for inclusion in the "Health & Productivity Stock Selection Program (2019)" and "Nadeshiko Brand (2019)," both of which are decided by the Ministry of Economy, Trade and Industry and the Tokyo Stock Exchange, Inc.



Health and Productivity Stock Selection Program

In 2012, HORIBA's top management issued its Physical and Mental Health Promotion Declaration. Inclusion in the 2019 Health and Productivity Stock Selection Program was granted out of recognition for various initiatives conducted in pursuit of this declaration's goals.



Nadeshiko Brand

Our inclusion in the Nadeshiko Brand 2019 was awarded out of recognition for our initiatives promoting diversity, primarily our Stained Glass Project (more on page 34).

Signatory to international initiatives

WE SUPPORT



United Nations Global Compact (UNGC)

HORIBA, Ltd. supports the initiatives of the United Nations Global Compact since we became a signatory in 2012 through the agreement of top management.

^{*1} IMS, or Integrated Management System, integrates the standards of several management systems, including ISO. The HORIBA Group has established IMS for Quality (ISO 9001), Environment (ISO 14001), Occupational Health and Safety (OHSAS 18001), and Road Traffic Safety management systems (ISO 39001). Furthermore, IMS has been enhanced through the additional implementation of standards regarding the quality of medical devices (ISO 13485) and business continuity (ISO 22301).

^{*2} The CDP, formerly the Carbon Disclosure Project, is a non-profit organization based in London that works with institutional shareholders to disclose the environmental strategy and greenhouse gas (GHG) emissions of major selected corporations in the FTSE Index. The CDP sends questionnaires to major companies across the world, analyzes and evaluates the companies' self-reported data, and discloses the results to investors.

^{*3} HORIBA COLLEGE was established in 2009 as a place where employees can teach and learn from each other as both students and lecturers.

Detailed information regarding HORIBA's CSR activities can be found on our website:

Web Link

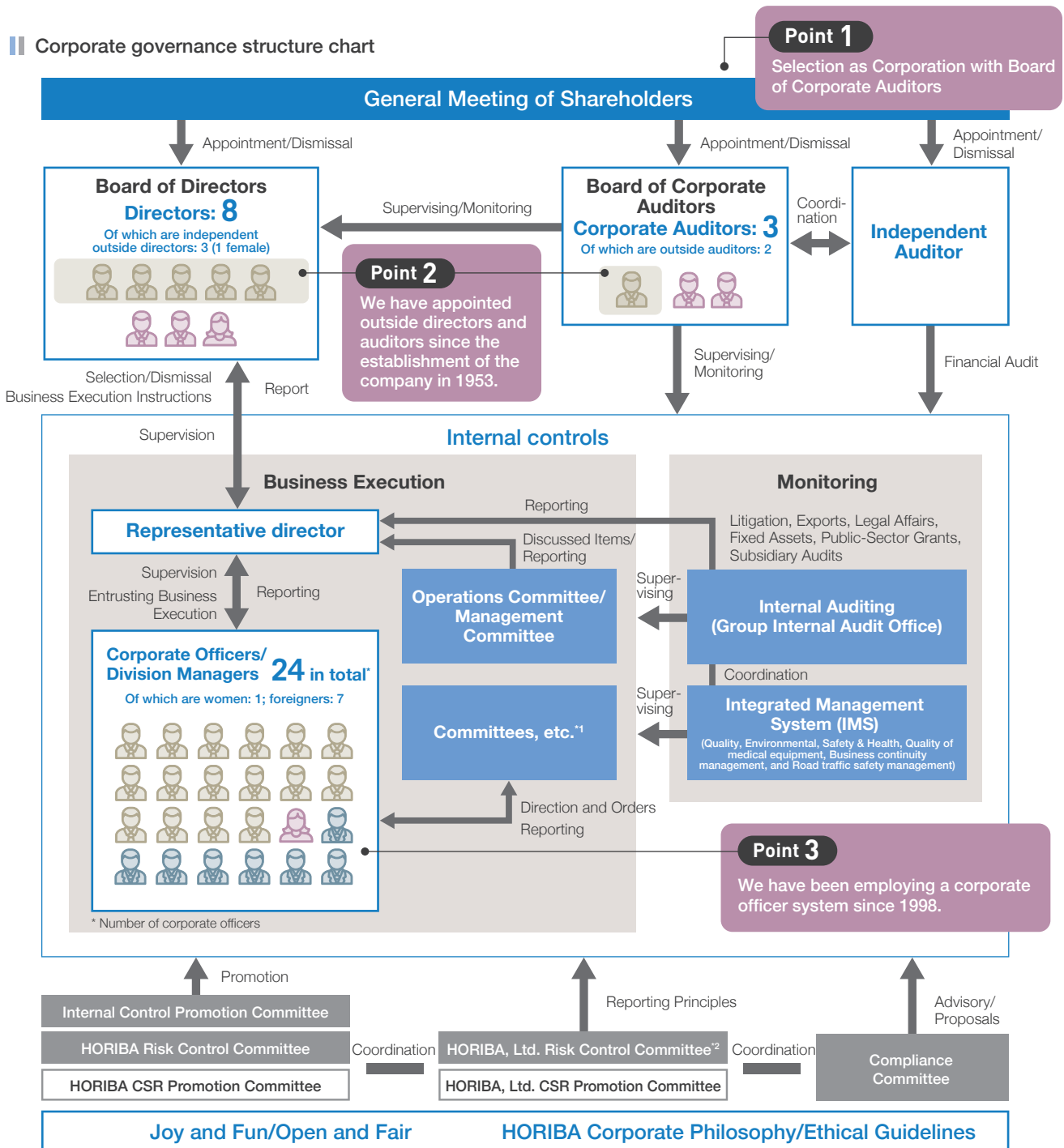


Corporate governance

Basic Policy on Corporate Governance

Based on the corporate philosophy of “Open and Fair,” HORIBA has pledged to (1) establish an organizational structure that promptly responds to changes in the business environment, (2) improve its managerial monitoring of performance, and (3) enhance compliance-related arrangements. These objectives have the aim of establishing a world-class governance structure. At the same time, we are committed to establishing good relationships with all stakeholders, including owners (shareholders), customers, employees, and local communities. In addition to proper information disclosure, we seek to promote constructive dialogue with our owners (shareholders), contributing to our sustainable growth and medium- to long-term improvement in corporate value.

Corporate governance structure chart



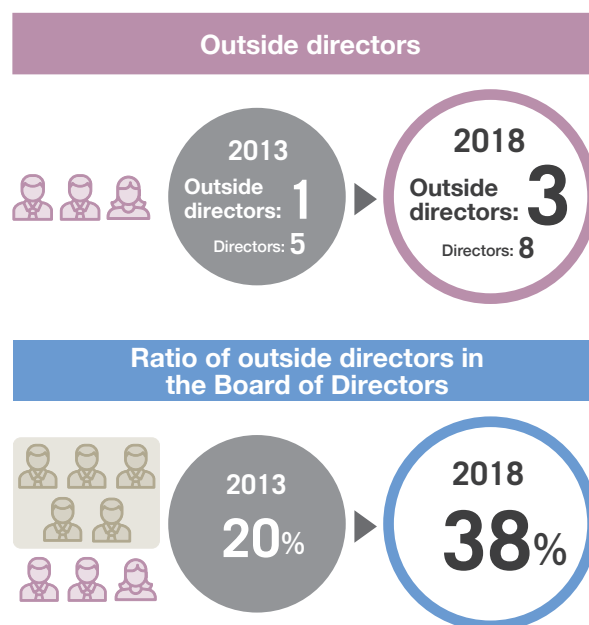
*1 Committees, etc. refer to committees and conferences that are established and registered based on the "Regulations Concerning Conferences and Committees," such as the Group Promotion Committee for Management of Public Subsidies and the Safety and Health Committee.

*2 The HORIBA, Ltd. Risk Control Committee discusses and approves issues and measures concerning risk control.

Corporate governance system

HORIBA has adopted the type of organization defined as a “Corporation with Board of Corporate Auditors” in the Companies Act. Based on this organizational design, HORIBA, Ltd. has appointed outside directors and corporate auditors since its founding in 1953 to avoid management with an introverted approach. As of April 2019, the Board of Directors is comprised of eight members, including three independent outside directors, including one woman. In 2018, the Board met 12 times in order to make decisions more promptly and to augment managerial capability. In addition, HORIBA introduced a corporate officer system in 1998 to make smooth and agile execution of operations under the supervision and guidance of directors. At present (April 2019), 24 corporate officers, including one woman and seven non-Japanese, play an active role in Japan and overseas.

As of April 2019, the Board of Corporate Auditors is comprised of three corporate auditors, including two independent outside auditors. It performs objective and appropriate auditing and monitoring of the work of the Board of Directors, in cooperation with independent auditors and internal auditing (Group Internal Audit Office, which is positioned directly under Executive Vice Chairman & Group COO).

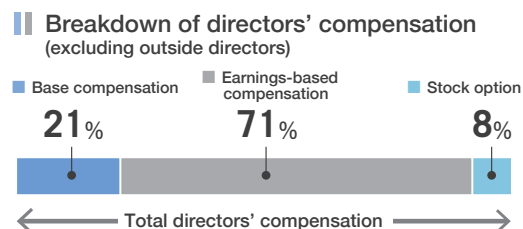


Evaluation of the Board of Directors' effectiveness

From December 2018 to January 2019, we distributed to all eight directors a questionnaire concerning the Board of Directors' effectiveness and received a response from each of them. The main questions were: 1) three roles and responsibilities of the Board, as per the Corporate Governance Code Basic Rule 4; 2) structure of the Board (number of members, diversity, knowledge, experience, ability, etc.); and 3) number of meetings held. In addition, talks took up 4) hours of discussion; 5) issues of discussion; and 6) subjects of discussion. As a result, the directors judged that the effectiveness of the Board was confirmed to be satisfactory as it was. Various opinions were shared concerning details of discussions held by the Board of Directors, including feedback that called for the enhancement of qualitative reporting on business execution and the assertion that informal discussion held before or after Board of Directors' meetings are raising the effectiveness of the Board.

Directors' compensation

Compensation for directors consists of base compensation (regular fixed-amount salary), earning-based compensation (bonus) linked to the earnings results of each fiscal year, and stock options (retirement allowance) linked to medium- to long-term earnings performance. Compensation for outside directors, however, consists strictly of base compensation (fixed-amount salary), excluding compensation linked to earnings performance, given the nature of their assignment. The limits for compensation for directors and outside directors are approved as a separate matter at the annual general meeting of shareholders. Compensation for directors (not including outside directors) for 2018 was 686 million yen in total.



Relationships with owners (shareholders) and investors

Open general meeting of shareholders

Since its initial stock listing in the Second Section of the Osaka Securities Exchange in 1971, HORIBA has encouraged all shareholders to attend the annual general meeting of shareholders. This annual meeting is held on a Saturday to facilitate public attendance. An informal gathering event is held afterwards to enable shareholders to talk directly with management.

Constructive dialogue

HORIBA abides by the “Basic Policy for Constructive Dialogue with Shareholders” as announced on our website (see to the right). We make efforts to explain our corporate policy, financial condition, and corporate culture to our owners based on the perspective of “fair disclosure,” and ask for their understanding and continued support.

Third-party evaluation of IR activities

In 2018, Institutional Investor, a world-famous professional financial journal from the United States, selected HORIBA as a superior company in the Electronics/Precision Instruments category.

* Institutional Investor ranks listed Japanese companies with superior IR activities in 27 different categories based on voting conducted by more than 1,000 institutional investors and securities analysts from around the world.

Status of IR-related activities

For analysts and institutional investors

- **Financial results briefing** Held four times per year (Briefings for the first and third financial quarters are held via telephone)
- **Visitations and individual interviews (within Japan)** About 250 cases
- **Visitations and individual interviews (overseas)** About 80 cases

For individual investors

- **Information sessions, etc.** Held about four times per year

Please see our website for more details regarding our “Basic Policy for Constructive Dialogue with Shareholders.” (in Japanese only)

[Web Link](#)

Click!



List of rankings awarded to HORIBA by Institutional Investor:

- Honored Companies 4th place
- Best IR Professionals 1st place (Eita Uesugi, Manager, Investors Relations, Corporate Control Dept.)
- Best Analyst Days 3rd place

Anti-takeover measures

HORIBA has not adopted anti-takeover measures. We reviewed the “Basic policy on the persons to control decision making over the financial and business policies of HORIBA,” which was announced in our Corporate Governance Report.

Please see our website for more details regarding our Corporate Governance Report.
(in Japanese only)

Web Link

Click!



The philosophy behind the shares we hold for strategic purposes other than pure investment

HORIBA holds shares from companies that it believes are essential for raising its medium- to long-term corporate value and considers various factors when determining which shares to hold, including the strengthening of business strategies and relationships with business partners and the maintenance of relationships with local communities.

Each year, our Board of Directors comprehensively considers elements associated with share retention, including return and investment amounts, and makes judgments concerning the advisability of continued investment in the same companies. We have established policies for situations in which we determine that a company's shares are inappropriate for retention, employing response measures such as share curtailment, etc.

Risk management and compliance

HORIBA has established Group Risk Management Regulation, in order to strengthen its risk management framework, and broadly classifies risks into categories, including operation risks, risks related to development and manufacturing, sales risks, and financial risks. A management system for addressing these risks and a responsibility system that will manage crisis situations whenever they occur are stipulated in the Regulations. The HORIBA Risk Control Committee has taken on the responsibility of responding to risk management issues and discussing and approving possible countermeasures. This committee includes members from primary group companies within Japan and aims to strengthen frameworks related to risk management and compliance.

Compliance Committees, which promote awareness of compliance issues and deliberate regarding related matters, were launched at primary group companies within Japan quite some time ago. These committees also review details included in internal reports, conduct hearings, compile their own reports, and provide advice concerning the rectification of any confirmed issues.

HORIBA has established its Corporate Philosophy, Compliance Management Provisions, and Code of Ethics to enhance its compliance framework and to prevent illegal acts. To facilitate early detection and correction of illegal acts, we also established an internal reporting system that includes a lawyer consultation service, as well as an internal e-mail reporting system. Through this system, we will continue to raise employee awareness and enforce observance of laws and regulations. In addition, we will hold seminars on compliance for employees in management positions and request participants to provide guidance to their staff members.

Strengths of HORIBA's Board of Directors

Leadership



Management strategies



Industrial knowledge



Global business



Sales and marketing



Technology and R&D



Governance



Legal affairs



Finance and accounting



Position	Name	Reason for appointment as Director
Chairman & Group CEO	Atsushi Horiba	He served as President & CEO of the company over the 26-year period from 1992 through the end of 2017, while from 2018 he assumed the concurrent duties of Chairman and Group CEO. During these years, he has played a pivotal role in spearheading the global growth of the overall HORIBA Group, while accumulating rich management experience. In view of this background, he is judged qualified to help guide the group to even greater strength and global development in his capacity as Group CEO.
Executive Vice Chairman & Group COO	Juichi Saito	As General Manager of the Corporate & Segment Strategy Division, he attained extensive experience in promoting operations with focus on business strategies, corporate acquisition, and other sectors. He has likewise built up an impressive overseas track record through engaging in management duties of the company's U.S. subsidiary and other assignments, further supporting the view that he is fully capable of unifying the overall Group in promoting programs of renewed global development as the Group COO. In view of this, he was appointed to the post of Director.
President & COO	Masayuki Adachi (Doctor of Engineering)	He has achieved far-reaching experience in the R&D Division of the company, while excelling in overseas management assignments at the company's subsidiaries in the United States and France. These and other factors support the judgment of his ability to further enhance the company's technical prowess and propel the HORIBA Group to even greater successes, resulting in his appointment to the position of Director.
Managing Director, General Manager of General Administration Division	Masao Okawa	In view of his global experience compiled during his previous service at a topflight financial institution, it is the belief that he is uniquely qualified to formulate global financial strategies and functions in strengthening HORIBA compliance and corporate governance. For these and other reasons, he was appointed to the post of Director.
Director, Board Leader of GLOBAL ATS BOARD	Takashi Nagano	He has extensive experience at the Automotive Test System segment and Sales Division while holding management positions at HORIBA German and South Korean subsidiaries and cultivating other pivotal knowledge through the company's overseas operations. This background supports the assessment of his credentials to expertly deal with the tumultuous changes that currently characterize the automotive industry, leading to his appointment to the position of Director.
Director (Outside)	Masahiro Sugita	His plentiful experience in international economic and financial matters, penetrating knowledge and insights cultivated as a director and corporate auditor at other companies and other assets are being put to valuable use in the company's management. In consideration of these outstanding benefits, he was appointed to serve as an Outside Director.
Director (Outside)	Jiko Higashifushimi	He is renowned for his penetrating insight nurtured as Head Priest of Shorein Religious Corporation. The counsel based upon this background, together with his work experience at a financial institution and other valuable personal assets, have been effectively utilized in the company's management operations to date. Taking these contributions into consideration, he was appointed to serve as an Outside Director.
Director (Outside)	Sawako Takeuchi (Doctor of Engineering, Doctor of Economics)	Her knowledge and wisdom as an engineering PhD; experience in France (an important base for HORIBA business operations); and other overseas assignments and additional achievements have been fruitfully utilized in the company's management platform up to this time. To continue to benefit from this background and expertise, she was appointed to serve as an Outside Director.

→ Please see pages 59–60 for lists of directors, auditors, and corporate officers.

Message from the Outside Directors

Outside directors' views of HORIBA and their expectations of the Board of Directors

April 2019



From the left:

Outside Director
Masahiro Sugita

Outside Director
Sawako Takeuchi
Doctor of Engineering
Doctor of Economics

Outside Director
Jiko Higashifushimi

Masahiro Sugita

Changes caused by updates to the management team and my expectations moving forward

I am aware that changes to the management team were made in order to strengthen it and open up new roads for HORIBA to pursue growth so that it can respond to the dramatic evolution in technology and changes in global political and economic systems moving forward. The backbone of HORIBA's management is Mr. Horiba, who is continuing to serve in his position as Group CEO and embodies the HORIBA spirit that has endured since the company's founding. I believe that coming up with a vision for responding to questions like "how can we respond to further expansion in the corporate scale and toughen our organizations?" is an important task facing the company moving forward. Mr. Saito plays a central role in the integration of global management and the effective use and allocation of management resources. He is also working hard to ensure that his diverse insight is reflected in our management and our development of human resources. I anticipate that, in addition to his activities as president of HORIBA, Ltd., Dr. Adachi will keep a close eye on changes in technological trends and become a new driving force for HORIBA growth that is grounded in both science and technology.

Jiko Higashifushimi

State of discussions within the Board of Directors

Three years have passed since I was appointed as an outside director in March 2016. Meetings of HORIBA's Board of Directors are generally amicable but do possess a modicum of intensity, and this is thanks to Mr. Horiba's character. Items brought up for discussion at HORIBA's Board of Directors are always accompanied by polite explanations, which, I believe, allows outside directors to comprehend all of their most important points. Outside directors are also able to actively ask questions and receive proper answers because detailed explanations are made easy to understand through documents accompanying figures. Recently, the company has established separate briefings in which responsible parties and outside directors can discuss issues brought up for debate at Board of Directors' meetings. Discussions at these briefings are also lively, and offer participants the opportunity to gain a large amount of relevant knowledge.

Sawako Takeuchi

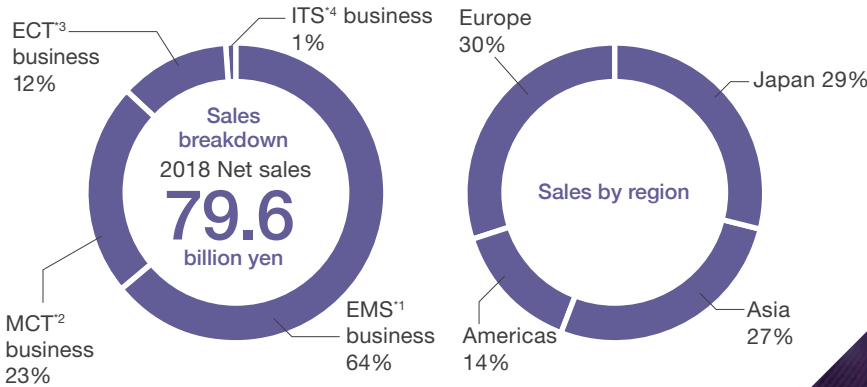
Expectations for inside directors

A new trend of technologies fusing manufacturing and telecommunications, such as autonomous driving systems and medical services that utilize the IoT, is picking up speed. In this environment, the Board of Directors has successfully switched gears in management, by setting objectives that include the upgrading of a global production system, the development and application of new core technologies, and the facilitation of synergies among the HORIBA's five business segments. On the other hand, the Board of Directors should accelerate the improvement of quality of existing businesses, the expansion of customer networks and the development of human resources. I have high expectations focusing on a new management team that moves on implementation of a global information sharing system of strategic & technological development, policies that enable us to extract lessons from past failures to discover new solutions, and consolidation of HORIBA's advantages deriving from synergies between internal and external operations.



Automotive Test Systems

Providing powerful support for the efficiency of vehicle testing and acceleration in automotive development



*1 Emission Measurement Systems *2 Mechatronics (MCT); measuring instruments for vehicles *3 Engineering Consultancy & Testing *4 Intelligent Transport Systems

HORIBA's automotive Emission Measurement Systems (EMS) are used by national certification bodies throughout the world and hold a global market share of 80%*. HORIBA provides complete test and measurement solutions to the world's leading automotive manufacturers, including test systems for engines, chassis, powertrains, brakes, and catalysts. We are also able to respond to wide-ranging demand in the Engineering Consultancy & Testing (ECT) business, offering a wide variety of products and services ranging from the development of batteries for electric vehicles to autonomous driving technology, in addition to providing vehicle performance testing and R&D expertise.

* HORIBA's estimates

2018 results

Recorded highest-ever sales and operating income due to favorable performance in the EMS business

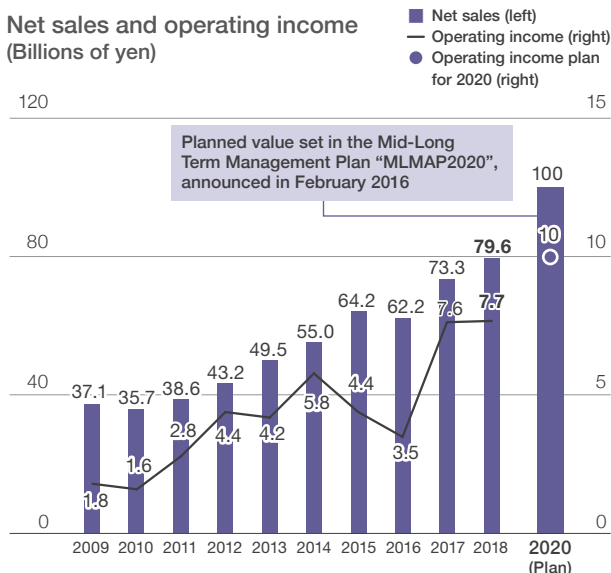
Sales of emission measurement systems rose as emission regulations were strengthened worldwide. In addition, we worked to further raise production efficiency at HORIBA BIWAKO E-HARBOR, Biwako Factory. Sales also increased in the ECT business amid increases in the strength of emission regulations and response to developments in next-generation vehicle technologies, leading to a rise in overall sales and operating income.

2019 forecast

- Enduring strong demand caused by emission regulations
- Further growth in the Mechatronics (MCT) business

Demand for emission measurement systems is expected to be strong as emission regulations continue to become stronger. Based on projections, we forecast that sales in the Mechatronics (MCT) business will increase. This increase will be boosted by HORIBA FuelCon GmbH in Germany, which was acquired in September 2018 and develops test systems for batteries and fuel cells used in electric vehicles. Consequently, this segment will grow in both overall sales and operating income year-on-year.

Net sales and operating income (Billions of yen)



Medium- to long-term strategy

Becoming a comprehensive supplier that provides total solutions to the automotive industry of the next generation

We soundly respond to customer expectations through our reliable quality and our brand power, which has been established by an 80% global market share* in emission measurement systems. We are also creating and providing original value that only HORIBA can offer in the field of next-generation vehicle technologies in response to rising demand for testing and engineering. This will be achieved by generating synergies between our EMS, MCT, and ECT businesses while developments involving vehicle electrification and autonomous driving technology are picking up speed in this field.

* HORIBA's estimates

Major risks and opportunities

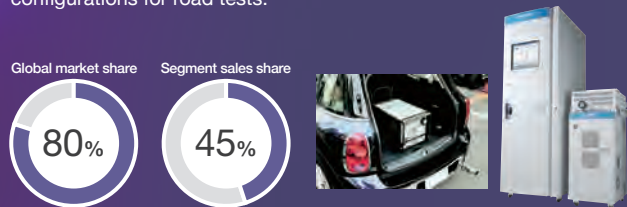
In addition to strengthening global emission regulations, developments in next-generation vehicle technologies, including vehicle electrification and autonomous driving systems, are attracting a great deal of attention. In the midst of this environment, automotive manufacturers around the world are actively promoting investment in development. Additionally, new players, including companies from other industries and other burgeoning new ventures, are continuously entering the automotive industry. HORIBA views these kinds of changes in automotive development technology and industry structure as business opportunities.

Major products and market shares

Note: Market shares quoted are HORIBA's estimates.

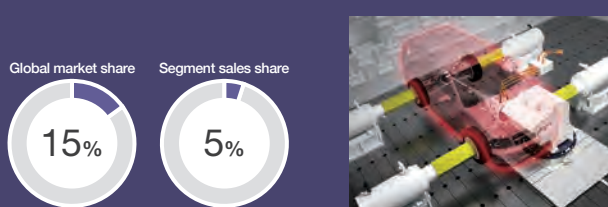
I Emission measurement systems

These systems continuously and simultaneously measure a wide range of gaseous and particle components in emission gases over a broad range of concentrations. They are widely used in R&D and engine/vehicle certification in the automotive industry. The systems include large-scale systems installed inside a laboratory, in which HORIBA holds an 80% global market share and on-board configurations for road tests.



I Driveline test systems

The driveline is an extremely important part of the overall powertrain that transmits energy from engines or motors to the vehicles' tires. HORIBA's driveline test systems use the latest simulation technology for a wide range of powertrain and driveline testing applications. HORIBA's strength is demonstrated by providing flexible systems based on custom and open solutions.



TOPICS

I Trend of automotive-related regulations

01 Introduction of the Worldwide harmonized Light vehicle Test Procedure (WLTP) and the Real Driving Emissions (RDE) regulation

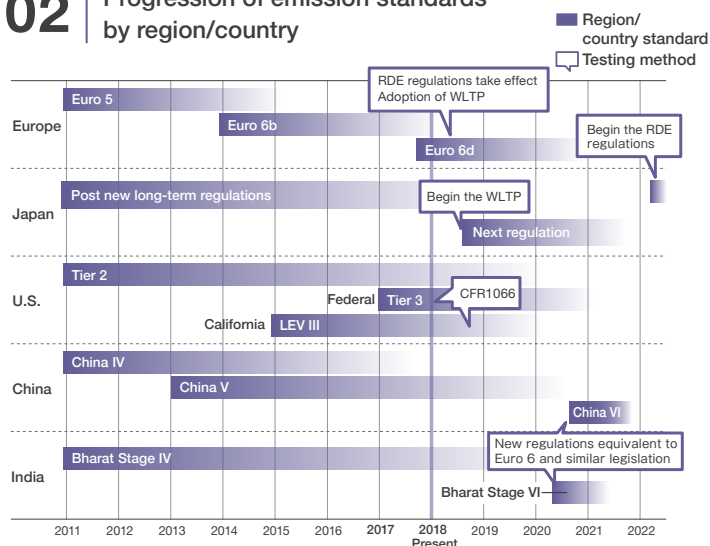
Although each member country and region has adopted its own cycles and methods for testing passenger car exhaust emissions and fuel consumption, in 2014 the United Nations Economic Commission for Europe (UNECE) introduced the WLTP*1 to provide a common technical regulation for measurement of exhaust emissions and fuel consumption for light-duty vehicles. A set of laws and regulations was adopted in Europe in September 2017 as "Euro 6d." In September 2018, it was put into effect in Japan. RDE*2 regulations, which provide standards for on-road emission testing, were also enacted in Europe in September 2017 and are scheduled for adoption during 2022 in Japan. Automotive manufacturers are undergoing preparations for response to these new regulations.

Next-generation emission regulations are projected to continue expanding globally in the future, with emission regulations equivalent to Euro 6 scheduled for adoption in both China and India in 2020.

*1 Worldwide harmonized Light vehicle Test Procedure: Internationally coordinated emission and fuel consumption testing laws for passenger cars and other vehicles that are geared toward international standardization

*2 Real Driving Emissions: Regulations concerning emissions from vehicle running on-road

02 Progression of emission standards by region/country



Sources: HORIBA's survey based on materials of the Ministry of Economy, Trade and Industry; Ministry of Land, Infrastructure, Transport and Tourism; Japan Automotive Manufacturers Association Inc.; and others

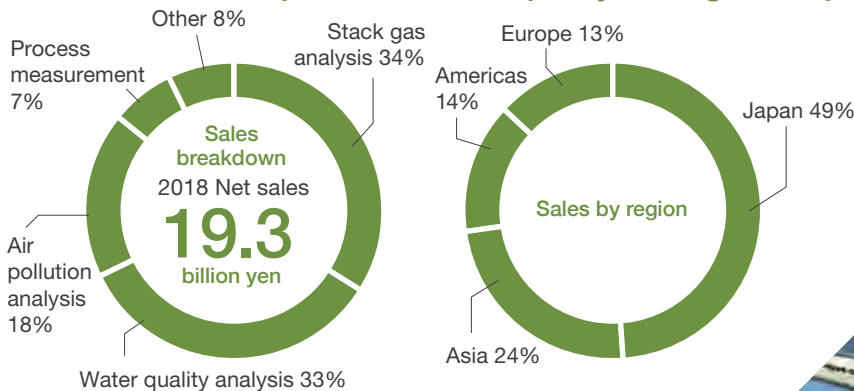
I Automotive Test Systems: Market size and growth areas

HORIBA business divisions	Gasoline & diesel	Hybrid	Electric and fuel cells	Market size (Billions of yen) HORIBA's estimates
EMS business	Emissions measurement			55-65
MCT business	Engine performance testing			100-120
	Vehicle body, Wind tunnel balance, Brake testing			15-20
ITS business	Driveline testing			30-40
	Safety and Comfortability			10-15
ECT business	Vehicle design development, Vehicle performance testing, Lease of R&D facilities			2,000-



Process & Environmental Instruments & Systems

HORIBA helps develop measurement technology for global environmental preservation, and production and quality management processes



We supply a broad range of analysis and measurement instruments for analyzing air pollution, water quality, and soil quality. We play an important role in gas measurement and monitoring of industrial wastewater in the energy and heavy industries such as electric power, steel, and chemical industries; purified water management for medical and semiconductor use; and water quality monitoring and control for food, as well as cosmetics fields. In essence, HORIBA's analytical and measurement technology contributes to leading technological innovation, which supports public safety, security, and health in addition to global environmental preservation. This also means that we help achieve sustainable development, as advocated by Sustainable Development Goals (SDGs).

2018 results

- Robust sales of water quality analyzers and air pollution analyzers in Asia
- Recovery of the process measurement systems business in the Americas

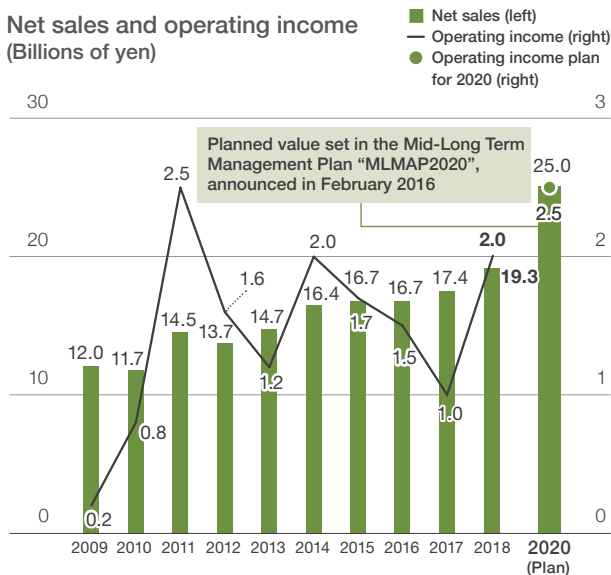
Sales in the process measurements systems business were strong in the Americas, and at the same time sales of water quality analyzers and air pollution analyzers increased in Asia. As a result, both sales and operating income increased year-on-year.

2019 forecast

- Continued strengthening of environmental regulations in Asia
- Recovery of the stack gas analyzers business in Japan

The same as last year, we predict higher sales of water quality analyzers and other products as environmental regulations are strengthened in emerging countries in Asia and elsewhere. In Japan, we forecast recovery in the sales of stack gas analyzers. On the other hand, operating income is expected to remain the same level as 2018 despite the increase in sales, due to factors such as continued global investment in R&D.

Net sales and operating income (Billions of yen)



Medium- to long-term strategy

Value creation in the context of environmental regulations and process measurement equipment

HORIBA will develop business in the environmental and analytical instruments market in emerging countries by utilizing its accumulated know-how and experience in Japan, Europe, and the Americas. We also aim to increase market share in the global water quality measurement business by collaborating with the water-related business of other HORIBA business segments. As to our process measurement equipment business, we aim to expand business in the petroleum refining and petrochemical industries and intend to increase the recognition given to the HORIBA brand in Japan and overseas.

Major risks and opportunities

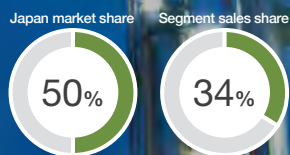
Along with economic development, emerging countries, in general, tend to tighten environmental regulations. In developed countries, which already have such environmental regulations, focus is shifting to environmental improvement at factories and power generation plants and to improvement in energy efficiency. HORIBA views these kinds of changes in regulations and production processes as business opportunities.

Major products and market shares

Note: Market shares quoted are HORIBA's estimates.

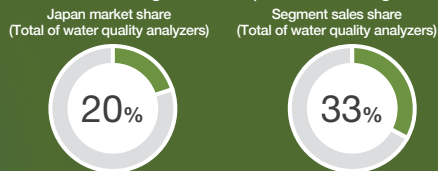
I Stack gas analyzers

These analyzers provide highly sensitive and precise measurements of NO_x, SO₂, CO, CO₂, and O₂ constituents in gases emitted by boilers and furnaces in thermal power stations and refuse incineration facilities. A single unit can simultaneously and continuously measure all five gases. HORIBA has the top market share in this competitive market in Japan and seeks sales growth in the global market.



I H-1 series of industrial water quality analyzers

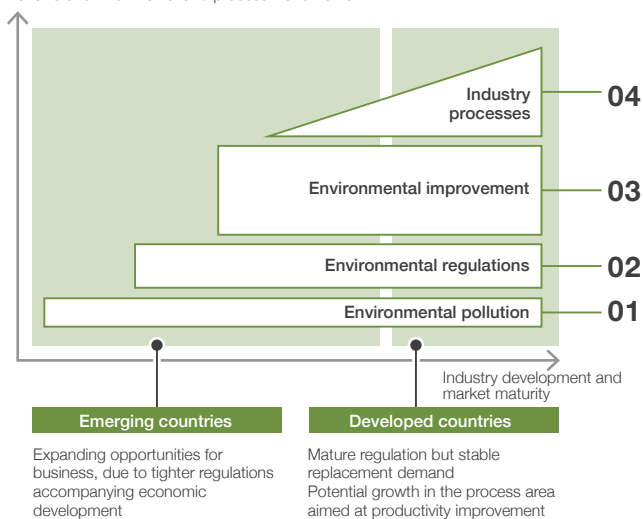
These industrial water quality analyzers perform measurement in a wide range of applications, from pure water for semiconductor and food industries for drinking water, sewage and industrial wastewater treatment. They confirm progress in wastewater treatment processes and control water treatment equipment. Moreover, we have developed pH electrodes that resist damage in a harsh environments by strengthening their toughness, thereby reducing the frequency of electrode replacement and maintenance operations. By responding to expanding worldwide needs for remote monitoring services in water and sewage quality management and process monitoring, HORIBA pursues sales growth in the global market.



TOPICS

I Major products and targeted markets

Market size of environmental and process instruments



ESG Creation of social value Environment

Expansion in environmental regulations and the monitoring business in Southeast and Southern Asian regions

Each emerging countries has environmental regulations that are adjusted to its own unique factors, including its regional characteristics and industrial foundations, and these environmental regulations are being strengthened in accordance with rapid economic development. By locally enhancing its engineering strength, HORIBA is working to meet the individual needs of each country in which it operates and propose products and solutions that comply with the unique regulations adopted in each of these countries. Furthermore, we provide technical guidance for environmental researchers and experts in emerging countries. Therefore, we offer support in terms of software, in addition to assistance with measurement instruments. Moving forward, HORIBA will pursue business expansion with a high level of relevance to local customers while contributing to environmental conservation.

Tap water quality monitoring device supplied to Kuala Lumpur, Malaysia



Related SDGs



Major target market 01 | Air pollution analyzers

HORIBA's air pollution analyzers have won high acclaim in the field as highly reliable analyzers that demonstrate excellent precision and long-term stability at ppb* concentrations. They are used in over 50 countries to monitor air quality by municipal governments and private industries. Demand has been expanding for PM2.5-related monitoring.

* ppb: parts per billion. One part per billion denotes one part per 1,000,000,000 parts. This notation is mainly used for describing low concentration measurements



Major target market 02 | Stack gas analyzers

HORIBA has the leading market share* in Japan for continuous emission monitoring systems used in plants and other facilities that generate gaseous emissions and soot. Our instruments have established a widely recognized credibility for robust and reliable sampling systems, which are essential in continuous measurement of a variety of gases. The analyzers are used in applications for power generation, petrochemicals, steel, paper, food, and pharmaceuticals.

* HORIBA's estimates



Major target market 03 | Water quality analyzers

HORIBA's products are used for monitoring and control in water treatment processes. We have a wide-ranging water quality product line to measure pH, the basic water quality indicator, as well as chemical oxygen demand (COD), total nitrogen, and total phosphorous. Our products have been highly evaluated in the water quality analysis field by companies in the electric power, gas, petrochemical, steel, paper, food, and pharmaceutical industries.



Major target market 04 | Process measurement system

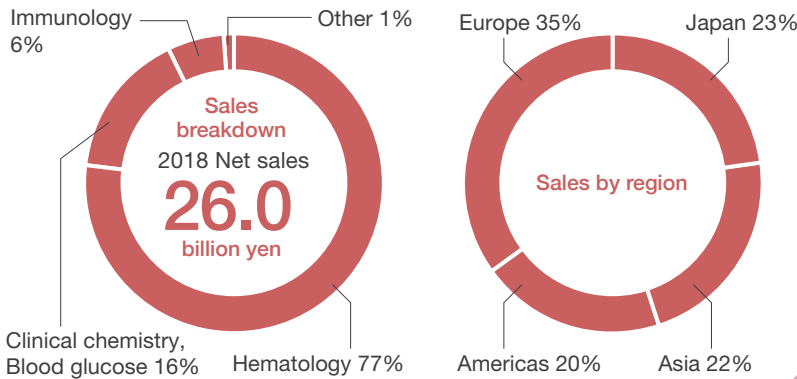
We have established a structure that enables us to integrate various equipment and devices of petrochemical refining, dissolution, and processing into a system and provide it collectively. Based in Texas, the heart of the U.S. oil industry, we contribute to efficient production management in the process measurement field of the oil industry. In 2017, we relocated to a new expanded office in the suburbs of Houston, to accelerate business expansion.





Medical-Diagnostic Instruments & Systems

Contributing to a healthy life through in-vitro diagnostic systems



In the global market of in-vitro diagnostic systems; HORIBA provides instruments and reagents for blood sample testing throughout the world. The segment's business model is based on recurring revenues generated from sales of reagents. We aim to ensure stable earnings by expanding our installed base of medical diagnostic instruments. In particular, HORIBA's strength is in small and medium-sized hematology analyzers for Point of Care Testing (POCT) in clinics and satellites in hospitals such as operating rooms, as well as small to medium-sized hospitals and commercial laboratories.

2018 results

- Strong sales in China and India
- Adoption of new technologies through acquisition of ROHM Co., Ltd.'s micro-blood analysis system business

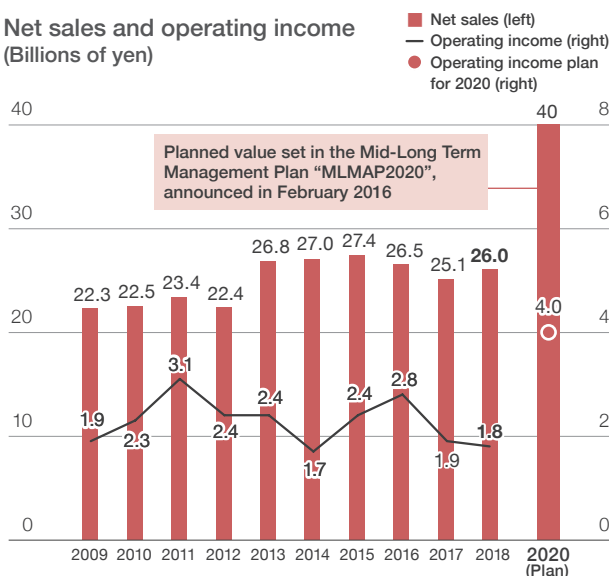
Sales of hematology analyzers were strong in both China and India. We acquired the micro-blood analysis system business from ROHM Co., Ltd. in pursuit of further business expansion and are engaging in development activities to enhance our competitiveness. As a result of these factors, sales increased while operating income fell year-on-year.

2019 forecast

- Higher results in Japan expected through expanded sales of new products
- Enduring strong sales in Asia

We project year-on-year increases in both sales and operating income due to our continued efforts to strengthen our development capabilities, including our acquisition of the micro-blood analysis system business, and projected strong sales expected to be supported primarily by expansion in the sales of new products in Japan.

Net sales and operating income (Billions of yen)



Medium- to long-term strategy

Expanding into new areas and increase sales by launching new products

At present, HORIBA's strengths reside in having development bases in Japan and France and a local production infrastructure of reagents in China, India, and Brazil, with their high expected demand for reagents. We aim to globally introduce small and medium-size hematology analyzers, which are highly regarded in Japan, and to expand sales of new medium- to large-sized products, which are sourced from France. Moreover, we are interested in cooperating with other companies through M&A and OEM arrangements, so as to expand into new areas in the in-vitro diagnostic systems market.

Major risks and opportunities

Global population is rising mainly in emerging countries and healthcare costs are generally on a rise. In developed countries, there is an increasing demand for high-precision, efficient medical devices, so as to realize more efficient medical services. Medical insurance systems that support these medical services are undergoing major changes in many countries. HORIBA views these kinds of changes in demand for medical devices and in healthcare systems as business opportunities.

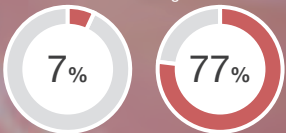
Major products and market shares

Note: Market shares quoted are HORIBA's estimates.

I Hematology analyzers

Blood tests are essential for diagnosis and health assessment of people and animals. These analyzers check red and white blood cell counts as well as hemoglobin and platelet counts.

Global market share Segment sales share



I Hematology and CRP analyzers

This is the first analyzer in the world to simultaneously measure blood cell counts and C-Reactive Protein (CRP), which the body produces in response to internal inflammation, thus facilitating faster and more accurate diagnosis.

Japan market share Segment sales share



TOPICS

Business development by test category

HORIBA aims to be acknowledged as a clinical solution partner by strengthening the data management and automation areas and expanding product development either by ourselves or through collaboration with other companies.

Test category	Hematology	Clinical chemistry	Immunology	Coagulation
Market size (HORIBA's estimates)	0.35 trillion yen	2 trillion yen	2 trillion yen	0.2 trillion yen
Hospitals	Large hospitals	Clinical chemistry analyzers		
	Testing centers			
	Small- and medium-sized hospitals			
Private practitioners	Small and medium-sized hematology analyzers		CRP analysis	Coagulation analysis
Hospital units and surgery rooms (POCT)		Blood glucose measurement systems		

Field in which HORIBA exhibits strength

Acquisition of micro-blood analysis system business from ROHM Co., Ltd.

HORIBA possesses long accumulated blood-related analysis and measurement technologies, which lead to strength in terms of small- and medium-sized hematology analyzers in the POCT market. Recently, we introduced new technologies through the acquisition of ROHM Co., Ltd.'s micro-blood analysis system business, which practically utilizes the fine electronic components processing technology originally developed by ROHM. In the future, we will develop smaller products of lower cost and thereby aim to enhance our product lineup for the in-hospital market and to increase our share in it. HORIBA aims to create new value through synergy between new and existing technologies and the merging of businesses.

Global R&D and sales/production networks

HORIBA has bases for development and production in both Japan and France, as well as global sales and production networks, thanks to its 1996 acquisition of ABX S.A. (now HORIBA ABX SAS) in France. In 2018, we made progress in terms of the supply and operation of medium- and large-sized hematology analyzers at facilities such as large-scale testing centers in the United Kingdom and Brazil through our HORIBA Evolutive Laboratory Organization (HELO) Solution testing system. In Japan, we updated HORIBA MEDISIDE LINKAGE, our remote monitoring service, to support operations related to data and precision management in laboratories, and consequently, we are providing solutions for improving efficiency.

In the future, we will aim for further business expansion by continuing to accelerate new product development and utilizing our global networks while working to enhance the global sales network constructed by HORIBA ABX SAS in France, as well as our production bases which allow us to provide a steady stream of reagents (consumables) to areas in which they are consumed in mass quantities.

France

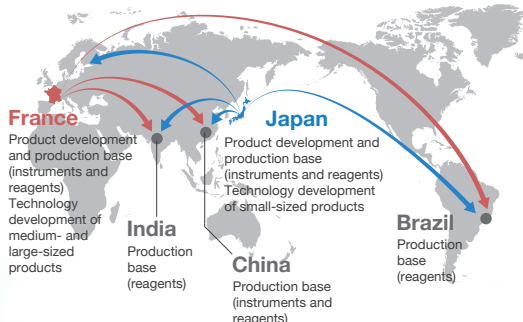
Medium- and large-sized hematology analyzers



*HELO (HORIBA Evolutive Laboratory Organization)

Japan

Hematology and CRP analyzers



ESG Creation of social value Social

HORIBA's products contributing to the eradication of malaria, as outlined in the UN's Sustainable Development Goals (SDGs)

HORIBA analyzed a large volume of test data accumulated over the years and added a decision algorithm for detecting malaria infection to its hematology analyzers. This addition made screenings for infection possible during the usual hematology analysis process, enabling the reduction of working hours spent testing.

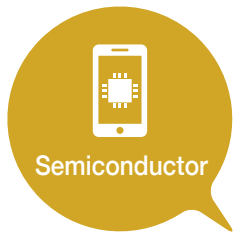
According to the 2016 statistics from the World Health Organization (WHO), more than 200 million people in 91 countries have been infected with malaria. Early diagnosis of malaria leads to early treatment, preventing further transmission through infection and warding off increases in severity. HORIBA will pursue business growth while contributing to the early detection of infectious diseases.

SDGs call for the eradication of malaria



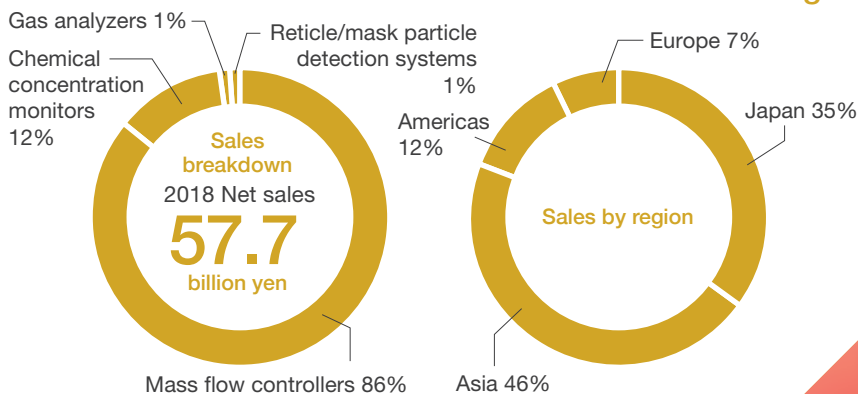
Related SDGs





Semiconductor Instruments & Systems

Contributing to yield enhancement and technology innovation in semiconductor manufacturing processes with HORIBA's flow control and measurement technologies



Mass flow controllers, used in the (front-end) manufacturing process of devices such as semiconductors, are a major product of the Semiconductor Instruments & Systems segment. We have a leading global market share*, largely on the strength of our flow control technology that enables yield enhancement and miniaturization in the semiconductor manufacturing process. We will provide solutions for responding to technological advances in the semiconductor manufacturing process, in addition to measuring equipment such as chemical concentration monitors, and establish an important position in the growing semiconductor industry.

* HORIBA's estimates

2018 results

Investment demand from semiconductor manufacturers was strong but leveled off during the second half of the year

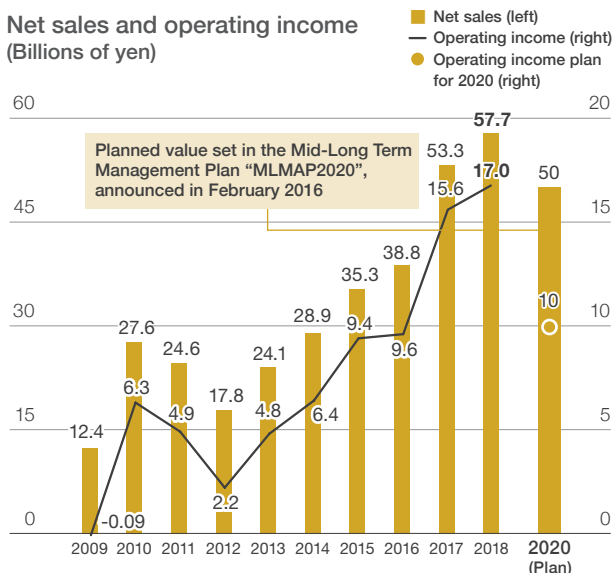
Sales slowed down over the second half of the year, but full-year sales to semiconductor production equipment manufacturers increased as semiconductor manufacturers conducted high levels of capital spending. As a result, we recorded the highest-ever sales and operating income. We also worked to develop our supply and development capabilities, beginning full-scale operations at HORIBA STEC Co., Ltd.'s Aso Factory and launching a research and development base in the United States.

2019 forecast

Semiconductor manufacturers are expected to continue making investment adjustments during the first half of the year, with recovery in investment expected for the second

A phase of investment adjustment in the semiconductor industry is expected to continue during the first half of the year, but we forecast increased demand in the medium- to long-term. Over the second half of the year, demand from semiconductor production equipment manufacturers is expected to recover in accordance with rebounding investment from semiconductor manufacturers.

Net sales and operating income (Billions of yen)



Medium- to long-term strategy

Expand market share of main products

We will further enhance our flow control technology, which has been accumulated primarily in mass flow controllers. We also aim to grow sales of chemical concentration monitors, used in semiconductor wafer cleaning processes. In addition, we will combine our flow control technology and analysis and measurement technology so as to enhance the development of new products that satisfy customer needs. Meanwhile, we intend to apply our flow control technology to other industries by promoting product development for energy, petrochemical, pharmaceutical, food, and other markets.

Major risks and opportunities

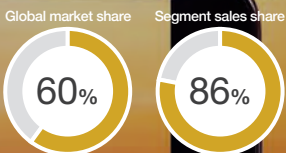
An increase in processing volume at data centers and penetration of Artificial Intelligence (AI) and the Internet of Things (IoT) have significantly boosted demand for semiconductors. In addition, advances in technology and production process, such as miniaturization and 3D-integration semiconductor production processes, have significantly impacted demand for semiconductor production equipment. HORIBA views these kinds of changes in demand for semiconductors and technology advances as business opportunities.

Major products and market shares

Note: Market shares quoted are HORIBA's estimates.

I Mass flow controllers

These high-precision gas and liquid controllers regulate flow rates in semiconductor manufacturing processes, such as etching and deposition processes. They are indispensable components for high-quality semiconductors.



Application of mass flow controllers

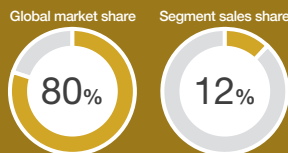
(Semiconductor manufacturing process; solar battery manufacturing process)

[Web Link](#)



I Chemical concentration monitors

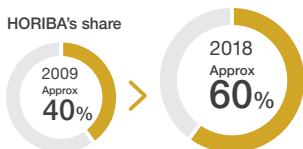
These compact units are used in semiconductor manufacturing to monitor concentrations of chemical cleaning agents. They ensure cleaning fluids are precisely delivered and properly used, thereby optimizing the cleaning process and boosting production yields.



TOPICS

I Reasons behind HORIBA's global share expansion in mass flow controllers






- 01** Increase in demand for etching tools, due to an increase in memory and more 3d-integration processes. HORIBA's differential pressure type mass flow controllers are being widely relied upon in the next-generation manufacturing process
- 02** Stable product supply capability, realized by making continual investment for development and production even during an economic downturn
- 03** A global sales and service infrastructure and a strong support capability



An increase in data centers and use of IoT and AI has boosted semiconductor demand, while technological advances, such as the increase in 3D-integration processes, have raised demand for etching devices. HORIBA's differential pressure type mass flow controllers are recognized for enabling these new processes and are widely adopted for cutting-edge semiconductor manufacturing, thereby contributing to higher market share. This success is attributable to both our continued investment in and launch of new products even during a previous downturn in demand, and to our elevated technical capability and production capacity which better satisfies demand from semiconductor manufacturers. In our view, our balanced management, which enabled us to carry excess funding capacity and maintain production facilities to match anticipated demand, was a key contributor to our success.

I Total on-site support during the semiconductor manufacturing process

We provide an abundant product lineup that covers the entire semiconductor manufacturing process, including material evaluation, manufacturing, and quality management. Moving forward, we will utilize technologies and products from the Semiconductor Instruments & Systems segment and other segments including the Process & Environmental and Scientific Instruments & Systems segment, to contribute to the semiconductor industry.

Evaluation of materials	Manufacturing processes	Quality management/wastewater treatment
Surface Analysis  Atomic Force Microscopy Raman Spectrometer (evaluation of next-generation semiconductor materials) Scientific	Dry Process  Mass flow controller (raising of precision in the etching process) Semiconductor	Utility/Wastewater  pH meters Scientific On-site industrial water quality analyzer Process & Environmental (Management of purified water and wastewater at factories) Business related to water quality measurement (more on page 32)
Materials Analysis  Cathodoluminescence spectroscopy system (evaluation of compound semiconductors) Scientific	Lithography  Reticle/mask particle detection systems and Foreign substance removal devices (raising quality during the exposure process) Semiconductor	

ESG Creation of social value
Social

Related SDGs




Note: The products shown are examples.

Strengthening of global R&D and establishment of a base for development in the United States

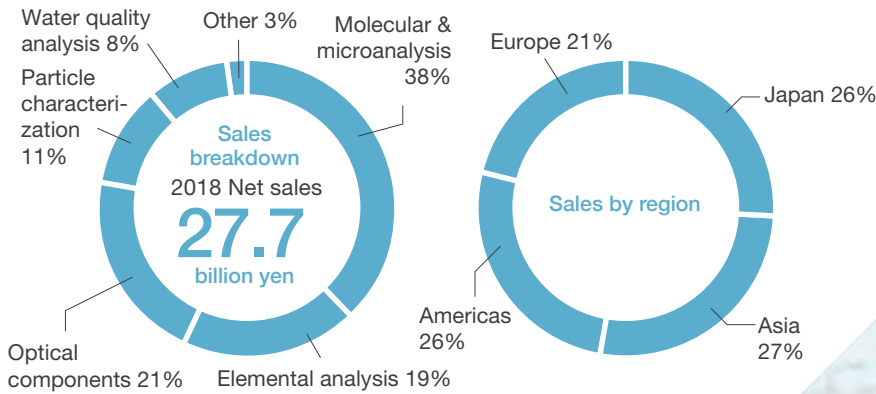
We established the HORIBA Reno Technology Center, a base for development, in Reno, Nevada, which is easily accessible from the western coast of the United States, an area that is dotted with the bases of many semiconductor and semiconductor production equipment manufacturers. Ever since establishing a sales base concentrating on mass flow controllers in Silicon Valley in 1989, we have continued to conduct activities that are highly relevant to the local customers in the area. In the future, we will strengthen our development capabilities by quickly incorporating the needs of the market and contribute to further growth in the semiconductor industry.





Scientific Instruments & Systems

Generating HORIBA's core technology and supporting the leading edge of scientific technology



HORIBA began its history with the R&D leading to Japan's first glass electrode pH meter. HORIBA's analyzers use infrared rays gas analysis, X-ray elemental analysis, as well as Raman spectrometers and fluorescence spectral analysis. These analyzers contribute to R&D activities at the frontline of scientific technology exploring the unknown frontier of science. HORIBA's analyzers are widely used in basic research, foreign-object examination and defect analysis for pharmaceuticals, food, and electronic components, forensic science, archaeological surveys, and others. Additionally, the Scientific Instruments & Systems segment develops basic analytical methods and core measurement technologies, which play key roles in providing new technologies to the four other business segments of HORIBA.

2018 results

- Robust sales in Europe and Japan
- Expenses incurred in association with the strengthening of our bases in the Americas

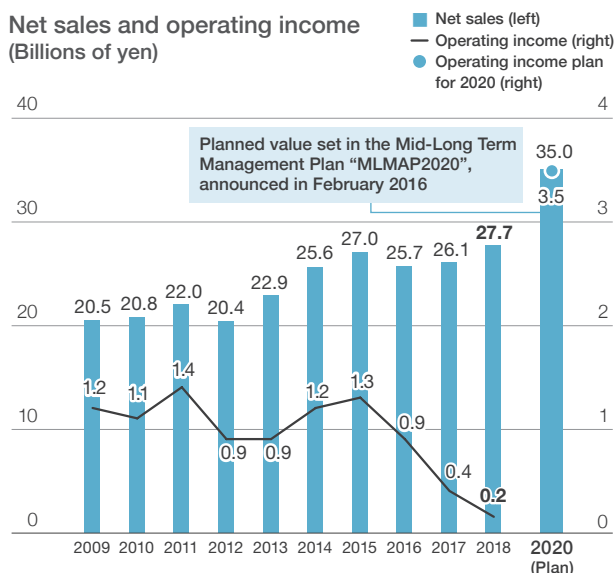
Having active R&D investment on the background, sales increased in both Japan and Europe as a result of efforts to strengthen our sales activities, including bundled sales and product customization. On the other hand, operating income decreased on a year-on-year comparison due to the expense for the enhancement of our bases in the the United States (more on page 50), despite sales growth.

2019 forecast

- Increased sales in the Americas expected through the strengthening of our bases
- A demand environment that is continued strong in Japan and Europe

We forecast the increase of both sales and profitability through productivity growth by means of strengthening our bases. In addition, we anticipate the demand environments to be continued strong in both Japan and Europe, and, consequently, year-on-year increases in sales and operating income.

Net sales and operating income (Billions of yen)



Medium- to long-term strategy

Development of high-value-added products for creating new markets

We will aim for further growth through the synergy between product development, which takes advantage of the collective strengths and core technologies of our bases in Japan, France, and the United States, and the sales routes and applications of other segment businesses.

Additionally, we have been jointly developing original products with customers in order for our R&D teams to have a better grasp on the needs of the customer and to lead those needs to product development. Our efforts are not limited to existing business domains such as material and energy, but also extend to life science fields, such as the biotechnology and drug discovery market. Our challenge is to create value in the new analysis and measurement business in these areas.

Major risks and opportunities

In addition to each country's government research institution that develop cutting-edge technologies, private companies are also actively investing in the development of these technologies. HORIBA views these kinds of changes in the course of advanced technology development as business opportunities.

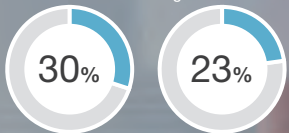
Major products and market shares

Note: Market shares quoted are HORIBA's estimates.

I Raman spectrometers

Raman spectroscopy is a spectroscopic technique that provides information about the molecular structure of molecules by measuring their vibrational modes. These vibrational modes act as a molecular fingerprint offering quantitative measurements which can be used to identify the chemical under analysis. In recent years, Raman spectroscopy has attracted attention for new applications in material research. Raman has a very delicate light scattering mechanism, so a highly sensitive and optimal optical design is necessary. HORIBA FRANCE SAS, which has produced superior results in the field of optical technology, is developing a diverse variety of Raman spectrometers and is regularly pursuing peak performance.

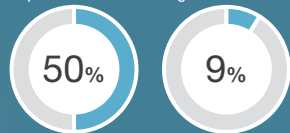
Global market share Segment sales share



I pH meters

HORIBA is recognized as one of the top pH meter brands beginning with our development of Japan's first glass electrode pH meter in the 1950s. HORIBA offers a full pH product line to satisfy diverse customer needs ranging from desktop models to support laboratory research, to rugged and portable instruments for field applications measuring river water, groundwater, and wastewater.

Japan market share Segment sales share



TOPICS

Developed and manufactured products at our three global bases and respective policies

Country	Product	Primary policies
Japan (HORIBA, Ltd.)	pH meters Particle-size distribution analyzers Elemental analyzers X-ray fluorescence analyzers Elemental analyzer (Carbon/Sulphur)	Proactive launch of new products that create new markets HORIBA, Ltd., which already retains many basic technologies, continues actively launching new products that meet the needs of its wide range of customers, which includes companies, universities, and research facilities. Additionally, we broadly conduct product customization, by providing a core technology-based response to the elaborate demands of our customers. We will continue fulfilling our important role in providing analysis and measurement technologies to the other four business segments and will achieve our goal of improving profitability through initiatives like these. New product XGT-9000 Simultaneously conducts nondestructive and noncontact elemental analysis and optical image screening. It performs highly precise elemental analyses and coating thickness measurements on microscopic parts, such as semiconductor integrated circuits, as well as foreign substance analyses on various devices, including lithium-ion batteries.
France (HORIBA France SAS)	Raman spectrometers Glow discharge optical emission spectroscopic Spectroscopic ellipsometer Grating Grating, a core part used in spectrometers	HORIBA France SAS's grating displayed in the Nobel Prize Museum Professor Gérard Mourou, the 2018 recipient of the Nobel Prize in Physics, has used HORIBA France's grating in his research concerning the improvement of laser performance for many years, producing considerable achievements. In commemoration of his award, Professor Mourou selected grating from HORIBA France that he actually used in his research for display in the Nobel Prize Museum. Moving forward, HORIBA will support researchers across the globe in order to contribute to the future development and advancement of science. Professor Mourou and his grating from HORIBA France Related SDGs: 4 QUALITY EDUCATION, 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
United States (HORIBA Instruments Incorporated)	Fluorescence spectroscopy/ Fluorescence lifetime spectroscopy Fluorescence and absorbance spectrometer Optical components; Spectrometers and Detectors Fluorescence and absorbance spectrometer "Duetta"	HORIBA New Jersey Optical Spectroscopy Center This facility began full-fledged operation on August 30, 2018, as a new base of HORIBA Instruments Incorporated. With a site area that is approximately twice the size of the previous base, this facility will work toward further business growth moving forward. MANTA Instruments, Inc. joined HORIBA On January 24, 2019, we acquired all shares of MANTA Instruments, Inc. in the United States, converting it into a subsidiary. This start-up company develops, sells, and manufactures nanoparticle tracking analysis systems. This technology is expected to be utilized in the biotechnology, life science, and medicinal research fields, as well as fields of cosmetics, catalysts, and semiconductors. In the future, we will aim for further business expansion in the field of particle tracking analysis systems. ViewSizer™ 3000: Nanoparticle Tracking Analysis System

Financial data Eleven-year summary

	2008.12	2009.12	2010.12	2011.12	2012.12	2013.12	
► For the year							
Net sales	¥134,248	¥104,538	¥118,556	¥123,456	¥117,609	¥138,136	
Operating costs and expenses	123,290	99,394	106,256	108,549	105,857	124,402	
Operating income	10,958	5,144	12,299	14,906	11,751	13,733	
Net income attributable to owners of parent	6,039	3,161	7,927	8,664	7,396	8,999	
Capital expenditures	6,645	4,534	4,033	4,670	7,882	7,680	
Depreciation and amortization	4,955	4,573	4,523	4,146	3,743	4,279	
Research and development expenses	10,662	9,831	9,480	10,060	10,092	10,774	
► At year-end							
Total assets	¥133,279	¥129,580	¥137,290	¥144,649	¥153,836	¥189,269	
Cash and cash equivalents	22,660	27,590	34,459	35,767	38,858	49,246	
Trade notes and accounts receivable	Affiliated companies	63	6	1	126	4	25
	Other	37,330	34,505	36,425	39,249	37,516	47,386
Inventories	29,802	23,363	24,843	26,288	28,101	33,085	
Property, plant and equipment, net	23,115	23,602	22,516	22,924	28,179	33,326	
Trade notes and accounts payable	Affiliated companies	40	52	60	0	-	-
	Other	11,063	10,515	13,423	13,196	11,829	16,409
Liabilities with interest	20,984	18,348	17,128	18,358	18,083	24,577	
Shareholders' equity	76,829	79,906	84,019	90,232	99,248	114,209	
Share price at end of fiscal period (Yen)	1,237	2,250	2,303	2,320	2,489	3,590	
Number of employees (consolidated)	5,146	5,133	5,202	5,448	5,530	5,787	
► Per Share Information							
Net income—basic	¥142.76	¥74.77	¥187.46	¥204.88	¥174.87	¥212.76	
Net income—diluted	142.71	74.68	187.11	204.41	174.37	212.01	
Net assets	1,816.96	1,889.58	1,986.77	2,133.44	2,346.45	2,699.88	
Cash dividends	44.00	13.00	17.00	40.00	50.00	60.00	
► Financial Ratios							
Operating income to net sales (%)	8.2	4.9	10.4	12.1	10.0	9.9	
Return on assets (%)	4.2	2.4	5.9	6.1	5.0	5.2	
Return on equity (%)	7.7	4.0	9.7	9.9	7.8	8.4	
Shareholders' equity ratio (%)	57.6	61.7	61.2	62.4	64.5	60.3	
Consolidated dividend payout ratio (%)	30.8	17.4	9.1	19.5	28.6	28.2	
Nonconsolidated dividend payout ratio (%)	30.0	30.0	30.3	30.5	37.5	48.9	

Notes: The stated amounts are rounded down to the nearest million yen from the year ended December 31, 2009, but are rounded (up or down) to the nearest million yen prior to that year.

1. The U.S. dollar amounts are provided solely for convenience at the rate of 111.00 yen to 1.00 U.S. dollar, the rate prevailing on December 31, 2018, on the Tokyo foreign exchange market.

2. HORIBA, Ltd. and its domestic consolidated subsidiaries had formerly recognized revenue mainly on a shipping basis. However, starting from fiscal 2016, HORIBA, Ltd. and its domestic consolidated subsidiaries changed its revenue recognition method to recognize revenue on a completion date of installation basis or a delivery date basis under the terms and conditions of the relevant contracts. The amounts in or before the fiscal 2015 are not retrospectively revised.

HORIBA, Ltd. and consolidated subsidiaries

2014.12	2015.12	2016.12	2017.12	2018.12	2018.12
				Millions of yen	Thousands of U.S. dollars
¥153,065	¥170,898	¥170,093	¥195,399	¥210,570	\$1,897,027
135,851	151,526	151,593	168,565	181,731	1,637,216
17,214	19,372	18,499	26,834	28,838	259,801
10,589	12,882	12,962	16,281	22,313	201,018
11,001	16,309	13,796	11,639	10,239	92,243
4,905	6,110	6,816	7,534	7,240	65,225
11,986	12,341	12,933	13,911	15,183	136,783
				Millions of yen	Thousands of U.S. dollars
¥207,335	¥231,032	¥239,657	¥265,920	¥278,136	\$2,505,729
51,109	47,859	51,940	58,333	62,837	566,099
149	2	7	12	24	216
52,097	54,769	53,717	60,140	59,087	532,315
34,838	35,717	40,289	45,573	55,139	496,747
39,441	56,978	61,977	68,701	68,739	619,270
20	-	77	91	101	909
15,385	17,638	19,935	23,180	21,832	196,684
28,412	45,227	47,153	42,496	44,516	401,045
123,924	129,581	132,654	150,282	161,362	1,453,711
4,015	4,695	5,410	6,790	4,490	U.S. dollars 40.45
5,965	6,831	7,149	7,399	7,943	
				Yen	U.S. dollars
¥250.28	¥305.73	¥307.74	¥386.30	¥529.24	\$4.76
249.28	304.36	306.38	384.67	526.98	4.74
2,928.82	3,078.40	3,148.70	3,565.00	3,826.44	34.47
67.00	70.00	85.00	116.00	145.00	1.30
11.2	11.3	10.9	13.7	13.7	
5.3	5.9	5.5	6.4	8.2	
8.9	10.2	10.0	11.5	14.3	
59.8	56.1	55.4	56.5	58.0	
26.8	22.9	27.6	30.0	27.4	
38.5	35.1	46.7	53.8	50.7	

Computations: Shareholders' equity = net assets - subscription rights to shares - non-controlling interests

Net income per share (Yen) = net income attributable to owners of parent / (average number of shares issued and outstanding in the fiscal period, corrected for treasury stock)

Net assets per share (Yen) = shareholders' equity / (number of shares issued and outstanding, corrected for treasury stock)

Operating income to net sales (%) = 100 x operating income / net sales

Return on assets (ROA, %) = 100 x net income attributable to owners of parent / average total assets in prior fiscal period

Return on equity (ROE, %) = 100 x net income attributable to owners of parent / average shareholders' equity in prior fiscal period

Shareholders' equity ratio (%) = 100 x shareholders' equity / total assets

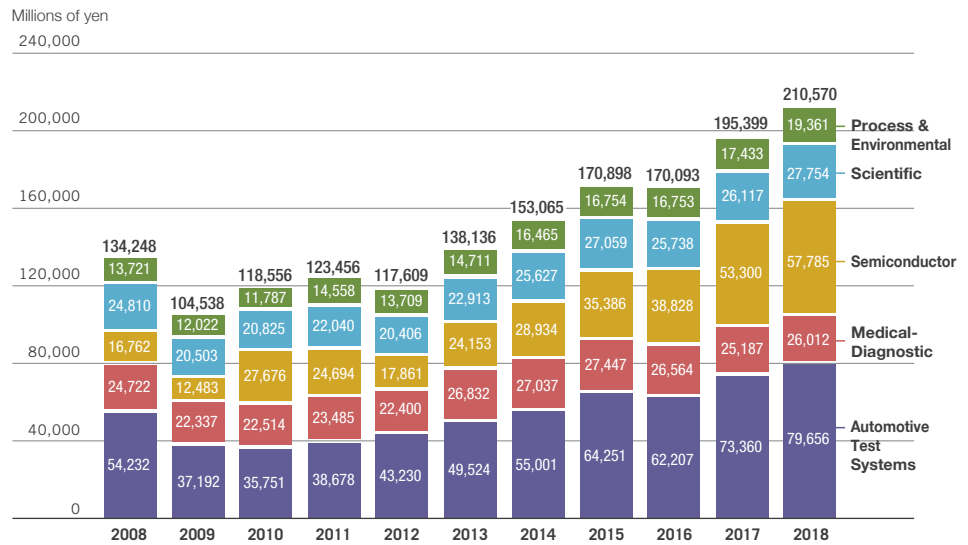
Consolidated dividend payout ratio (%) = 100 x dividends paid / net income attributable to owners of parent

Nonconsolidated dividend payout ratio (%) = 100 x dividends paid / net income (nonconsolidated)

Eleven-year summary

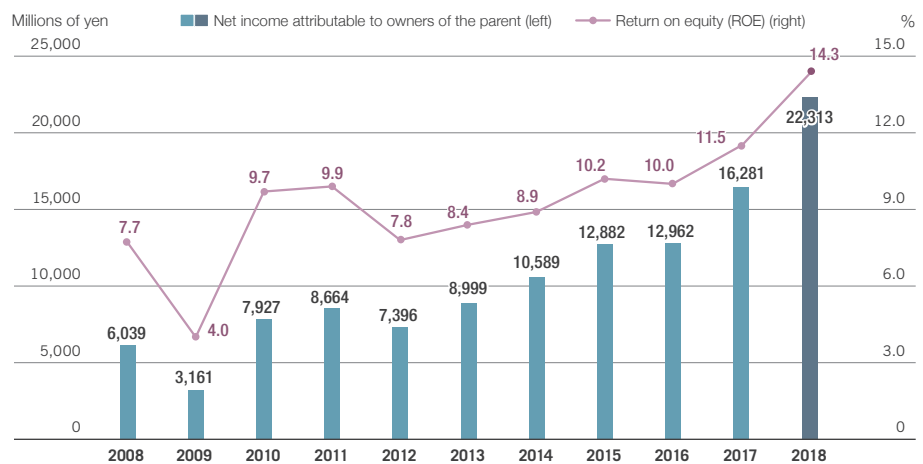
Net sales by segment

We achieved record-high sales in the year ended December 31, 2018, as the Automotive Test Systems and Semiconductor Instruments & Systems segments drove results in the wake of strengthening vehicle emission gas regulations and concentrated investment from semiconductor manufacturers during the first half of the year.



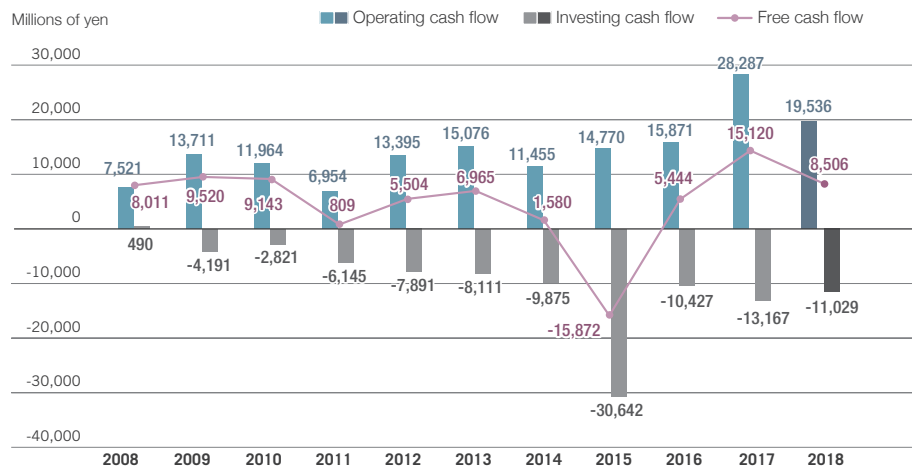
Net income attributable to owners of the parent and ROE

We recorded our highest-ever net income attributable to owners of the parent in the year ended December 31, 2018, due to record-high operating income gained through increased sales and a temporary reduction in tax rate. ROE finished at 14.3%, fulfilling the MLMAP 2020 target of 10% or more for the fourth straight year.

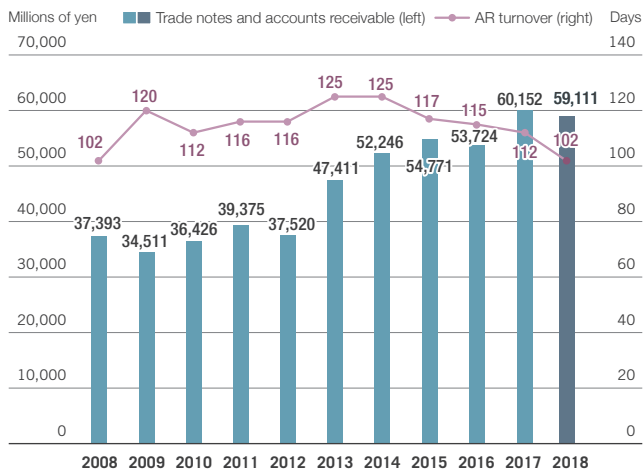


Cash flows

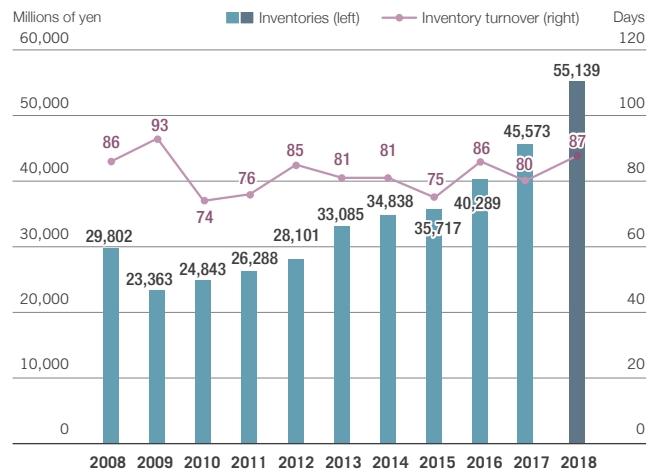
We continued to conduct high-level investment in the year ended December 31, 2018, including the strengthening of our overseas bases. Although we recorded the highest-ever profit, cash flow from operating activities fell year-on-year due in part to an increase in inventories caused by a high backlog of orders. Free cash flow finished in the positive range, amounting to 8.5 billion yen.



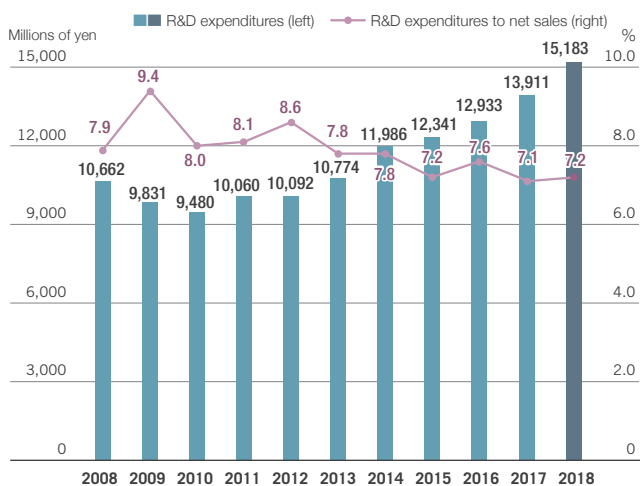
Accounts receivable (AR) and AR turnover (days)



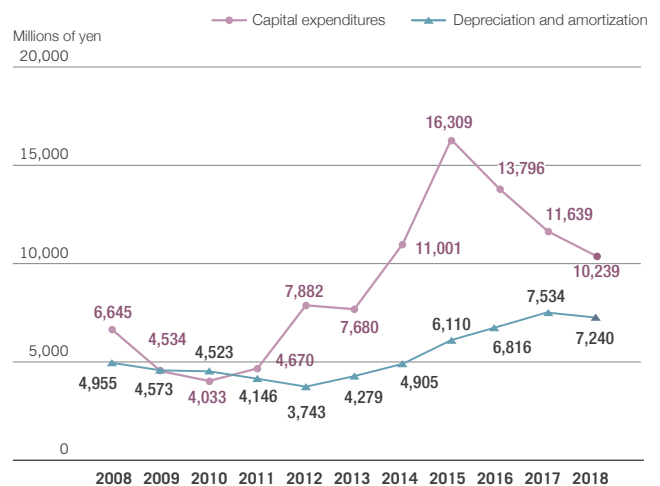
Inventories and inventory turnover (days)



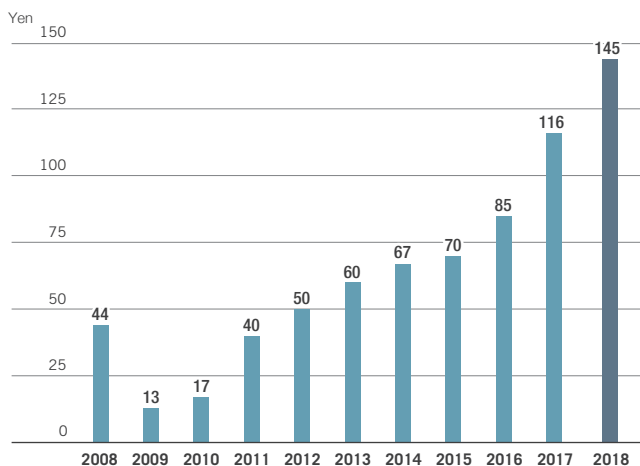
R&D expenditures and R&D expenditures to net sales



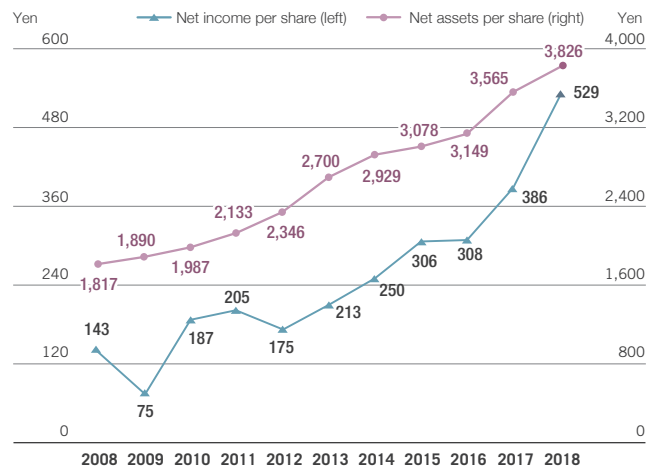
Capital expenditures and depreciation and amortization



Cash dividends per share



Net income per share and net assets per share



Consolidated balance sheets

Assets	Millions of yen ¹		Thousands of U.S. dollars ²
	2017.12	2018.12	2018.12
Current assets:			
Cash and cash equivalents	¥58,333	¥62,837	\$566,099
Trade notes and accounts receivable			
Affiliated companies	12	24	216
Other	60,140	59,087	532,315
Allowance for doubtful receivables	(788)	(682)	(6,144)
Marketable securities	1,400	1,899	17,108
Inventories	45,573	55,139	496,747
Deferred tax assets	4,331	4,312	38,846
Other current assets	8,485	9,586	86,360
Total current assets	177,487	192,203	1,731,558
Property, plant and equipment:			
Land	13,736	13,692	123,351
Buildings and structures	54,528	55,894	503,549
Machinery, equipment and vehicles	24,166	24,784	223,279
Construction in progress	3,468	3,018	27,189
Other property, plant and equipment	16,208	17,729	159,720
Total	112,109	115,118	1,037,099
Accumulated depreciation	(43,408)	(46,379)	(417,828)
Net property, plant and equipment	68,701	68,739	619,270
Investments and other noncurrent assets:			
Investment securities	10,955	8,314	74,900
Investments in nonconsolidated subsidiaries and affiliates	45	44	396
Deferred tax assets	1,549	1,092	9,837
Allowance for doubtful accounts	(77)	(76)	(684)
Other investments and other assets	2,861	2,917	26,279
Total investments and other noncurrent assets	15,334	12,292	110,738
Intangibles:			
Goodwill	194	901	8,117
Software	3,298	2,907	26,189
Other intangibles	904	1,092	9,837
Total intangibles	4,397	4,901	44,153
Total assets	¥265,920	¥278,136	\$2,505,729
Liabilities and net assets			
Current liabilities:			
Short-term loans	¥7,773	¥10,458	\$94,216
Current portion of long-term debt	718	1,735	15,630
Trade notes and accounts payable			
Affiliated companies	91	101	909
Other	23,180	21,832	196,684
Accounts payable—other	14,888	15,920	143,423
Accrued income taxes	6,277	3,514	31,657
Advances received	13,519	17,475	157,432
Deferred tax liabilities	61	1	9
Accrued bonuses to employees	1,464	1,265	11,396
Accrued bonuses to directors and corporate auditors	63	-	-
Reserve for product warranty	1,932	2,012	18,126
Provision for loss on disaster	49	-	-
Other current liabilities	4,357	3,681	33,162
Total current liabilities	74,378	77,999	702,693
Long-term liabilities:			
Long-term debt	34,005	32,322	291,189
Deferred tax liabilities	2,036	950	8,558
Net defined benefit liability	2,145	1,946	17,531
Provision for loss on dissolution of the employees' pension fund	640	640	5,765
Other noncurrent liabilities	1,848	2,258	20,342
Total long-term liabilities	40,675	38,118	343,405
Total liabilities	115,054	116,117	1,046,099
Net assets:			
Shareholders' equity:			
Common stock	12,011	12,011	108,207
Authorized—100,000,000 shares			
Issued and outstanding—42,155,029 shares (excluding treasury stock) at 12/2017			
Issued and outstanding—42,170,448 shares (excluding treasury stock) at 12/2018			
Capital surplus	18,717	18,717	168,621
Retained earnings	115,345	132,329	1,192,153
Treasury stock—377,723 shares at 12/2017 and 362,304 shares at 12/2018	(1,488)	(1,428)	(12,864)
Total shareholders' equity	144,585	161,630	1,456,126
Accumulated other comprehensive income:			
Net unrealized gains or losses on available-for-sale securities	4,636	2,788	25,117
Deferred gains or losses on hedges	-	(2)	(18)
Foreign currency translation adjustments	1,151	(2,829)	(25,486)
Remeasurements of defined benefit plans	(90)	(224)	(2,018)
Total accumulated other comprehensive income	5,697	(267)	(2,405)
Subscription rights to shares	492	549	4,945
Non-controlling interests	90	106	954
Total net assets	150,866	162,018	1,459,621
Total liabilities and net assets	¥265,920	¥278,136	\$2,505,729

Consolidated statements of income

HORIBA, Ltd. and consolidated subsidiaries
For the years ended December 31, 2017 and December 31, 2018

	Millions of yen ¹		Thousands of U.S. dollars ²
	2017.12	2018.12	2018.12
Net sales	¥195,399	¥210,570	\$1,897,027
Operating costs and expenses:			
Cost of sales	112,107	120,630	1,086,756
Selling, general and administrative expenses	56,457	61,100	550,450
Total operating costs and expenses	168,565	181,731	1,637,216
Operating income:	26,834	28,838	259,801
Other income (expenses):			
Interest and dividend income	280	323	2,909
Interest expense	(428)	(440)	(3,963)
Foreign exchange gains (losses), net	(296)	(473)	(4,261)
Gain on sales of property, plant and equipment	58	537	4,837
Loss on sales of property, plant and equipment	(2)	(22)	(198)
Loss on disposal of property, plant and equipment	(199)	(76)	(684)
Subsidy income	81	11	99
Gain on sales of investment securities	0	0	0
Gain on transfer of businesses	-	115	1,036
Gain on bargain purchase	-	48	432
Impairment loss	(2,526)	-	-
Loss on valuation of investment securities	(9)	-	-
Reversal of provision for loss on dissolution of the employees' pension fund	455	-	-
Other, net	138	56	504
Total other income (expenses), net	(2,448)	79	711
Income before income taxes	24,385	28,917	260,513
Income taxes:			
Current	7,647	6,375	57,432
Deferred	439	203	1,828
Total income taxes	8,086	6,579	59,270
Net income	16,298	22,338	201,243
Profit attributable to non-controlling interests	16	24	216
Net income attributable to owners of parent	¥16,281	¥22,313	\$201,018
		Yen ¹	U.S. dollars ²
	2017.12	2018.12	2018.12
Per share information:			
Net income—basic	¥386.30	¥529.24	\$4.76
Net income—diluted	384.67	526.98	4.74
Cash dividends	116.00	145.00	1.30

Consolidated statements of comprehensive income

HORIBA, Ltd. and consolidated subsidiaries
For the years ended December 31, 2017 and December 31, 2018

	Millions of yen ¹		Thousands of U.S. dollars ²
	2017.12	2018.12	2018.12
Net income	¥16,298	¥22,338	\$201,243
Other comprehensive income:			
Net unrealized gains or losses on available-for-sale securities	1,708	(1,848)	(16,648)
Deferred gains or losses on hedges	-	(2)	(18)
Foreign currency translation adjustments	3,452	(3,989)	(35,936)
Remeasurements of defined benefit plans	130	(133)	(1,198)
Total other comprehensive income	5,291	(5,973)	(53,810)
Comprehensive income	¥21,589	¥16,364	\$147,423
(Breakdown of comprehensive income)			
Comprehensive income attributable to owners of parent	¥21,570	¥16,348	\$147,279
Comprehensive income attributable to non-controlling interests	19	16	144

Notes: 1. The Japanese Yen amounts are rounded down to the nearest million.

2. The U.S. dollar amounts are provided solely for convenience at the rate of 111.00 yen to 1.00 U.S. dollar, the rate prevailing on December 31, 2018, on the Tokyo foreign exchange market.

Consolidated statements of cash flows

HORIBA, Ltd. and consolidated subsidiaries
For the years ended December 31, 2017 and December 31, 2018

	2017.12	2018.12	2018.12
		Millions of yen ¹	Thousands of U.S. dollars ²
Cash flows from operating activities:			
Income before income taxes	¥24,385	¥28,917	\$260,513
Adjustments to reconcile income before income taxes to net cash provided by operating activities:			
Depreciation and amortization	7,534	7,240	65,225
Impairment loss	2,526	-	-
Increase (decrease) in allowance for doubtful receivables	(75)	(69)	(621)
Increase (decrease) in net defined benefit liability	(190)	(83)	(747)
Increase (decrease) in provision for loss on dissolution of the employees' pension fund	(607)	-	-
Interest and dividend income	(280)	(323)	(2,909)
Interest expense	428	440	3,963
Foreign exchange losses (gains)	79	167	1,504
Loss (gain) on sales of property, plant and equipment	(56)	(514)	(4,630)
Loss on disposal of property, plant and equipment	199	76	684
Loss on valuation of investment securities	9	-	-
Decrease (increase) in trade notes and accounts receivable	(4,514)	(862)	(7,765)
Decrease (increase) in inventories	(3,633)	(10,368)	(93,405)
Increase (decrease) in trade notes and accounts payable	2,588	(596)	(5,369)
Other, net	3,601	4,976	44,828
Subtotal	31,996	29,001	261,270
Interest and dividends received	279	305	2,747
Interest paid	(466)	(439)	(3,954)
Income taxes (paid) refund	(3,521)	(9,331)	(84,063)
Net cash provided by (used in) operating activities	28,287	19,536	176,000
Cash flows from investing activities:			
Increase in time deposits	(1,197)	(1,403)	(12,639)
Decrease in time deposits	1,395	1,202	10,828
Decrease in time deposits restricted for use	32	32	288
Payments for purchase of marketable securities	(1,901)	(2,200)	(19,819)
Proceeds from sales or redemption of marketable securities	701	1,701	15,324
Payments for purchase of property, plant and equipment	(11,664)	(9,667)	(87,090)
Proceeds from sales of property, plant and equipment	266	1,420	12,792
Payments for purchase of intangibles	(354)	(611)	(5,504)
Payments for purchase of investment securities	(22)	(24)	(216)
Proceeds from sales or redemption of investment securities	3	0	0
Other, net	(427)	(1,481)	(13,342)
Net cash provided by (used in) investing activities	(13,167)	(11,029)	(99,360)
Cash flows from financing activities:			
Net increase (decrease) in short-term borrowings	(3,839)	2,792	25,153
Repayment of long-term debt	(1,039)	(541)	(4,873)
Repayments on finance lease obligations	(163)	(181)	(1,630)
Net decrease (increase) of treasury stock	(0)	(0)	(0)
Cash dividends paid	(4,002)	(5,309)	(47,828)
Net cash provided by (used in) financing activities	(9,044)	(3,240)	(29,189)
Effect of exchange rate changes on cash and cash equivalents	317	(762)	(6,864)
Net increase (decrease) in cash and cash equivalents	6,393	4,503	40,567
Cash and cash equivalents at beginning of year	51,940	58,333	525,522
Cash and cash equivalents at end of year	¥58,333	¥62,837	\$566,099

Notes: 1. The Japanese Yen amounts are rounded down to the nearest million.

2. The U.S. dollar amounts are provided solely for convenience at the rate of 111.00 yen to 1.00 U.S. dollar, the rate prevailing on December 31, 2018, on the Tokyo foreign exchange market.

Corporate information

Head office	2 Miyanohigashi, Kisshoin, Minami-ku Kyoto 601-8510 Japan	
Founded	October 17, 1945	
Incorporated	January 26, 1953	
Net sales	210,570 million yen (Consolidated)	Fiscal 2018
Paid-in capital	12,011 million yen (Consolidated)	As of December 31, 2018
Number of employees	7,943 (Consolidated)	As of December 31, 2018
Fiscal closing date	December 31, annually	
Annual Meeting of Shareholders	Held in March	
Transfer agent	Sumitomo Mitsui Trust Bank, Limited	
Independent auditor	KPMG AZSA LLC	
Stock listings	Tokyo Stock Exchange, First Section Securities Code: 6856	

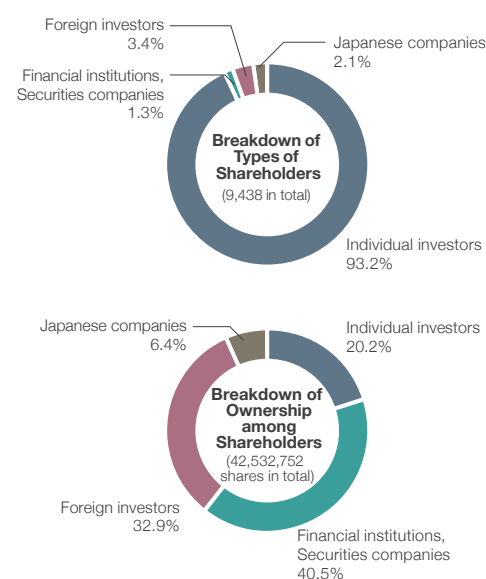
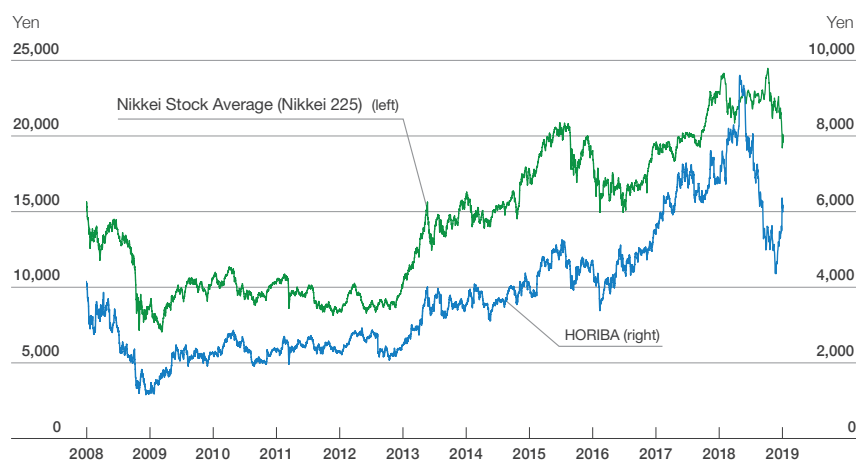
Major shareholders

As of December 31, 2018

Name of shareholders	Shares (Thousands)	Percentage* (%)
Japan Trustee Services Bank, Ltd.	2,652	6.29
The Master Trust Bank of Japan, Ltd.	2,194	5.20
National Mutual Insurance Federation of Agricultural Cooperatives	1,682	3.99
PICTET AND CIE (EUROPE) SA, LUXEMBOURG REF: UCITS	1,052	2.50
Atsushi Horiba	1,039	2.47
THE KYOTO CHUO SHINKIN BANK	830	1.97
The Bank of Kyoto, Ltd.	828	1.96
BNYM AS AGT/CLTS NON TREATY JASDEC	798	1.89
HORIBA Raku-Raku Kai	782	1.86
Japan Trustee Services Bank, Ltd. (trust account 5)	776	1.84

* Percentages of shares are calculated by deducting own shares (362,304 shares).

Stock Price Trend



Board of directors and corporate auditors (As of April 1, 2019)

Chairman & Group CEO

Atsushi Horiba

- 1971 Joined OLSON-HORIBA Incorporated (U.S.)
- 1972 Joined HORIBA, Ltd. then held positions such as General Manager of Overseas Technology Department and General Manager of Overseas Headquarters
- 1982 Appointed as HORIBA's Director
- 1992 Appointed as President and CEO
- 2005 Appointed as Chairman, President and CEO
- 2018 Appointed as Chairman & Group CEO up to the present

Executive Vice Chairman & Group COO

Juichi Saito

- 1982 Joined HORIBA, Ltd. then held positions such as General Manager of Engine Measurement Planning & Development Department and President of HORIBA Instruments Incorporated (U.S.)
- 2005 Appointed as HORIBA's Director
- 2008 Appointed as Vice President of HORIBA STEC Co., Ltd. (Japan)
- 2013 Appointed as HORIBA's Executive Vice President
- 2016 Appointed as HORIBA's Executive Vice President and Representative Director
- 2018 Appointed as Executive Vice Chairman & Group COO up to the present

President & COO

Masayuki Adachi (Doctor of Engineering)

- 1985 Joined HORIBA, Ltd. then held positions such as General Manager of Emission Analysis, Research & Development Division and General Manager of Engine Measurement System Management Division
- 2006 Appointed as HORIBA's Corporate Officer
- 2007 Appointed as President of HORIBA International Corporation (U.S.)
- 2014 Appointed as HORIBA's Director
- Appointed as President of HORIBA Jobin Yvon SAS (now HORIBA FRANCE SAS)
- 2016 Appointed as Chairman of Supervisory Board of HORIBA Jobin Yvon SAS (now HORIBA FRANCE SAS) up to the present
- Appointed as HORIBA's Senior Managing Director
- 2018 Appointed as President & COO up to the present

Managing Director,
General Manager of General Administration Division

Masao Okawa

- 1988 Joined the Bank of Japan then held positions such as Chief Representative in Frankfurt and Kyoto Branch Manager
- 2017 Joined HORIBA, Ltd. and was appointed as Senior Corporate Officer
- 2018 Appointed as Managing Director up to the present

Director,
Board Leader of GLOBAL ATS BOARD

Takashi Nagano

- 1985 Joined HORIBA, Ltd. then held positions such as General Manager of Engine Measurement Planning & Development Department, General Manager of Engine Measurement System Management Division, and President of HORIBA Europe GmbH (Germany)
- 2005 Appointed as HORIBA's Corporate Officer
- 2011 Appointed as President & CEO of HORIBA Europe GmbH (Germany)
- 2014 Appointed as President of HORIBA KOREA Ltd. (South Korea)
- 2016 Appointed as HORIBA's Director up to the present
- Appointed as Chairman of HORIBA KOREA Ltd. (South Korea) up to the present
- 2018 Appointed as Board Leader of GLOBAL ATS BOARD up to the present

Corporate officers (As of April 1, 2019)

Executive Corporate Officer

Jai Hakhu Chairman & CEO of HORIBA Instruments
(Doctor of Engineering) Incorporated (U.S.)
President of HORIBA ABX SAS (France)

Senior Corporate Officers

Hideyuki Koishi President of HORIBA STEC Co., Ltd. (Japan)

Yuichi Muroga President of HORIBA Techno Service Co., Ltd. (Japan)

George Gillespie Executive Chairman of HORIBA MIRA Limited. (U.K.) (Doctor of Engineering)

Corporate Officers

Ken Mitera Executive Vice President of HORIBA Instruments Incorporated (U.S.)

James Thepot President of HORIBA FRANCE SAS (France)

Christian Dubuc Executive Vice President of HORIBA ABX SAS (France)

Atsushi Nakamine Deputy General Manager of Global Business Division

Hiroo Chihara Vice President of HORIBA Techno Service Co., Ltd. (Japan)

Tadao Nakamura Chief Director & President of HORIBA Instruments (Shanghai) Co., Ltd.
Chief Director & President of HORIBA (China) Trading Co., Ltd.

Director (Outside), Independent Director

Masahiro Sugita

- 1967 Joined the Bank of Japan then held positions such as Matsumoto Branch Manager and Director-General of the International Department
- 1998 Appointed as Director of Overseas Investment Research Institute, the Export-Import Bank of Japan
- 1999 Appointed as Auditor of the Bank of Japan
- 2003 Appointed as Outside Auditor (full-time) of Banyu Pharmaceutical Co., Ltd. (now MSD K.K.)
- 2006 Appointed as HORIBA's Outside Director up to the present
- 2013 Appointed as Outside Director of the 77 Bank, Ltd. up to the present

Director (Outside), Independent Director

Jiko Higashifushimi

- 1988 Appointed as Higashi-Kurume Branch Manager of Saitama Bank (now Resona Bank, Limited)
- 1993 Entered Shorenin Religious Corporation then held a position as its Head Deacon
- 2003 Appointed as the Representative Presiding Director and Head Priest of the Shorenin Religious Corporation up to the present
- 2016 Appointed as HORIBA's Outside Director up to the present

Director (Outside), Independent Director

Sawako Takeuchi

(Doctor of Engineering
Doctor of Economics)

- 1988 Appointed as Deputy Director, Master of International Business (MIB) Graduate Program, Ecole Nationale des Ponts et Chaussées (France)
- 1998 Appointed as Associate Professor, School of Engineering, University of Tokyo Graduate School
- 2004 Appointed as Urban Development Sector (Economist/Analyst), Asia-Pacific Division, the World Bank
- 2005 Appointed as Special Assistant to the Ministry of Foreign Affairs and as Visiting Professor, Graduate School of Engineering, Kyoto University
- 2011 Appointed as President, Japan Cultural Institute in Paris (Japan Foundation)
- 2016 Appointed as HORIBA's Outside Director up to the present
Appointed as Advisor to the Ministry of Education, Culture, Sports, Science and Technology
- 2017 Appointed as Specially Appointed Professor, Yamagata University Faculty of Engineering
- 2018 Appointed as Invited Professor, Tokyo College of Music up to the present
Appointed as Invited Professor, Yamagata University Faculty of Engineering up to the present

Corporate Auditor

Toshihiko Uno

- 1974 Joined HORIBA, Ltd. then held positions such as General Manager of Hardware Development and General Manager of Production Center
- 2002 Appointed as HORIBA's Corporate Officer
- 2004 Appointed as HORIBA's Senior Corporate Officer
- 2012 Appointed as HORIBA's Corporate Auditor up to the present

Corporate Auditor (Outside)

Kanji Ishizumi

- 1971 Joined the Ministry of International Trade and Industry (now the Ministry of Economy, Trade and Industry)
- 1975 Registered as Attorney at Law
- 1981 Appointed as representative partner of the Chiyoda Kokusai Law Offices up to the present
- 1995 Appointed as HORIBA's Corporate Auditor (Outside) up to the present

Corporate Auditor (Outside), Independent Auditor

Keisuke Ishida

- 1978 Appointed as Representative Director and CEO, SHASHIN KAGAKU CO., LTD.
- 2000 Appointed as Representative Director, Chairman of the Board, CEO, SHASHIN KAGAKU CO., LTD.
- 2001 Appointed as Chairman of the Board, SK-Electronics Co., Ltd.
- 2005 Appointed as HORIBA's Corporate Auditor (Outside) up to the present
- 2016 Appointed as Advisor, SK-Electronics Co., Ltd. up to the present
- 2019 Appointed as Representative Director, Chairman of the Board, SHASHIN KAGAKU CO., LTD. up to the present

Toshiya Higashino

President & COO of HORIBA Instruments Incorporated (U.S.)

Yasuo Yamashita

Deputy General Manager of General Administration Division

Hiroshi Nakamura (Doctor of Engineering)

President of HORIBA Europe GmbH (Germany)

Akio Kinoshita (Doctor of Engineering)

Deputy General Manager of Global Business Division, Automotive Technology

Arnaud Pradel

Executive Vice President of HORIBA ABX SAS (France)

Dan Horiba

President of HORIBA Advanced Techno Co., Ltd. (Japan)

Dale Poole

Executive Vice President of HORIBA Instruments Incorporated (U.S.)

Junior Corporate Officers

Narihiro Oku

Chief Manager of QSR Division, Quality & Safety Management Center

Hitoshi Motokawa

General Manager of Sales Division

Hideyuki Nishibun

General Manager of Global Business Strategy Division of HORIBA Techno Service Co., Ltd. (Japan)

Haruko Nozaki

Principal of HORIBA COLLEGE, CSR

Tsukasa Satake

Deputy General Manager of Research & Development Division, Tokyo based

Masashi Nishimura

Deputy General Manager (China Strategy) of Global Business Division

Hiroyuki Urabe

President of HORIBA KOREA Ltd. (South Korea)

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Kyoto 601-8510 Japan
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