2021 Frost & Sullivan Institute
Enlightened Growth Leadership Award
Excellence in Best Practices

Keysight Technologies
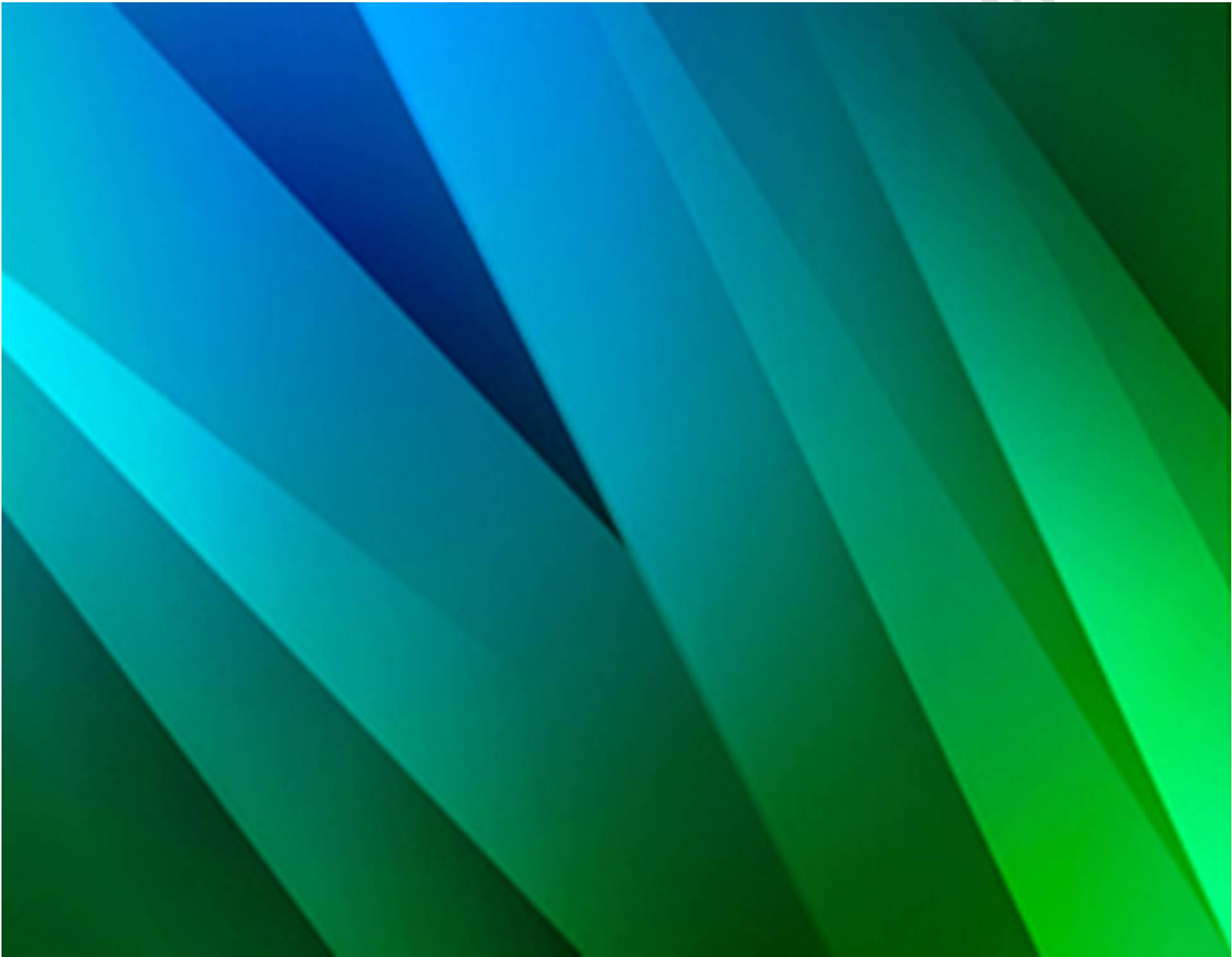
Congratulations!

Frost & Sullivan Institute, in partnership with Frost & Sullivan, is proud to present Keysight Technologies 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 Keysight Technologies 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 over a span of their enduring association with Frost & Sullivan. 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. This recognition is also a token of our gratitude towards our clients whom we have accompanied on their journeys towards transformational growth. In this context, Keysight Technologies' recognition holds an even greater significance in reaffirming its longstanding relationship with Frost & Sullivan.

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 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. Keysight Technologies excels in multiple criteria.

Introduction

Several companies, on a global scale, are prioritizing developing services and solutions that are sustainable and aim to significantly reduce carbon emissions. These companies are not just aiming to realize their corporate social responsibilities with their innovative and visionary products, they boast a plausible goal of achieving superior business growth while significantly reducing their carbon footprint, possibly to zero. In developed countries such as the United States of America (USA), several companies are exploring the 'zero concept' by leveraging technologies that not only require less energy to operate but also aim to create cheaper alternatives to the available products while largely reducing their impact to the environment.

'Innovating to Zero' on Global Priorities

In a TED talk in 2010, Bill Gates mentioned a four-component equation for carbon dioxide emission that every company should aim to reduce. He proposed that carbon dioxide emission, which accounts for nearly 80% of the total greenhouse emissions in the USA[1], is a product of people, services per person, energy consumed per service, and carbon dioxide produced per unit of energy. The last two components of the equation, that is the energy consumed per service and carbon dioxide produced per unit of energy, have the largest possibility of being reduced over time with proper approaches and innovations. Besides innovations concerning the environment, the 'zero concept' also urges companies to push for a 'zero' in several other areas, including inequality, insecurity, and inequitable access, among others.

One of the prominent companies, significantly contributing to the new-age digital revolution by creating ground-breaking technologies for a sustainable future, is Keysight Technologies (Keysight). Founded in 2014 and headquartered in Santa Rosa, California, the company provides next-gen products and solutions and caters to some of the fastest-growing technology end-user markets such as 5G, Internet of Things (IoT), network security, and software test automation, among others. Keysight has received several accolades for its visionary innovations in the information technology sector. However, a large portion of the company's success lies behind its ability to offer solutions by creating a robust framework of ethical, environmentally sustainable, and socially responsible operations around the world. The company is ISO 14001:2015 certified, meaning that it carries a clear sustainability agenda and leverages an environmental management system to 'provide value to the environment, the organization itself, and the interested parties.'[2]

Keysight boasts several success stories of implementing its solutions across several industries and its key players. For instance, its charge-discharge platform called BT2200 dramatically reduced the net energy consumption of a major e-bike and battery and cell manufacturer that was struggling to use an older solution that was difficult to configure and adapt to new high-density cells and batteries. After implementing Keysight's BT2200 product, the manufacturer was able to lower its operating and cooling costs by an impressive 30%. Also, the company's charge-discharge platform has a 60% smaller form-factor than the existing system used by the manufacturer. This further allowed the manufacturer to have significant free space in its manufacturing plant, thereby enabling any future expansions or production ramp-ups.

Keysight supports five of the 17 United Nations Sustainable Development Goals. They are climate action, sustainable cities and communities, quality education, reduced inequalities, and peace, justice and strong institutions. The company has set a remarkable target of achieving net-zero emissions in company operations by the end of the fiscal year 2040. It also aims to become a company powered by 100% renewable energy and seeks to reduce energy consumption by 20% by the end of the fiscal year 2040. Keysight has already started taking significant steps towards creating a sustainable workplace by

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[1] https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks
[2] https://www.iso.org/standard/60857.html

decreasing operating expenses and increasing resource efficiency. At the end of the fiscal year 2020, it has witnessed a cost avoidance of approximately USD 1.5 million. Furthermore, the company's sustainable operations allowed it to conclude the fiscal year 2020 with a notable 8% energy conservation and 18.9% water conservation. Through its solar sustainability program, the company has built a three-acre solar farm at its headquarters in Santa Rosa that significantly reduces its carbon footprint and fulfills 5% of the headquarters' electrical needs. Keysight also boasts a diverse and all-inclusive work environment and maintains a men-women salary ratio of 1:1 worldwide. Moreover, the company has significantly improved gender diversity in the leadership positions since its establishment in 2014 with 17% women in the top executive positions in 2020 alone.

Frost & Sullivan Institute lauds Keysight for creating a sustainable business portfolio while also leveraging next-gen technologies to improve the energy portfolio of its customers. The company's net-zero ambitions and its efforts towards achieving them are highly admirable.

Growth Excellence

Keysight delivers market-leading services and solutions, focusing on electronic design, test, and optimization, to capture an extensive range of markets and industries. The company creates value from its comprehensive portfolio of products that aim to address and solve current and future customer needs. Furthermore, it has developed a customer success model called the Keysight leadership model (KLM) that encompasses several key areas vital for continuous growth.

- **Customer Success**: The primary motive of KLM is customer success. Keysight works relentlessly to understand and solve customer challenges by leveraging cutting-edge technologies.
- **Market Insight**: Keysight's meticulous understanding of various markets enables it to deepen customer relationships and prioritizes potential mergers and acquisitions.
- **Capital Allocation**: This attribute allows Keysight to identify and direct human capital to capture business opportunities and generate financial returns, thereby creating value for money for both shareholders and employees.
- **First-to-Market Solutions**: With rigorous research and development (R&D) and superior technology leverage, Keysight is committed to becoming the first to deliver products and solutions to customers.

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- Analyst, Frost & Sullivan

- **Operational Excellence**: Following a lean philosophy, Keysight accelerates R&D, maximizes margins through cost reductions, and optimizes the supply chain to achieve superior operational efficiency.
- **Employee Growth**: One of Keysight's primary growth strategies is employee growth. To enable continuous innovation, productivity is a must. Keysight provides a dynamic work environment and supports employees throughout their careers, enabling utmost productivity and allowing a win-win approach for all-around growth.

By leveraging the KLM strategy, Keysight maintains an impressive portfolio of 30,000 direct and indirect customers. After becoming an independent public company in November 2014, the company has maintained an exceptional annual compound revenue growth of 8%. Despite the COVID 19 pandemic resulting in several economic and supply chain disruptions, the company witnessed the highest full-year orders to date of USD 4.5 billion in 2020. In addition, Keysight involves in mergers and acquisitions and invests in various cutting-edge technologies in markets, including wireless communications, automotive design, network test solutions, and quantum computing, among others to ensure its products and solutions are first-to-market. For instance, Keysight acquired Prisma Telecom Testing, a telecom equipment company, in 2019. This acquisition has allowed the company to accelerate technology development across wireless networks, ranging from the second-generation to the fifth-generation (5G). Its acquisition of a software startup called Labber Quantum in March 2020 has also allowed Keysight to innovate in the quantum technology space.

Frost & Sullivan Institute praises Keysight for focusing its business strategies to capture business opportunities across a wide range of industries. This impeccable strategy ensures unparalleled growth by enabling the company to invest in leading-edge technologies and solutions and ensuring a first-mover advantage across several markets.

Technology Leverage/Innovation

> *"Besides software-centric solutions, Keysight develops its key hardware technologies in its state-of-the-art integrated circuit fabrication facilities, enabling it to become a technology leader in six core measurement platforms, which are radio frequency and microwave design simulation software, network test, network analyzers, oscilloscopes, signal analyzers, and signal sources."*
>
> *- Analyst, Frost & Sullivan*

One of the primary goals of Keysight is to ensure the first-to-market advantage for itself and its customers by leveraging top-notch R&D centers around the world and improving the efficiency of customers' products and services using leading-edge solutions. Since its establishment, the company has continually expanded its software-centric solutions to meet the ever-growing customer requirements through R&D investments and mergers and acquisitions. For instance, Keysight acquired Eggplant, a leading artificial intelligence (AI)-based software test automation platform provider company, in 2020. This acquisition extended Keysight's test capabilities in the physical layer, communications, and network protocol design and test space by enabling intelligent automated test capabilities for seamless test automations. In 2020 alone, the company invested USD 715 million in R&D, which was largely driven by increasing investments in key growth opportunities in end markets and leading-edge technologies. Besides software-centric solutions, Keysight develops its key hardware technologies in its state-of-the-art integrated circuit fabrication facilities, enabling it to become a technology leader in six core measurement platforms, which are radio frequency and microwave design simulation software, network test, network analyzers, oscilloscopes, signal analyzers, and signal sources.

Keysight facilitates superior communication and connectivity across a plethora of industries around the world. As the fifth-generation cellular networks are increasingly becoming mainstream, Keysight's open RAN Architect (KORA) suite offers integrated solutions essential for the development, integration, and deployment of open radio access network (O-RAN)-compliant equipment, in turn easing 5G deployment. Likewise, Keysight's superior design and test solutions are driving innovations across several sectors, including e-mobility, aerospace and defense, communications, and semiconductor, among others. Frost & Sullivan Institute commends Keysight's rigorous R&D culture and cutting-edge technology leverage that has enabled it to witness superior growth over the years.

Conclusion

A wide range of companies are switching to sustainable ways of doing business not only to realize their commitment to a better planet, but also to ensure a future-proof growth strategy. In the electronic design, test, and optimization space, Keysight Technologies (Keysight) is a prominent company that continuously drives technological innovations while ensuring environmental sustainability, ethical governance, social impact, and cost avoidance. It leverages a highly effective leadership model that enables customer success, operational excellence, and employee growth, ensuring the first-mover advantage across various markets and industries.

For its immaculate innovation capability and strong overall performance driven by a social imperative, Keysight earns 2021 Frost & Sullivan Institute Enlightened Growth Leadership Award.

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 mega trends that will alter the world as we know it today. To learn more about FSI, visit https://www.frostandsullivaninstitute.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 on-going 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

The Innovation Generator™

Our six analytical perspectives are crucial in capturing the broadest range of innovative growth opportunities, most of which occur at the points of these perspectives.

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Analytical Perspectives:

- ■ Mega Trend (MT)

- ■ Business Model (BM)

- ■ Technology (TE)

- ■ Industries (IN)

- ■ Customer (CU)

- ■ Geographies (GE)

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