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2022 Frost & Sullivan Institute Enlightened Growth Leadership Award





Congratulations!

Frost & Sullivan Institute, in partnership with Frost & Sullivan, is proud to present Advantest with the Enlightened Growth Leadership Award.

Frost & Sullivan's global team of growth pipeline experts continuously identifies and evaluates growth opportunities across multiple industries, technologies, and regions of the world. As the world emerges into the new norm disrupted and accelerated by the COVID-19 pandemic, it is becoming increasingly important for companies to leverage opportunities to shed old ways of thinking, build value chains that leave no stakeholders behind, and create foundations for stable growth to thrive in these new environments. We identify companies that demonstrate the commitment to embrace emerging technologies and protocols and generate opportunities for all while sustaining continued growth and highlighting best practices for sustainable development. This approach involves deep strategic deliberation around best practices and the development of core analytics across the entire value chain of specific products and services. Against the backdrop of these analytics, Frost & Sullivan Institute, in partnership with Frost & Sullivan, recognizes Advantest for its valuable achievement.

Frost & Sullivan strictly reserves this recognition to companies at the innovation to zero and growth forefront in their respective industries. These companies demonstrate proactivity in utilizing business practices to 'innovate to zero' and address global priorities while securing sustainable growth. These companies also uniquely leverage technology and boost their industry partner ecosystem to serve ever-evolving customer needs in a way that facilitates environmental initiatives and supports the planet's well-being. Moreover, by combining business sense with a moral imperative, these companies demonstrate aspirational ideals beyond the simple goal of generating profits.

Moreover, this recognition is the result of many individuals (employees, customers, partners, and investors), making critical decisions every single day to support the organization and meaningfully contribute to its own future in a sustainable and socially responsible way. Frost & Sullivan in partnership with Frost & Sullivan Institute enthusiastically acknowledges and celebrates their contributions.

Once again, congratulations on your accomplishments, and we wish you great success in the future.

Sincerely,

David Frigstad

Chairman, Frost & Sullivan and Executive Director, Frost & Sullivan Institute



Best Practices Criteria for World-Class Performance

Frost & Sullivan Institute leverages Frost & Sullivan's rigorous analytical process to evaluate multiple nominees for each award category before determining the final award recipient. The process involves a detailed evaluation of best practices criteria for each nominated company. Advantest excels in multiple criteria.



Introduction

Advantest is a designer, developer, and manufacturer of semiconductor test solutions. It is headquartered in Japan with over 6,400 employees worldwide, and thirty consolidated affiliates. Established in 1954, the company's vision is "adding customer value in an evolving semiconductor value chain." Advantest aims to achieve this vision via a pathway of constant improvement, innovation, and empowerment. Advantest prides itself on establishing close relationship with their customers, a market-oriented approach towards research and development (R&D), their contribution to sustainable development goals, and their ability to evolve to adapt to changing market demands. The company is constantly looking to challenge itself with their ever-ambitious goals related to sustainability and corporate governance.

'Innovating to Zero' on Global Priorities

Advantest is acutely aware of the influence the company yields within Japan as well as across other locations in which it operates. In the company's action plan for 2021 to 2023, it has laid out three axes: value from ESG perspective, value from shareholder perspective, and value from stakeholder perspective, and seeks to actively grow its area of corporate value. In doing so, the company has formed a "Sustainable Management Promotion Working Group," a team lead by the Executive Vice President of Corporate Planning and Stakeholder Relations reporting directly to the executive management committee. This action plan of the company covers 10 out of 17 SDGs as laid out by the United Nations with clear goals, and key performance indicators (KPIs) for each as well as the naming of executive in-charge of achieving the goal. These clear time-bound targets along with a clear action plan is a big step



in Advantest's journey toward innovating global priorities to zero: zero emissions, zero waste, zero injustice, and zero poverty and discrimination.

Advantest is aware of the rapidly changing global climate and as a result has expended significant resources and expertise on reducing the negative

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impact its business activity has on the environment. As a part of their efforts to innovate greenhouse gas (GHG) emissions to zero, the company has set a target of reducing its GHG emissions by 60% when compared to its 2018 levels as well as raise renewable energy usage levels to 70% by 2030. These efforts, led by the Chief Sustainability Officer, concentrating on scope one and scope two emissions are ambitious and aggressive yet achievable. The company is performing favorably against the tough benchmarks that it has set for itself.

As a part of these initiatives, in April 2021, the

electricity used at its Gunma Factory was derived from renewable sources, which is carbon-neutral and is locally produced for consumption at a hydroelectric power plant.

Advantest not only takes actions to deal with global issues within their own organization but also uses its considerable influence among suppliers to encourage them to change their policies and promote the use of renewable energy. Twelve of the company's suppliers have already introduced renewable energy within their framework in 2021, against a target of 10 and the number is only expected to increase in the years to come. Led by the CTO, this initiative aims to innovate CO2 emission levels to zero with a more immediate goal being to reduce emissions per test to 50% of current levels, by 2030.

Advantest is a champion of human rights and has aligned its human resource policies to integrate with SDG 8, "Decent work and economic growth." The company has strategies in place to double its current number of female managers by 2030. In its journey towards zero discrimination, the company proactively trains and upskills its employees in terms of human rights policies, and it committed to continue this practice.

Frost & Sullivan Institute Lauds Advantest's method of clear and open accountability of setting up ambitious targets and the designated personnel responsible for achieving them. Further, the Institute admires the focus on prevention of global warming and the efforts made to reduce greenhouse gas emissions by providing green products and reforming their business processes. Additionally, Frost & Sullivan Institute commends the strides made by company in areas of employee well-being, and equity.

Growth Excellence

Advantest has been able to mitigate the volatility of the international semiconductor market as well as intense competition to increase its revenue from 290.4 billion yen in 2019 to 312.8 billion yen in 2020. In fact, the company achieved its target of '400 billion yen in sales by 2027' earlier than expected when it recorded a turnover of 416.9 billion yen for the year of 2021. Advantest uses a combination of mergers



and acquisitions along with increasing its own capabilities via R&D to drive extremely rapid and sustained growth.

In June 2022, the company entered into an agreement to acquire Italy-based Collaudi Elettronici Automatizzati S.r.l, a supplier of power semiconductor test equipment. This acquisition would strengthen the company's test and measurement solutions within the evolving semiconductor value chain to meet a wider range of customer needs. In the same month, Advantest (Singapore) Pte Ltd entered a partnership with Singapore Polytechnic to establish a Test Engineering Centre. This will help the company upgrade and expand the test development and product characterization capabilities of the semiconductor value chain in South East Asia. In May 2022, the company launched its Advantest Cloud Solutions (ACS) University Program to allow its research partners to participate in the growing ACS ecosystem, a system created with the aim to help customers achieve intelligent, data-driven workflows.

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Further acquisitions include the purchase of the system level test division of the US company Astronics in 2018, high-end sockets company Essai in 2019, and test interface board for high-end devices specialized

company R&D Altanova in 2021. All these acquisitions have added value to the semiconductor supply chain and is expected to bring stability to the company's business portfolio. Further, Advantest Cloud Solutions has pushed the data analytics, cloud, and software solutions provided by the company. Advantest expects the semiconductor market to double in size by 2030 to reach \$1 trillion and if the company can sustain its current growth levels, it is on track to have a turnover of around \$7 billion.

Frost & Sullivan Institute lauds Advantest's ability to identify strategic mergers that complement the company's supply chain all the while boosting its revenue sources and protecting the company from the risks presented by a volatile global market. The growing demand for semiconductors means that Advantest is excellently placed to capitalize on the growing semiconductor market despite uncertainties and saturation in certain markets.



Technology Innovation and Customer Value Chain

Advantest is committed to using its expertise and recent acquisitions to develop new test systems for its customers. The company is actively aware that fast growth presents its own challenges, and it is imperative to standardize methods while launching new products in the market. Rather than emphasizing on bringing down its own costs, Advantest looks to provide value to its customers by enabling them to save resources across the supply chain by producing more accurate testing and ensuring that other systems integrate seamlessly with the semiconductor solutions that the company provides. Their principal nanotechnology product is a line of scanning electron microscopes that measure the dimensions of semiconductor circuit patterns using Advantest's proprietary electron beam technology. In the semiconductor front-end process, they measure whether the width and height of the circuit pattern are properly drawn on photomasks and wafers. Demand is expected to increase with the widespread adoption of technologies that directly contribute to the further miniaturization of advanced semiconductors, such as EUV lithography.

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The company has expanded its product portfolio through the launch of new products. In May 2022, the company launched its EXA Scale EX test station for V93000 Platform, enabling 4X capacity increase in IC engineering labs. It is designed for functional and structural test. This test station would provide solutions which will boost the capacity of engineering labs. In April 2022, the company launched its ACS Adaptive Probe Cleaning (APC) solution to optimize the probe card cleaning cycle. The new product is expected to improve cleaning cycle times, lengthen probe card life

cycle, and increase system available time for test. This device would reduce total test cost and increase productivity. In November 2021, the company introduced a new 3D image viewer, the Euclid. The equipment could create tomographic images of melanin in the skin and is designed for dermatological research in the fields of beauty and healthcare. In the same month, the company launched its new Link Scale family of digital channel cards for the V93000 platform. It would improve the test coverage and boost throughput in high-quality testing of complex SoCs.

Frost & Sullivan Institute would like to congratulate Advantest on developing proprietary market solutions that emphasizes value across the customers production process and not just within their own products. The institute further admires the ability of Advantest to develop scalable solutions that are easily integrated into the market.

Conclusion

Per its mission statement which pledges to contribute to the development of society through the evolution of advanced technologies, Advantest has demonstrated that it is possible to integrate business priorities with global ones and attain sustainable, stable growth in the process. It has indicated that company success and value is measurable in more than one direction, and it is possible, with the right



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people and policies, to balance sustainability goals with interest of shareholders as well as other stakeholders. The company's active policies of encouraging gender equality have not only resulted in a steady rise of women in leadership roles, but it has also made men more comfortable in seeking work life balance and taking time off to support childcare duties at home. Further, the company has been able to blend existing technology with smart synergies because of its research and development to push solutions that are rewarding to the company as well as to its customers.

Frost & Sullivan Institute awards the "2022 Enlightened Growth Leadership Award" to Advantest for their endeavors to be a responsible corporate citizen by innovating global challenges to zero while maintaining strong business acumen and a willingness to innovate constantly to create additional value for their customers.



What You Need to Know about the Enlightened Growth Leadership Recognition

Frost & Sullivan Institute's Enlightened Growth Leadership Award recognizes the company that addresses the global priorities as identified by the Institute and demonstrates sustainable growth in the industry.

Best Practices Award Analysis

For the Enlightened Growth Leadership Award, Frost & Sullivan analysts independently evaluated the criteria listed below.

'Innovating to Zero' on Global Priorities: The company demonstrates proactivity in 'Innovating to Zero' in terms of one or more of the following global priorities that form the seven pillars of the Frost & Sullivan Institute:

- i) **Environment:** Environmental initiatives can include climate change, vulnerable groups, behavioral change, international governance, waste management, or others.
- ii) **Education:** Education can encompass equal access, gender parity, EdTech, quality education, education resources, vocational training, or others.
- iii) **Infrastructure:** Infrastructure can incorporate infrastructure as a basic right, technology and infrastructure, environment and infrastructure, urban infrastructure, and financing models, among others.
- iv) **Healthcare:** Healthcare can comprise healthcare crisis, mental health, finance, healthcare systems, advanced healthcare, and technology and healthcare, among others.
- v) **Security:** Human security can refer to transnational governance, human security, food security, or others.
- vi) **Human Rights:** Human rights can involve governance, special group rights, justice, or other such elements.
- vii) **Economics:** Economics can pertain to inequality, new economic regime, FinTech, behavioral change, or others.

Growth Excellence: The company demonstrates healthy growth over a span of 10 years. It focuses on short-term and long-term growth strategies to maintain a superior industry position. The executive team's vision aligns with the company's growth strategy, effectively translating this vision into growth. The socially responsible organization enforces strategies to increase its share of the customer wallet, successfully differentiating itself from competitors and positively impacting its market share. It also adopts strategies to build upon achieved growth and sustain continued growth while highlighting best practices for sustainable development.

Customer Value Chain: The company pays heed to the planet's well-being and addresses environmental initiatives such as climate change, carbon footprint reduction and elimination, waste management, or clean energy production. Its key value proposition is refined by building on client feedback and continuously improving products and services. The organization prioritizes its customers' needs and



provides significantly greater value for the price. It offers exceptional customer value by providing the best purchase experience to customers, placing importance on providing a high degree of satisfaction amongst existing and potential clients, or ensuring the best and differentiated service experience.

Integrated Coopetition - Industry Partner Ecosystem: The company makes use of unique business models such as corporate partnerships and public-private collaborations to boost the industry partner ecosystem. By combining business sense with a moral imperative, the company demonstrates aspirational ideals beyond the simple goal of generating profits. The organization's efforts to cooperate with competitors reveal its cognizance of a broader vision and endeavors towards positively impacting the overall industry.

Technology Leverage/Innovation: The company incorporates or uniquely leverages technology, standing out among the competition. The technology addresses key future needs and applications and is disruptive to or supersedes existing technologies. The company's technology or technology leverage can be diversely applicable or has created new markets or applications where none existed before. It has introduced creative features and functionality by jumping through hoops to convert its vision into a reality. The organization has a structured process or best practices to incubate new technologies developed internally or through strategic partnerships. The company's innovations or technology incorporation has the potential to become an industry standard.



About Frost & Sullivan Institute

Frost & Sullivan Institute (FSI) is a non-profit organization dedicated to utilizing business practices to address global priorities. The genesis of the institute goes back to our vision of either creating or becoming part of a solution that addresses threats to humanity. Frost & Sullivan Institute has identified strategic imperatives for transformation and believes that by using a Socratic approach, we can truly accelerate innovation to zero. The Institute works in collaboration with leading analyst teams, its internal research team, industry experts, and other partners. It works closely with Frost & Sullivan Inc. to leverage in-house thought leadership in order to identify opportunities for transformation that will arise from innovation, disruptive technologies, and overarching megatrends that will alter the world as we know it today. To learn more about FSI, visit <https://www.frostandullivaninstitute.org/>.

About Frost & Sullivan

Frost & Sullivan is the Growth Pipeline Company™. We power our clients to a future shaped by growth. Our Growth Pipeline as a Service™ provides the CEO and the CEO's growth team with a continuous and rigorous platform of growth opportunities, ensuring long-term success. To achieve positive outcomes, our team leverages over 60 years of experience, coaching organizations of all types and sizes across 6 continents with our proven best practices. To power your Growth Pipeline future, visit Frost & Sullivan at <http://www.frost.com>.

The Growth Pipeline Engine™



Frost & Sullivan's proprietary model to systematically create ongoing growth opportunities and strategies for our clients is fuelled by the Innovation Generator™.

Key Impacts:

- **Growth Pipeline:** Continuous flow of Growth opportunities
- **Growth Strategies:** Proven Best Practices
- **Innovation Culture:** Optimized Customer Experience
- **ROI & Margin:** Implementation Excellence
- **Transformational Growth:** Industry Leadership

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