

Mid-Term Management Plan and Results

To achieve the goals of the “Grand Design” mid- to long-term management policy we announced in April 2018, we started by establishing a mid-term management plan that set issues and targets for the first three years of the Grand Design (FY2018-2020). How did we do in the first two years of the mid-term management plan?

KPI of the Mid-Term Management Plan (three years average)

	Conservative Scenario	Base Scenario
Sales	230.0B yen	250.0B yen
Operating Profit Margin	15%	17%
ROE	15%	18%
EPS	¥135	¥170

Advantest's Strengths

- Industry's No. 1 product portfolio
- Industry's No. 1 customer base
- Comprehensive solution capabilities including test peripherals, and global support capabilities

Mid-Term Management Plan 2018-19 Results

	2018 - 19 average	vs. Objectives (Base Scenario)
Sales	279.2B yen	+11.7%
Operating Profit Margin	22%	+5points
ROE	30%	+12points
EPS	¥286	+¥116

Mid-Term Management Plan (Progress)
2018 - 19 (2-Year Average)

Mid- to Long-Term Measures and Results

- Expanding business to adjacent markets**
SLT business and Data analytics via M&A and partnership
- Strategic changes in internal organization**
Global integration of tester R&D
Launch of ARTeam
- Production reforms**
Promotion of Design for Supply Chain
- ROIC-based business evaluation and portfolio review**
Probe card business sale
- Human resource development and resource enhancement**
Strategic reinforcement of SE / AE. 200 engineers hired per year
- Updating of corporate philosophy and code of conduct**
The Advantest Way
- Shareholder returns**
Maintain a half-yearly 30% payout ratio
Repurchase of treasury stock

*ARTeam: Applied Research & venture Team

Vision
Adding Customer Value in an Evolving Semiconductor Value Chain

Six Commitments

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

Four strategies

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

Sales (base scenario) Unit: Billion yen

Tester market:	580
Advantest's market share:	46%
Sales (existing businesses):	340
Sales (new businesses):	60
Sales (total):	400

2027
(year to achieve goals of Grand Design)

Our Scenarios (Premises of the Mid-Term Management Plan)

Advantest believes that the demand for semiconductor manufacturing equipment inevitably fluctuates each year. Therefore, our targets are three-year averages. First of all, regarding our tester market growth rate assumptions, we prepared two scenarios: a “conservative scenario” with annual growth of 0% and a “base scenario” with annual growth of 4%. The latter scenario is used in our Grand Design. According to our research, the market contracted in CY2018 to about ¥400 billion, and in CY2019 it shrunk to about ¥370 billion due to memory inventory adjustments. In addition, the market in CY2020 is expected to be flat year-on-year at approximately ¥370-380 billion, due to the impact of the COVID-19 pandemic and trade friction between the United States and China. Despite our market environment has fluctuated up and down, Advantest's results for the past two years have exceeded the “base scenario” by a significant margin.

Two Years in which Advantest's Strengths Were Exercised to the Fullest

In FY2018, strong demand for testers continued for the full year in response to rising demand from the AI, data center, and smartphone sectors for higher semiconductor performance and enhanced reliability assurance. In FY2019, there was a phase of inventory adjustment centered on memory devices, but SoC-related demand more than compensated, enabling Advantest to set a new record for annual orders for the second consecutive year. We recognize that the following three strengths we have cultivated over the years have supported our successes in this market environment:

- Industry's No. 1 product portfolio
- Industry's No. 1 customer base
- Comprehensive solution capabilities including test peripherals, and global support capabilities

These advantages enabled our two-year average results to significantly exceed the “base scenario” for all four KPIs set forth in our mid-term management plan. It is difficult to forecast the market environment in CY2020, the final year of the plan, but our full-year forecast as of July 2020 indicates that it is possible for us to achieve the targets of our mid-term management plan.

Mid- to Long-Term Measures

Despite large and continuing short-term demand fluctuations, we believe that demand for semiconductor test will continue to grow in the medium to long term, as in the scenario set forth in our Grand Design. In order to capture these future business opportunities and achieve the goals set in the Grand Design for 2027, we have developed various mid- to long-term measures over the last two years, including business expansion into adjacent markets via M&A and

business alliances, consolidation and shuttering of unprofitable businesses based on ROIC evaluation, global integration of R&D operations, launch of the “ARTeam” that conceptualizes new businesses based on the utilization of AI and data analytics, product development centered on DfSC (Design For Supply Chain), and construction of a production system that is resistant to fluctuations in demand and supports effective BCP. (See the figure P.31.)

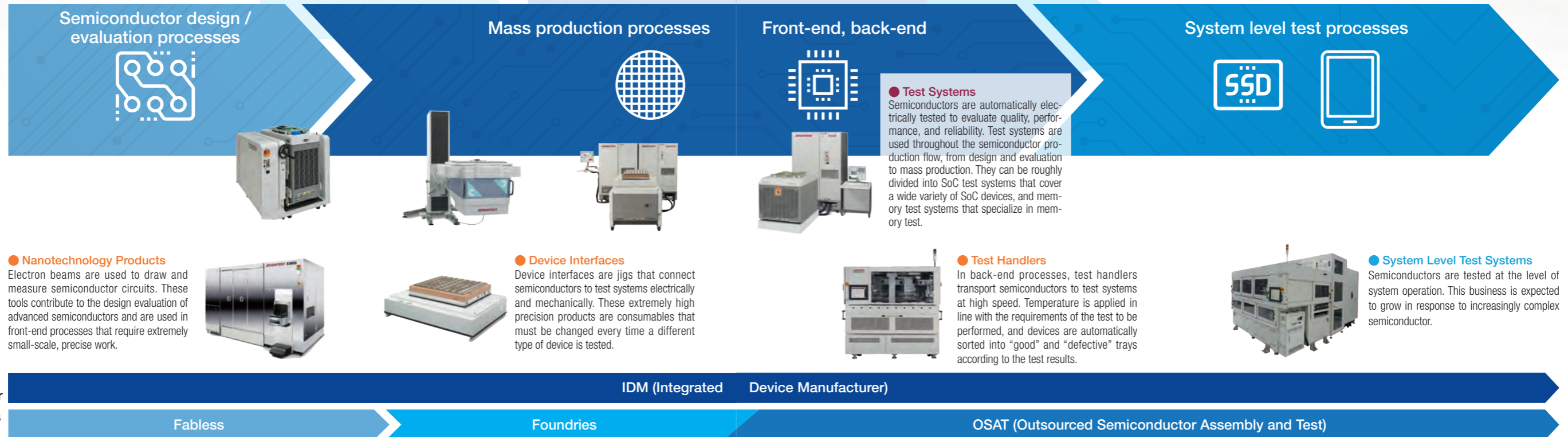
We see our mid-term management plan as focused on achieving the long-term goals of our Grand Design, and as such it is shaped by the issues and priority measures necessary to achieve those goals. In other words, it is the role of the mid-term management plan to lay the groundwork for winning business in future. We consider that the first two years of the plan have developed strong traction towards that objective.

Business Portfolio

Cloud, software, data analytics



Field Service
Engineers all over the world support the installation, maintenance and repair of customer systems to improve utilization ratios and throughput.



Target Devices of our Test Business

Tester	Main Target Devices	Device functions / applications	Test business growth factors	FY2018~FY2019 results
SoC Test Systems	Mobile ICs	Control smartphones, reception and transmission of radio waves at communication base stations, etc.	Spread of 5G, Improved performance of smartphones, expansion of base stations, etc.	◎ Continuing strong demand due to widespread adoption of 5G and improved performance of smartphone processors
	ICs for high performance computing	Carry out high-speed calculations on computers and data servers	Popularization of AI and deep learning will increase data traffic	○ In addition to expanding applications for AI and deep learning, data center investment will recover in FY2019
	Power Semiconductor	Rectification and amplification of current, switching, etc. Installed in all electronic devices	Power saving needs Automotive electrification	○→△ Automobile demand has a knock-on impact on the automotive semiconductor business
	CMOS Image Sensors	Convert camera images to electronic data.	Increasingly installed in smartphones and automobiles	○ This business will grow due to innovations such as compound eyes for smartphones
	Display Driver ICs	Control images on displays	Popularization of new technologies such as touch displays and slim bezel	◎→× Although slim bezel continued to drive demand through FY2018, there was a pause in FY2019
Memory Test Systems	Memory (DRAM, Non-volatile memory)	Store data and read it when in use. many electronic devices	Increased data traffic New data servers High functionality of smart phone	△→○ Inventory adjustments ended in the first half of 2019, and this market returned to positive from the second half of 2019.

Business Segment Commentary and 2019 Overview

Semiconductor & Component Test Systems

Advantest's core products: test systems

FY2019 results
Sales of 197.2 billion yen (6.9% decrease from the previous year Accounted for 71.5% of total sales)

- 5G and high-performance computing-related demand remains strong
- Memory decreased in the first half, but recovered from the second half

SoC business / memory business: Sales for the past 3 years

Year	SoC	Memory
2017	87.9	53.0
2018	148.6	63.1
2019	155.0	42.2

Mechatronics

Test peripherals and nanotechnology-based semiconductor front-end process equipment.

FY2019 results
Sales of 36.3 billion yen (7.5% decrease from the previous year Accounted for 13.2% of total sales)

- The slump in memory testers affected test peripherals, which are highly correlated with our tester business
- Nanotechnology product demand is currently sluggish due to lumpiness in customer investment schedules

Total Sales: 275.9 billion yen
(fiscal year ending March 2020)

Service, Support & Others

In addition to services and support for test systems, this segment includes new businesses that transcend the boundaries of conventional semiconductor test.

FY2019 results
Sales of 42.5 billion yen (34.9% increase from the previous year Accounted for 15.3% of total sales)

- The system level test business acquired from US company Astronics in February 2019 is performing well
- Advantest's SSD test business and Essai, Inc., which was acquired in January 2020, also contributed to sales growth

Consolidated Financial and Non-Financial Highlights

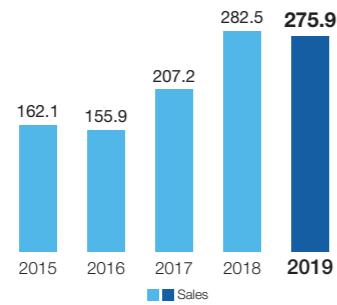
For each fiscal year beginning on April 1st

Financial Highlights

Sales

(Billion yen)

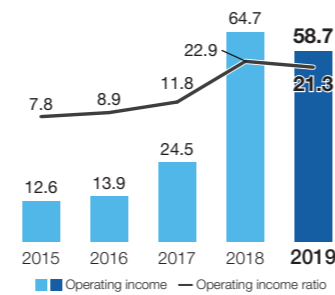
Achieved the target of our mid-term plan, even though sales did not reach the record high of the previous year



Operating income / Operating income ratio

(Billion yen / %)

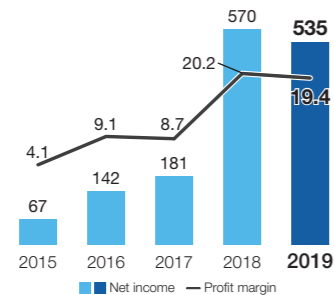
Maintained an operating margin of over 20%



Net income / Profit margin

(100 million yen / %)

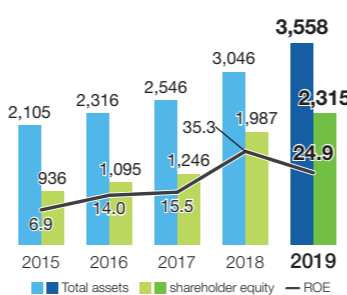
Net income exceeded 50 billion yen for the second consecutive year



Total assets / shareholder equity / ROE

(100 million yen / 100 million yen / %)

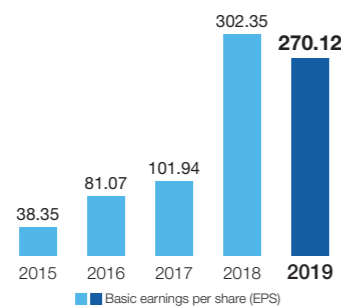
Achieved a high ROE despite a significant increase in shareholder equity



Basic earnings per share (EPS)

(Yen)

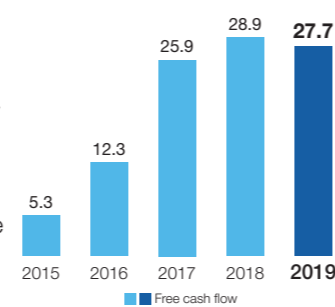
Despite a year-on-year decline, EPS is trending solidly upward in the medium term



Free cash flow

(Billion yen)

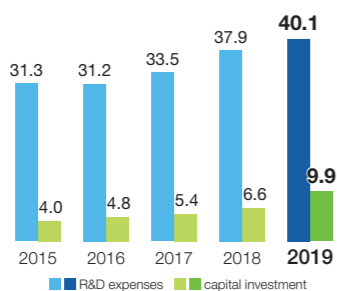
Even though M&A investment increased by about 20 billion yen year-on-year, free cash flow was as good as the previous year



R&D expenses / capital expenditures

(Billion yen / billion yen)

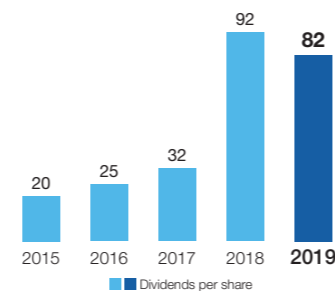
Even if sales decline, Advantest aggressively invested in future growth



Dividends per share

(Yen)

Dividends shrank due to profit decrease, in accordance with our performance-linked dividend policy

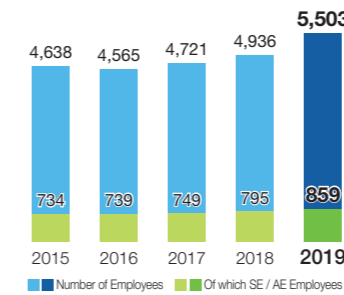


Non-financial highlights

Number of employees* / Number of SE / AE employees

(Number / %)

We continuously hire diverse human resources with the aim of increasing corporate value. We are working to secure and grow our workforce of highly skilled engineers who support the total solutions we provide to our customers.

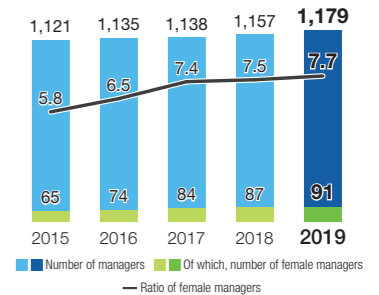


* Including temporary employees

Number of managers / Ratio of female managers

(Number / %)

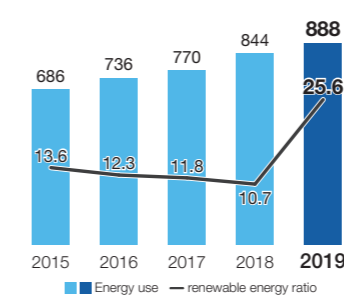
Advantest values diverse perspectives and promotes a corporate culture that allows any individual to play an active role, regardless of race, gender, age, nationality, etc.



Energy usage / renewable energy ratio

(TJ / %)

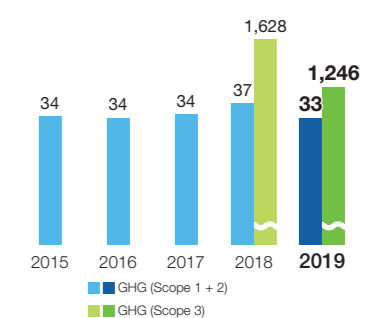
We actively work to reduce greenhouse gas emissions by efficiently using energy and introducing renewable energy sources.



GHG (Scope 1 + 2, and Scope 3) CO₂ emissions

(kt-CO₂)

We are quantifying greenhouse gases indirectly emitted in our value chain and promoting greenhouse gas emission reduction activities for climate change mitigation and adaptation.

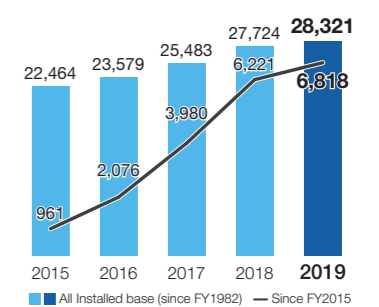


* The CO₂ emission factors have been revised and recalculated in the past.

Installed Base of Major Semiconductor Test Product (Cumulative)

(Unit)

Our strength in the semiconductor tester market rests on our customer base, the best and broadest in the industry. The top 20 semiconductor manufacturers in the world by sales all use Advantest's flagship products. Currently, our installed base numbers more than 28,000 test systems and handlers, and of these, 6,818 units have been installed in the five years since FY2015 alone, representing an unmatched rate of growth.



Promotion of Diverse Human Resources

The Advantest Group jointly seeks globalization and localization. By unifying our qualification system and personnel evaluation system globally, and by establishing a single global standard for bonuses as an incentive for profit sharing, as well as a compensation system linked to global performance, we encourage employees to consider the profitability of the entire company rather than just their own country or region. In terms of localization, 10 out of 24 executive officers (42%, as of end of June, 2020) of are foreign nationals who implement management practices based on local culture and customs at our key overseas locations.



Koichi Tsukui
Managing Executive Officer
Leader, ATE Business Group

Special Feature on Strategy 1 R&D Priority Strategies

Redefining Semiconductor Test Technology for Measuring the Future

Our management philosophy of supporting leading-edge technology is both a source of pride for the R&D division and a great responsibility. The value of Advantest's semiconductor test springs from the fusion of our ultra-precise measurement technology, which we continue to refine to this day, with a future-oriented vision of technology that enables highly efficient semiconductor test focused on customer value improvement. We live in an era when semiconductors are indispensable to our safety, security and comfort throughout the world. Guaranteeing their reliability is Advantest's mission to "enable leading-edge technology." In the dynamically changing semiconductor market, the key to realizing our mission, today, tomorrow, and in years to come, is to grasp business opportunities as quickly as possible by collaborating closely with leading customers, and incorporate our future-oriented measurement technology into the development of the solutions that customers require.

Semiconductor Complexity From the Perspective of Test

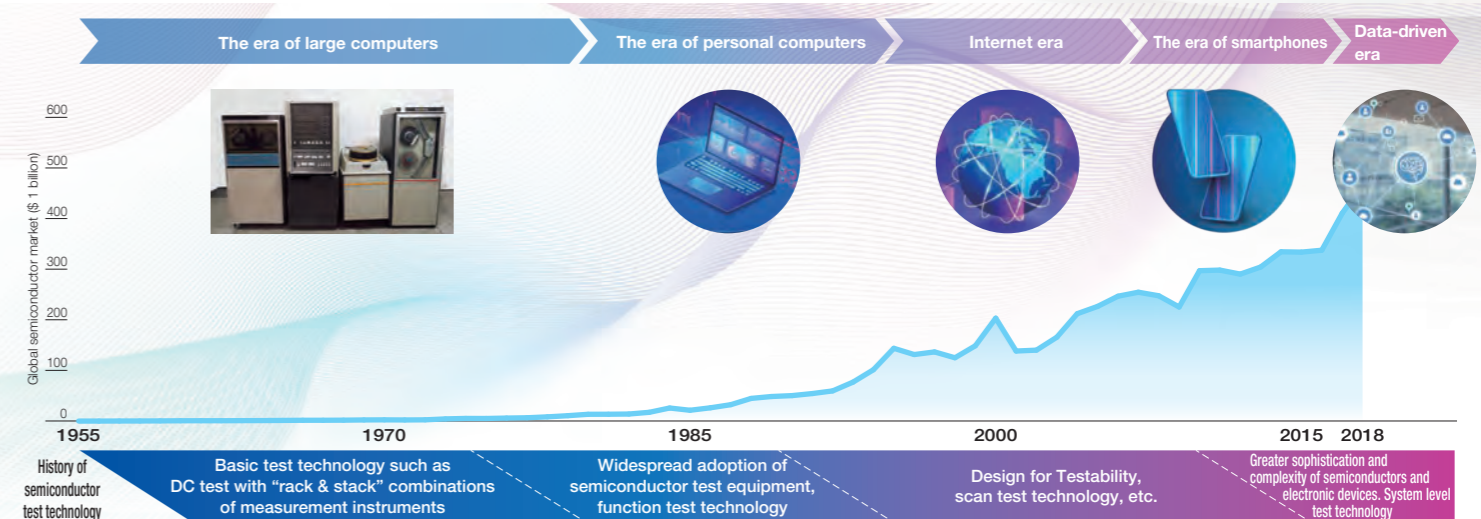
Accelerated by the evolution of semiconductor design and manufacturing technology, the digital transformation, including the rapid commercialization of 5G and AI, has given rise to a major inflection point in the semiconductor industry. The ongoing miniaturization of semiconductor processes has driven gains in semiconductor cost-effectiveness, complexity, functionality, and performance. For example, devices with more than 10 billion transistors, 3D devices with more than 100 layers, and heterogeneous devices integrating more than 10 different types of functions are now being developed. Furthermore, the relationship between hardware and software has been strengthened, so that a device operates as if it were a system. Supply chains now also involve the collaboration of multiple teams responsible for design, wafer manufacturing, package assembly, IP, and more. The digitization of

society is driving heightened expectations for semiconductors at an accelerating pace, which means that customers must now achieve Time to Market, Time to Volume, and Time to Quality in shorter times than ever before. This has become a major issue for them, leading to requirements to test more items in the same amount of time, and an increase in test difficulty. In addition, there are now more test requirements that cannot be covered by conventional test methods. It is essential to strengthen test technology to ensure reliability by utilizing new methods such as system level test.

Test Solutions for Comprehensive End-to-End Coverage

To solve these issues and add customer value, Advantest is expanding our business domains from our current core business of semiconductor mass production test to design/evaluation processes and new system level test

Test technology transitions brought about by past inflection points



(Source: SIA, WSTS)

processes. By providing comprehensive test solutions that offer end-to-end coverage, along with device handling, temperature control, and device contact, we can deliver flexible automated processes that address the entire workflow. We also aim to provide more intelligent integrated solutions, including big data analysis, by utilizing data generated from the semiconductor manufacturing process, which is said to exceed two terabytes a day at leading-edge factories. Collaboration with leading customers is indispensable to quickly grasp inflection points such as we face now, and to develop optimal responses to them. Our customers' challenges are our compass and guide to future changes in terms of their potential for technological disruption and their impact on the market supply chain. Thus, one of our key development strategies is to build collaborative relationships with leading customers and incorporate their needs into detailed roadmaps and development plans, leading to the commercialization of successful products.

A Global R&D Division

Our core business is Semiconductor Test (ATE : Automated Test Equipment), and we are proud that in 2019, we once again claimed the No. 1 market share of the ATE market. We are equally proud of the industry-leading product portfolio and customer base that supported this achievement. We are accelerating the integration of the V93000 development team with the T2000 and memory tester development teams to facilitate global development projects and personnel rotation. Our ST (System level Test) business division, established in FY2019 to develop and provide SSD test systems, also includes the system level test business we acquired from Astronics, and Essai, which we acquired in January 2020. Essai has strong capabilities in final test and system level test sockets, and thermal control units for temperature control.

Our Key R&D Themes for FY2019 - FY2020

- Next-generation scalable test system platform development (V93000 EXA Scale)
- Development of testers for 5G millimeter wave and high-end SoC devices
- Development of a high-end memory tester
- Development of software architecture that enables big data analysis and high throughput
- Development of a test cell platform for comprehensive quality improvements such as factory automation

Solutions launched as new products:

- New T2000 module for automotive SoC test with greatly improved parallel test performance
- H5620 high-speed burn-in tester for memory test (announced)
- V93000 Wave Scale RF8 market launch for Wi-Fi 6E and 5G-NR devices
- TS9001 TDR system high-precision wiring failure analysis solution using terahertz technology (announced)

Capturing Change and Opportunities in Adjacent Markets

Our ARTeam (Applied Research & venture Team) was established as an organizational structure that transcends the R&D division to sensitively capture opportunities for business expansion into adjacent markets and coming inflection points. In addition, the above-mentioned acquisition of Astronics' system level test business, the acquisition of Essai, and the partnership with PDF Solutions announced in July also target business expansion into adjacent markets. In the future, we will continue to explore opportunities to further align Advantest's business portfolio with evolving customer needs, including collaborations with partners, universities, and research institutes.

Special Feature on Strategy 2
Advantest's Manufacturing Strengths

DFX is the Key to Manufacturing for Achievement of Our Grand Design

Our Grand Design sets a sales estimate of ¥400 billion, approximately 1.5 times our record high set in fiscal 2018 (¥282.5 billion). Expanding production capacity to meet this demand does not necessarily mean only expanding our own factories and production staff. Particularly in the semiconductor test market, where sudden demand fluctuations are normal, capital investment and hiring based on the production requirements expected at times of peak demand will directly lead to higher fixed costs and a higher break-even point. It is important to balance Advantest's unique manufacturing strengths with the use of highly efficient outsourcing. The key to achieving this balance is DFX (Design for X).



Soichi Tsukakoshi
Senior Executive Officer
Executive Vice President, Production Group

Mid- to Long-Term Basic Policies of the Production Division

Historically, the semiconductor industry was shaped by the four-year cycle of demand fluctuations driven by Silicon Cycle, which led to booms and busts every two years, but in 2015 Silicon Cycle broke down, and demand began to grow steadily. In particular, the rapid increase in demand that we experienced in fiscal 2018--the so-called "supercycle"--gave us numerous pointers towards reshaping our production system to better utilize both in-house production and outsourcing.

To support the business scale (sales of ¥400 billion) envisioned by our Grand Design, we are reorganizing our production structure through various measures such as a profit improvement strategy based on AVA2.0^{*1}, global expansion of our production base through the utilization of

EMS^{*2} partnerships, cost reduction throughout our supply chain, and a constant focus on high-quality manufacturing. I have proclaimed that in the future, the production division will work with the R&D division to promote DFX, which enables production and procurement outside the Gunma Factory (our main domestic factory). In addition, I have set forth a mid- to long-term policy for the production division that incorporates priority issues including the above-mentioned measures.

*1: Advantest Value Added 2.0: a business management/evaluation tool based on ROIC (return on invested capital)

*2: Electronics Manufacturing Services: companies that offer contract manufacturing services for electronic devices

Design for Supply Chain: A Recipe for Strength

The Gunma Factory's great strength is our highly experienced production team, whose seamless teamwork has enabled us to handle fluctuations in demand by slowing or speeding up production. Despite being few in number, these elite production workers have been able to provide flexible production support, which is also the key to controlling manufacturing costs. However, if annual sales climb over ¥250 billion, greater volume production requirements will make it necessary to construct a production system that is not exclusively in-house, but is combined with an outsourced model. Outsourcing can be roughly classified into two different models, a partial outsourcing model in which only bottleneck processes that constrain production are outsourced, and a full turnkey model in which everything from material procurement to production is outsourced to a single partner. In the face of volatile demand, bottleneck processes tend to be outsourced first, but the disadvantages of this model are that supply chains tend to be lumpy and complex, and it is difficult to scale up when increased demand requires increased production. In addition, if production growth trend forecasts are mistaken, the amount of lumpiness in the supply chains can increase, and management costs will rise. On the other hand, for small-volume products with low repeatability and products that use specialized parts, when there is no need to chase economies of scale, there can be advantages to partial outsourcing that is highly specialized and can respond with great flexibility to changes.

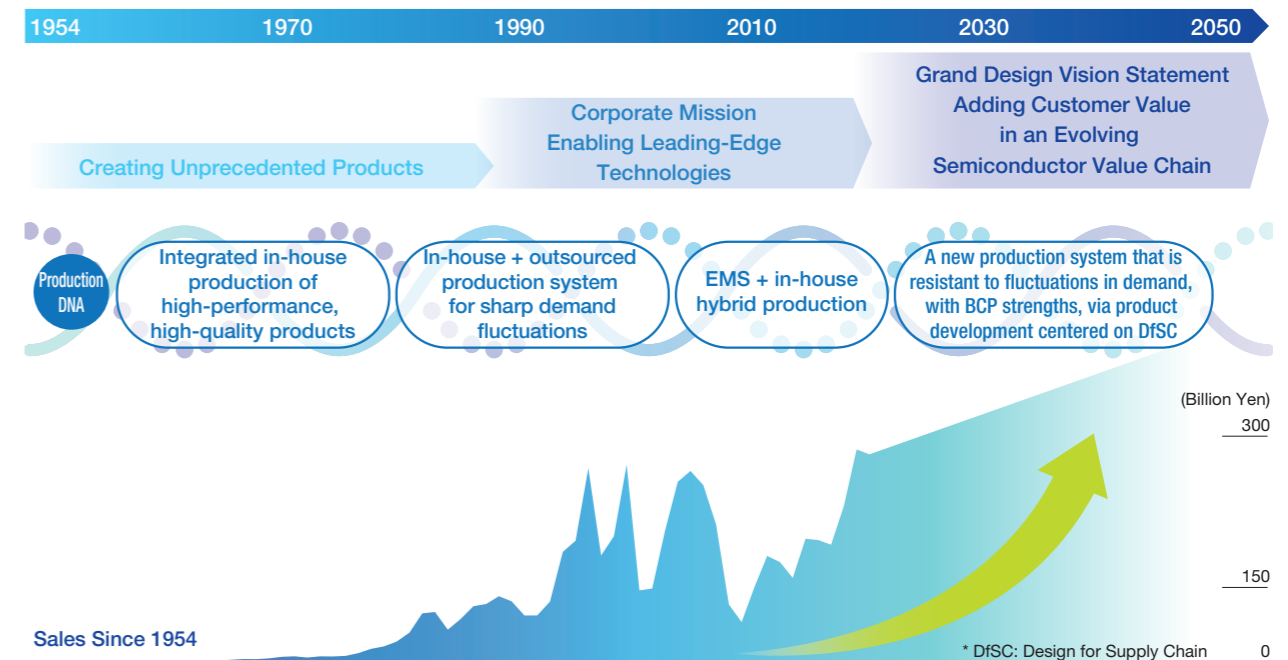
However, the main objective of the full turnkey model is to seek economies of scale through volume production, so major EMS manufacturers will also be considered as

outsourcing partners. We have already implemented this model for some of our products, but many more of the products now made at the Gunma Factory will be outsourced to EMS subcontractors in the future.

In the full turnkey model, uniqueness and oddities in terms of design, parts, construction methods, quality standards, etc. become supply chain risks, leading to reduced supply capacity and lost opportunities. The key to achieving the goals of our Grand Design is a combination of in-house production, a partial outsourcing model, and a full turnkey model, maximizing the strengths of each. Various forms of "Design for X" are required for that purpose, but the "secret sauce" is Design for Supply Chain.

Response to New Risks

Every year for the past few years, a severe disaster has occurred somewhere in the world. Every time supplies of materials are cut off, and some customers are inconvenienced. In addition, in 2020, new threats such as the global economic slowdown due to the spread of COVID-19, the transformation of the global supply chain caused by U.S.-China trade friction, and the two countries' competition for technical hegemony, have appeared as external factors we must take into account. Rather than just considering our own safety, we must overcome these new crises while helping and accommodating our customers and business partners. Therefore, I believe that all stakeholders in the supply chain must cooperate in creating a system of Design for Risks.





Special Feature on Strategy 3 **HR Strategy**

Human resources drive sustainable development

Advantest believes employees drive our sustainable development and growth. Based on this belief we implemented The Advantest Way which represents the values shared by Advantest employees worldwide, and nourishes our corporate culture.

Keith Hardwick
Managing Executive Officer
Global HR Executive Vice President

Our Grand Design and the Advantest Way

Three of the Six Commitments in our Grand Design (see p.19-20), “Partner with leading-edge customers,” “Attract and retain the best talent in the industry,” and “Learning organization” are the driving forces in our human resources strategy. We have a mission to continuously improve ourselves so that we can offer products and services that will satisfy our customers worldwide through the development of the most advanced technologies.

However, developing advanced technology means constantly pushing the envelope in our increasingly complex business environment. This complexity was highlighted in the fourth quarter of our fiscal year with the global pandemic. Advantest and its employees responded to this complex situation by establishing innovative ways to constantly communicate, learn and evolve together with our customers and partners. This is just one example of our employees demonstrating our “learning organization” capabilities by adapting to the new environment of restricted travel remote work. One key to achieving this was the Advantest Way, especially the Core Values represented

by the acronym “INTEGRITY.” In order to improve our organization and ultimately provide higher-quality products and services to our customers, our employees share and live these Core Values, with a particular focus on Trust, Respect and Teamwork, creating an environment where we constantly learn from each other.

With this in mind we are now holding company-wide workshops to ensure full employee buy-in to live our values daily. As of the end of March 2020, about 70% of employees worldwide had participated in a workshop. Executives and managers act as facilitators, helping them not only to hear the voices of employees, but also participate in two-way learning processes. Although the COVID-19 crisis interrupted face-to-face workshop schedules, we will continue with online workshop sessions until all Advantest employees have completed the workshop.

Strategic Development of Resources and the Advantest Way

In recent years, sales to China, Taiwan, and South Korea have come to account for 70-80% of total sales. To strengthen customer support in these regions, we are



The Advantest Way workshop

focusing on new recruitment and placement of software and application engineers in these regions.

That said, product development is centered on Japan, United States, and Germany. On the customer side, equipment may be developed, and purchased in different countries, emphasizing the need for a global sales force that communicates seamlessly with all counterparts. It is not uncommon for development staff, sales staff, and shipping destination and post-installation support staff to be located in different regions. INTEGRITY helps us build a framework for global support by relying on Teamwork and Inclusion & Diversity.

Maintaining this ability to provide comprehensive support to our customers through global cooperation is one of our top priorities, as expressed in our commitment to “Partner with leading-edge customers.” In addition, performance-based bonuses and stock-based compensation, which are calculated based on the performance of the entire group, not on business division or country / region performance, contribute to global teamwork.

Investment in Management Resources for Growth

Advantest’s business is chiefly supported by employees and their work, experience, and wisdom. While equipment deteriorates over time, but human experience and wisdom do not deteriorate, but only grow with time. Therefore, we not only hire excellent human resources, but we also invest in their training and development as stated in our commitment to “Attract and retain the best talent in the industry.”

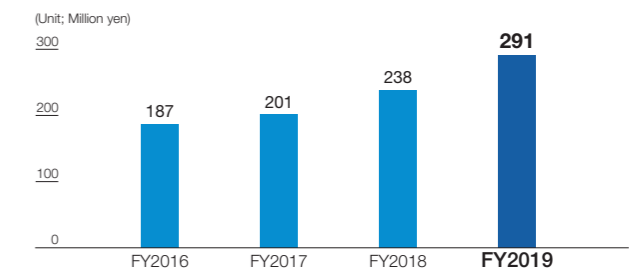
Since the announcement of our Grand Design, we have expanded our human resources development program to help all employees take the initiative to hone their basic abilities and enhance their individual strengths. In this way,



- Innovation** INNOVATION is our Lifeblood
- Number One** NUMBER ONE is our Aspiration
- Trust** TRUST is our Foundation
- Empowerment** EMPOWERMENT is our Motivation
- Global** GLOBAL is our Reach
- Respect** RESPECT is our Heart
- Inclusion and Diversity** INCLUSION AND DIVERSITY is our Commitment
- Teamwork** TEAMWORK is our Approach
- Yes** YES is our Attitude

we aim to be a learning organization that continues to funnel new knowledge into products and services. Since excellent leadership is indispensable for achieving sustainable growth in an era where more complex and difficult decision-making is required, we also focus on developing human resources who can take responsibility for top and core functions globally. Each Group company additionally develops training programs to enhance individual abilities and specialties according to the needs of each country and region. Since FY2018, our investment in employee education has also increased significantly.

Employee Education Costs (Consolidated)



For example, in Japan, we have held software engineering forums six times a year for 20 years, where employees learn from instructors inside and outside the company, focusing on topics such as Agile Development, Deep Learning, CI(Continuous Integration). In October 2019, we launched Advantest Engineering Friday, a community which has created multiple sub-groups that meet regularly on Friday afternoon to study their specialties. In China, we regularly hold a Training Day where in-house lecturers offer themed talks, and are evaluated under a commendation system that helps to create a culture of mutual learning.