

Message from the CEO

// FY2018 was a good first year for achievement of the Mid/Long-Term Management Plan //



Representative Director, President and CEO

FY2018 Results

Net sales

282.5 billion yen

UP 36.3% year-on-year

Operating income

64.7 billion yen

UP 2.6 times year-on-year

Operating margin

22.9%

UP 11.1 points year-on-year

Net income

57.0 billion yen

UP 3.1 times year-on-year

ROE

35.3%

UP 19.8 points year-on-year

The fiscal year ended March 31, 2019, was an important year for gaining certainty about future growth. We achieved record levels of both sales and net income, and the tailwind provided by the market environment was not the only reason for this success. It was the result of progressively strengthening the SoC tester business in our core semiconductor testing business since the acquisition of Verigy in 2011. At the start of the fiscal year, we announced the first Grand Design (Mid/Long-Term Management Policy) since Advantest was founded. We are now making strong first steps towards achievement of our ten-year goals.

Background of the Grand Design

Why now?

The semiconductor market has reached an inflection point, propelling the Advantest Group as well as the industry into new territory. The volume of data generated by new technologies such as AI, the IoT, and 5G (5th-generation mobile communications systems) has exceeded our expectations, and this explosion of data is predicted to propel the semiconductor market and thereby the semiconductor tester market to a new stage of growth.

Overseas companies have joined the Group through previous M&A deals, and overseas business now accounts for more than 95% of net sales, transforming the Group into an organization made up of members with more diverse backgrounds than at any time since Advantest was founded. We therefore resolved to internally and externally indicate our mid/long-term management direction and goals, and how Advantest will grasp the coming opportunities for growth that accompany change. Our announcement of a Grand Design looking ten years ahead was based on the desire to have our diverse employees work as a team and move together toward the same goal.

During the period until 2027, there will undoubtedly be ups and downs in market conditions and performance due to the nature of the semiconductor market. Prior to the announcement of this Mid/Long-Term Management Policy, there were already signs of trade friction between the United States and China. However, I believe that the evolution and increase in demand for semiconductors used in a variety of aspects of our lives for the improvement of quality of life and the advancement of society cannot be stopped by anyone. In this sense, no matter what happens, semiconductors will be built somewhere by someone, and will need to be tested somewhere by someone. The Grand Design estimates that the growth rate of the semiconductor market over ten years will be the same as the growth rate of global GDP at 4%, and establishes a base scenario that the semiconductor tester market will also grow at a rate of 4%, and a conservative scenario of zero growth.

CEO Message

Message from the CEO

Advantest's future business model as depicted in the Grand Design

Future challenges

Advantest's core business has shifted with the times, from the electronic measurement instruments business until the 1980s, to the semiconductor tester business since the 1990s. However, even if the content of our business changes, we have consistently utilized our core measurement technologies based on our management philosophy of contributing to the advancement of society through advanced technology. The vision presented in our Grand Design reaffirms this management philosophy and applies it specifically to the semiconductor tester business, which will be our focus over the next ten years.

“Advantest's unwavering corporate mission of 'Enabling Leading-Edge Technologies' has remained unchanged since 1989. It is reflected in the vision of 'Adding Customer Value in an Evolving Semiconductor Value Chain' depicted in the Grand Design.”

Capture of adjacent businesses centered on test solutions

The semiconductor tester business is surrounded by businesses that Advantest has not placed much emphasis upon in the past, and many related businesses that we have not worked on. If we not only delve deeper into our core tester business but also provide our customers with test solutions in adjacent areas and all related businesses, we will be able to further increase customer loyalty to the Company and achieve greater growth.

Semiconductor applications are no longer limited to familiar electronic devices, but are expanding to social infrastructure such as transportation systems, telecommunications, medicine, finance and energy systems. A wide variety of semiconductors now have higher performance, meaning that stringent and difficult tests are needed to ensure their reliability. Not many companies can meet the various needs of customers. Our vision of expanding business in the continually evolving semiconductor value chain also makes it possible to meet the expectations of customers.



Increasing the value of after-sales services

As long as the test business involves both the development of semiconductor tester hardware and the sale of software, ups and downs affected by the capital investment budgets of customers cannot be avoided. Our current business model is operating smoothly, but we would like to move closer to a stable business model that minimizes the impact of ups and downs on performance. The impact of fluctuations can definitely be reduced if we can turn services into subscriptions. Our customers are all enormous companies that are accustomed to treating tester equipment and software as fixed assets. Although we have commenced “Test as a service” initiatives and these have been implemented in some areas, we are prepared for the broader spread and transition to take time. Meanwhile, we also intend to focus on the sale of consumables that support stable revenue. Advantest has many points of contact with customers, so we know what kind of consumables they require, and this is a strength we can leverage.

We have presented six commitments for the realization of our vision. These six are interrelated. In particular, 1, 2 and 3 overlap with our current core competencies (see page 15 of the report for details) and are points that we wish to further strengthen over the next decade. For this, we emphasize a commitment to being a “learning organization.”

Until now, Advantest has had an “in-house” mindset of establishing the necessary knowledge within the company. However, in order to realize the Grand Design, we must move with greater agility to acquire new markets, and respond to trends in technological innovation. We will proceed to create value through partnerships, etc. by working with external companies that possess knowledge about AI, etc. that Advantest does not have. Furthermore, we want our employees to adopt a posture of learning about future businesses through their dealings with customers that possess the latest technology.

Meanwhile, we also recognize that our robust financial base is the reason we were able to overcome the crisis of sales being reduced by one-fifth in the past and survive while many competitors went under, and we affirm that maintaining our financial base is a necessary condition for future business growth.

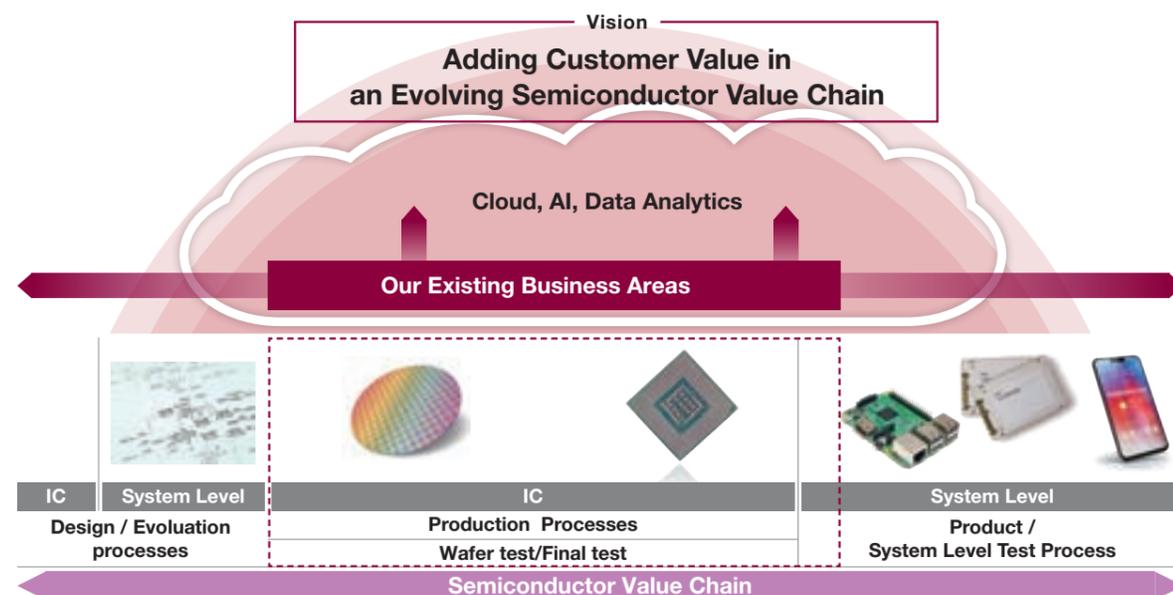
Grand Design: Six Commitments

- 1 Be the No.1 provider of test & measurement solutions
- 2 Partner with leading-edge customers
- 3 Develop leading-edge technologies
- 4 Attract and retain the best talent in the industry
- 5 Learning organization
- 6 Improve financial KPI and increase corporate value

Four growth strategies aimed at realization of the Grand Design

Strengthening of personnel and organizations supporting business growth

In order to achieve the revenue scenario outlined in the Grand Design, we will execute growth strategies under four themes: “reinforce core businesses, invest strategically,” “seek operational excellence,” “explore value to reach a higher level,” and “pioneer new business fields.”



CEO Message

Message from the CEO

Grand Design Strategies

1. Reinforce core businesses, invest strategically
2. Seek operational excellence
3. Explore value to reach a higher level
4. Pioneer new business fields

“Our priorities for strategic growth investment are as follows: capital investment, development investment, and the greatest investment of all, human resources.”

“Our tester business has reached its current scale after 30 years. We will utilize electronic measurement technology to carefully develop new businesses.”



Strengthening our core semiconductor tester business and capturing adjacent businesses is the main objective of the Grand Design. As part of this, we have fully integrated our tester development organization and processes, which were previously broken up by product and region. The aim is to reduce development time by streamlining the development process.

In fact, Advantest has little need to make large capital investments for increasing production, and investment in development materials is not very large either. Conversely, human resource investment accounts for a large percentage.

Advantest has made personnel cuts on three occasions during the dot-com crash and the global financial crisis in the 2000s. We have had a very cautious approach to personnel increases, and have conducted business with a very lean organization.

However, the SoC tester business that the Company has been strengthening requires, by its nature, development of testers, promotion, and ongoing after-sales customer support. In addition to the wide diversity of SoC products, it is necessary to deal with a large number of locations operated by diverse overseas customers. For this reason, it is essential for us to add system engineers, application engineers and field service personnel. Since this is a business model that does not work without people, we have already bolstered our ranks this fiscal year. Looking ahead, we will focus on securing engineering personnel with different skills than in the past to provide new solutions in areas such as 5G.

Seeking operational excellence is a decision to aim to improve the efficiency and quality of management and internal processes, inevitably through trial and error, because there are almost no precedents for business models in the tester business characterized by large fluctuations in demand. We will proceed with initiatives tailored to Advantest's unique value creation, such as business management based on ROIC (return on invested capital), improvement of business efficiency through the utilization of IT, and improvement of the working environment.

Exploring value to reach higher is a theme related to the transformation of our business model. We will increase services with greater growth and profitability by promoting the service model, while utilizing knowledge from outside the company to expand our solutions portfolio through the introduction of new technologies such as AI and data analysis. In 2018, we launched an organization called the Applied Research & Venture Team with the aim of obtaining knowledge that will lead to future growth, and established a structure for promoting collaboration with universities and research institutes worldwide.

Pioneering new business fields is a theme that will open up business in areas other than semiconductor testing, such as utilizing Advantest's electronic measurement technology in medical devices and biotechnology equipment. We have established a department called the New Concept Product Initiative to conduct these initiatives.

Contribute to a sustainable society through business

Strengthening our foundation for enhancement of long-term corporate value by building up our ESG track record

We believe that our main contribution to society is, above all else, ensuring the safety and reliability of semiconductors that form the foundation of social infrastructure through our tester business. I occasionally bring up the phrase “Tested by Advantest” to communicate to employees that the expansion of our business will make the world a safer and better place.

The Company's environmental initiatives also have a similar aspect. Advantest's business activities themselves do not have a very large impact on the environment, and the development and production of tester equipment does not directly pollute the water or air. For this reason, the Group emphasizes indirectly reducing our impact on the environment through the development of products that lead to reduced energy consumption by customers.

In addition, we have also continually taken initiatives related to human flourishing. As mentioned earlier, we have been through some tough periods over the past 20 years in terms of revenue when our net sales, after peaked at 250 billion yen, shrank by one-third and nearly one-fifth. Even under these circumstances, we have supported activities leading to the development and improvement of human resources in the Japanese semiconductor industry as a whole, such as donating to the University of Tokyo VLSI Design and Education Center (VDEC), supporting semiconductor engineer examinations through the Power Device Enabling Association, and providing support for the publication of research by junior technical colleges at SEMICON Japan*. We also hold science classes for elementary school students every year at our Gunma R&D Center and in Sendai, where we have a research facility. It is our desire to help more people find meaning and develop their potential in the semiconductor industry and related areas.

We are continuing to strengthen our corporate governance. Regarding the diversity of our Board of Directors, we have already appointed non-Japanese directors and a female director, and make a point of providing an environment for open and vigorous discussion. Approximately half of the company's executive officers are non-Japanese nationals. One challenge we face is determining how to increase effectiveness as we establish this structure. In risk management, we also recognize that there are more risks that we need to address when conducting global business (see page 39 for details). We intend to establish a structure for companywide initiatives.

On July 1, 2019, the date when we celebrate the anniversary of the founding of the company, we updated the Advantest Way, which is the foundation of the Group's corporate culture. We also used English to establish “INTEGRITY” as our new core value to ensure it can be easily shared among the 5,000 members of the Group in Japan and overseas. We will focus on upgrading Advantest's corporate culture to motivate employees to achieve our Grand Design.

I know that our stakeholders can expect Advantest to create ample value in the future.



* SEMICON Japan is an international trade show for the electronics manufacturing supply chain covering everything from the front-end process to the back-end process of semiconductor manufacturing, and smart applications such as automobiles and IoT devices.

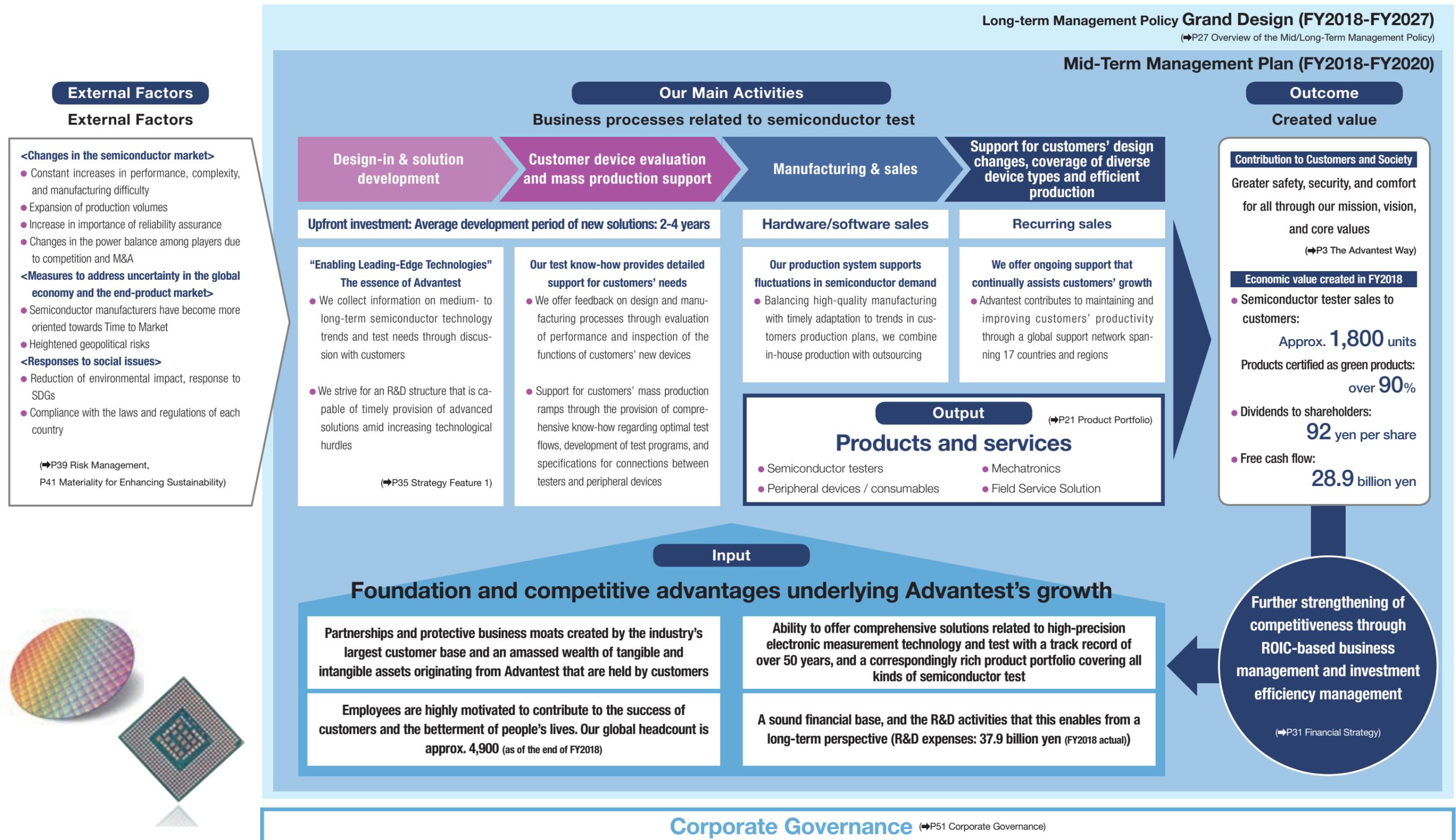
Business Model

Advantest's Business Model for Making Continuous Contributions to Customers and Society

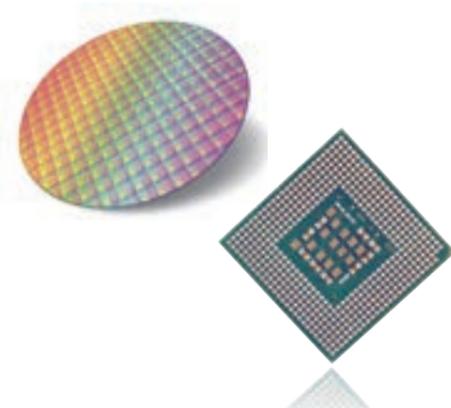
The performance of semiconductors is constantly evolving.

Semiconductor test technology enables the efficient visualization of semiconductor performance and reliability by measuring electricity, an invisible phenomenon, which determines performance with a high level of precision.

The value of test technology changes with the times, but the test process has been important since the dawn of the semiconductor market, and Advantest's core business model has remained essentially unchanged.



Corporate Governance (→P51 Corporate Governance)



Our Business at a glance

Business Review

Summary of Management Performance in FY2018



During FY2018, the global economy has so far maintained its growth trajectory overall and demand for performance improvements in electronic end-products such as data servers, smartphones, displays, and car electronics has remained steady, promoting improved performance, reliability and an increase in the production volumes of the semiconductors used in these products. On the other hand, concerns about the future of the global economy have grown since the autumn of 2019 due to the expansion of protectionist trade policies, among other factors. Reflecting trends in the global economy, the sense of a slowdown in data center investment and in smartphones—the markets that have led the growth of

semiconductors and related industries for the last few years has intensified. As a result, major semiconductor manufacturers have cut back on their capital investment plans and moved towards substantial inventory adjustments.

In this business environment, Advantest expanded our market share by demonstrating our strength as the vendor with the most comprehensive product portfolio in the semiconductor test equipment industry, and capturing demand for new products from a broad range of customers. Furthermore, profitability also substantially improved through endeavors to maintain and improve the efficiency of business operations as sales grew.

Trends in the Semiconductor Tester Market in CY2018

Market growth factors

- Greater functionality and complexity of devices due to advances in semiconductor miniaturization
- Bezel less trend of smartphone / TV displays
- Growth of applications that use semiconductors (automobiles, industry)
- Increased capacity and speed of DRAM and NAND flash memory devices
- Continuing trend towards enhancement of semiconductor reliability

Market constraint factors

- Commencement of semiconductor inventory adjustments associated with sluggish growth in smartphones shipments and the slowdown in data center investment

During 2018, there were ongoing trends towards better performance and reliability for electronic products, with progress seen in initiatives to increase performance and expand the supply of semiconductors. Reflecting these developments, semiconductor manufacturers have made active efforts to strengthen their testing capabilities so as

to be able to handle more complex testing and enhance device reliability. Since the autumn of 2018, semiconductor manufacturers have appeared to adopt a passive stance on capital investment due to concerns about excess inventory, but overall, the size of the semiconductor tester market increased from 2017.

	CY2017 actual	CY2018 actual	Change
SoC tester market	Approx. \$2,200M	Approx. \$2,550M	Up approx. 15% year-on-year
Memory tester market	Approx. \$750M	Approx. \$1,150M	Up approx. 50% year-on-year

Fluctuations in Market Share

There was intense competition in the semiconductor tester market (⇒ see risk factors on page xx). Advantest's basic approach to competition is to expand our product portfolio and differentiate our quality of service, and as a result of

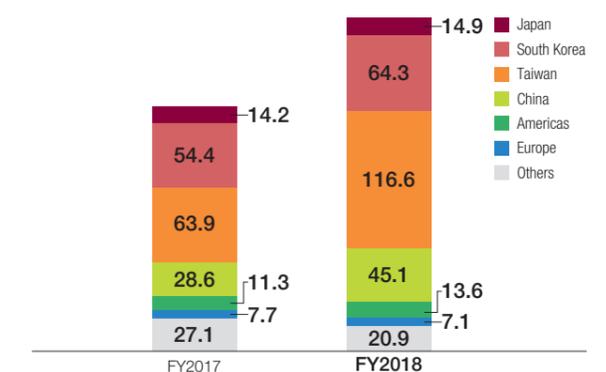
these initiatives we have the broadest customer base in the industry. The increase in demand for testers from many semiconductor manufacturers in 2018 led to a significant increase in Advantest's market share.



Sales Conditions by Region (by Destination)

At present, many semiconductor manufacturing sites are concentrated in Asian countries due to the horizontal specialization of design and manufacturing in the semiconductor market. Reflecting this industry trend, sales to Asia accounted for a large portion of Advantest's sales in FY2018. In particular, sales increased in Taiwan, China, and South Korea, where there are many large producers of SoC semiconductors.

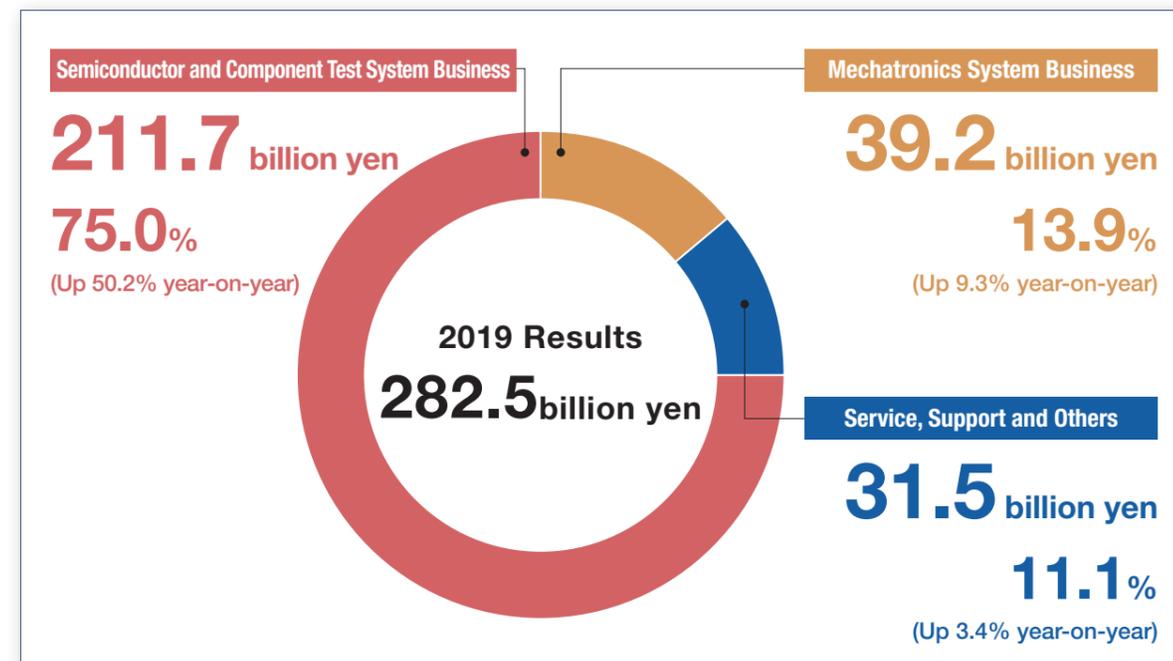
By Region/Sales (Billion yen)



Our Business at a glance

Business Review

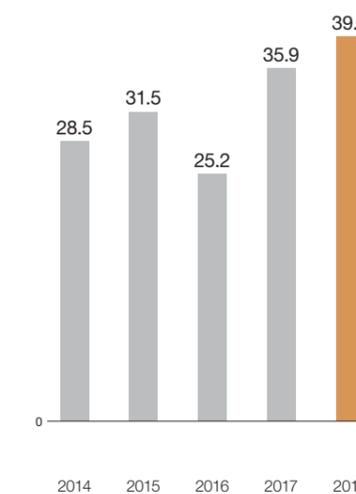
Condition of Business Segments



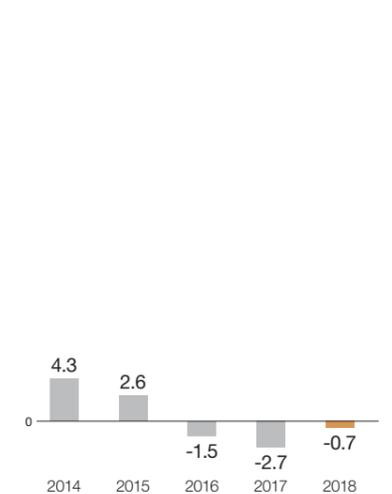
Mechatronics System Business

In this segment, sales of device interface products, which are closely linked to our memory test business, were strong, buoyed by a high level of investment in test equipment by memory semiconductor manufacturers. However, sales softened in our nanotechnology business, which provides measurement instruments for advanced manufacturing processes, owing to the timing of major semiconductor manufacturers' process shrink investment schedules. Furthermore, the segment continued to record a segment loss due to an increase in the cost of sales.

Net sales (Billion yen)



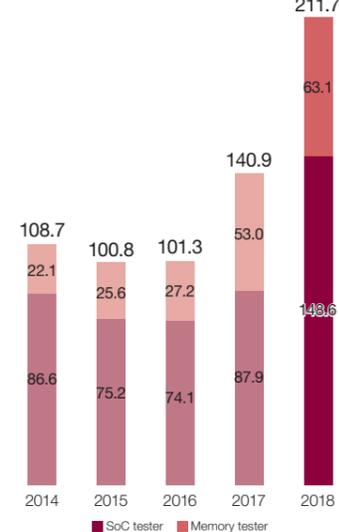
Operating income (Billion yen)



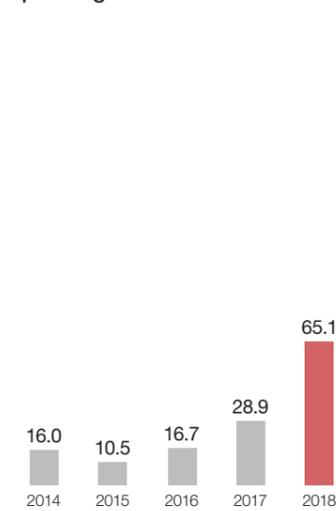
Semiconductor and Component Test System Business

In this segment, demand for SoC test systems grew due to improvements in the performance of application processors, which are key components of smartphones, and the trend towards enhanced test capabilities in line with improvements in the functionality of display driver ICs, including touch sensor integration. Furthermore, although orders received declined from the third quarter onwards due to memory semiconductor inventory adjustments, sales of memory test systems also increased year-on-year, supported by the increased capacity of DRAM and NAND flash memory. As a result, segment income increased significantly.

Net sales (Billion yen)



Operating income (Billion yen)

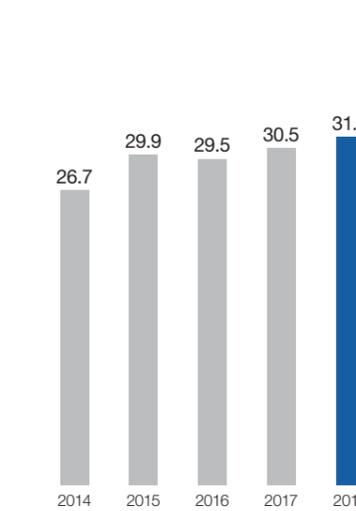


Service, Support and Others

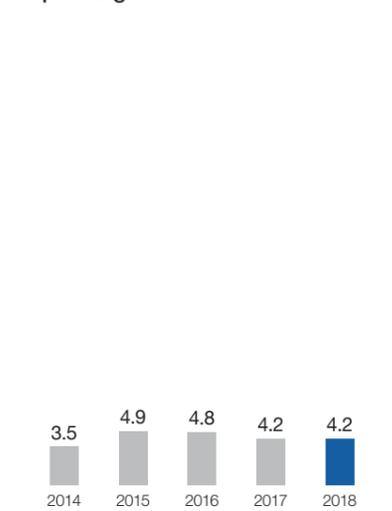
Despite the trend towards inventory adjustments in the semiconductor market, semiconductor manufacturers maintained production at high levels, resulting in stable demand for our maintenance services. As a result, segment income for this division was also stable.

In February 2019, Advantest completed its acquisition of the system level test business of US-based Astronics Corporation for USD 100 million, and the results of that business are recorded in this segment. The impact of the acquisition on results for FY2018 was minor.

Net sales (Billion yen)



Operating income (Billion yen)



Our Products & Services

Product Portfolio

Semiconductor & Component Test System Business

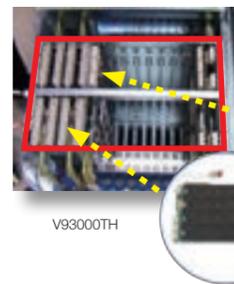
- ▶ This division provides test systems that automatically perform electrical tests of semiconductors to evaluate quality, performance and reliability. This is the company's main business, which has secured the world's leading market share.

SoC Test Systems

These utilize a modular structure enabling changes in system configuration through board replacement to perform a wide range of tests of diverse SoC devices.

Main target devices

Application processors (AP)	Display driver ICs (DDI)
ICs for communication devices	MCUs and standard logic ICs
High-performance computing (HPC)	Power management ICs (PMIC)
CMOS image sensors	Analog / mixed-signal ICs



Multiple module boards with separate electronic measurement capabilities are housed in the test head.

By changing the combination of modules, diverse devices can be tested with a single test system.



V93000 Test System

T2000 Test System

T6391 Test System

Memory Test Systems

These specialize in testing memory semiconductors and maximize testing efficiency by simultaneously measuring a large number of semiconductors at high speed. Advantest's line-up also includes burn-in systems for simultaneously conducting burn-in tests to identify initial failures of semiconductors.

Main target devices

DRAM	Non-volatile memory
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T5503HS2 Memory Test System for High-speed DRAM Test

T5833

T5830 Memory Test System for High-Speed Non-Volatile Memory Test

B6700L Burn-in Test System

Mechatronics System Business

- ▶ This business deals with semiconductor test system peripherals and devices utilizing nanotechnology for the semiconductor wafer process.

Test Handlers

These rapidly transport semiconductor packages to test systems, and automatically separate defective and non-defective products according to test results. They provide the precise transport positioning that supports the miniaturization of semiconductors, and high-speed test temperature control functionality.



M4871 Test Handler

Device Interfaces

This is a collective term referring to the tools for electrically and mechanically connecting semiconductors to test systems. Demand for these products arises when changing the type of test device or when the device interface itself is subject to wear.



HIFX

Nanotechnology Products

Semiconductor circuits are written on wafers and measured using electron beams. This contributes to the miniaturization of circuits in advanced semiconductor wafer processes.



F7000 EB (Electron Beam) Lithography System



E3650 MASK MVM-SEM

Services, Support and Others

Field Services

Engineers worldwide provide support for customer needs ranging from the installation, maintenance and repair of systems to the improvement of operating rates and throughput.

Leasing and Sales of Used Products

We offer the added value that only a tester manufacturer can provide, such as refurbishing used products to the same level as new products, high-quality relocation and launch, and the addition of functions.

System-Level Test

These systems test semiconductor devices on a product and system level. SLT meets new testing demands for increasingly complex electronic devices, and Advantest's testing and measurement solutions expand the overall semiconductor value chain.



MPT3000 SSD Test System

ATS 5030 System-level Test Platform

Leading Edge Products

We offer new innovations in healthcare and other areas by applying the electronic measurement technologies that we have developed to date.



Hadatomo™ Z Photoacoustic Microscope

TAS7500SP Terahertz Analysis System