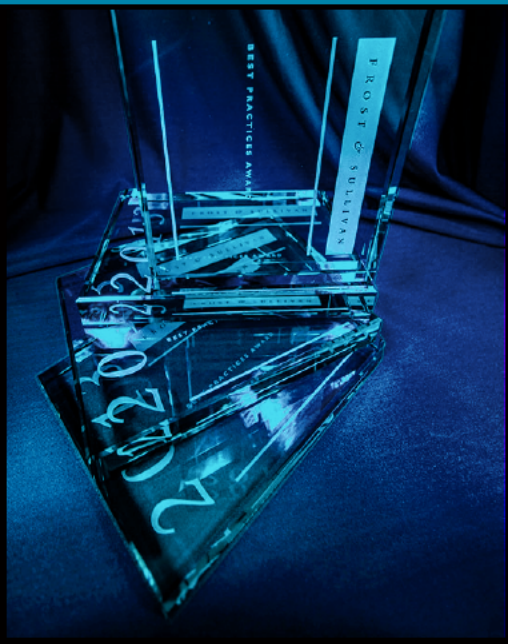


F R O S T & S U L L I V A N

Endress+Hauser 
People for Process Automation

2016 Global Water Analysis Instrumentation Company of the Year Award



FROST & SULLIVAN

BEST
2016 PRACTICES
AWARD

GLOBAL WATER ANALYSIS INSTRUMENTATION
COMPANY OF THE YEAR AWARD

2016
BEST PRACTICES
AWARDS

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Background and Company Performance

Industry Challenges

Estimated at more than \$800 million in 2015, the global water analysis instrumentation market is mainly driven by the need to measure and govern water quality parameters such that the market conforms to the industry's regulatory standards and also guarantees high water quality for end users. Due to increasing issues of water contamination as a result of non-conformity to water quality control regulations, the supply of clean and safe water has become a perennial challenge in the current scenario. In this context, companies that provide highly differentiated water analysis instruments, such as potential of hydrogen (pH) meters, conductivity meters, dissolved oxygen meters, and turbidity meters, to determine the biological, physical, and chemical properties of water need to effectively address these global challenges by launching robust solutions with advanced capabilities. Furthermore, there is a consistent need to carry out maintenance activities on these analytical instruments, which becomes a difficult task for companies due to the lack of technically-sound and experienced operators. For instance, performing calibration on the instruments without the right know-how poses a key challenge to companies. Additionally, highly-skilled process technicians retiring from the workforce contributes to the shortage of skilled technicians for effective handling of the instruments, leading to rising dependency on the manufacturer's technical expertise and support. Thus, manufacturers who efficiently provide maintenance-free, user-friendly instruments are expected to effectively combat challenges.

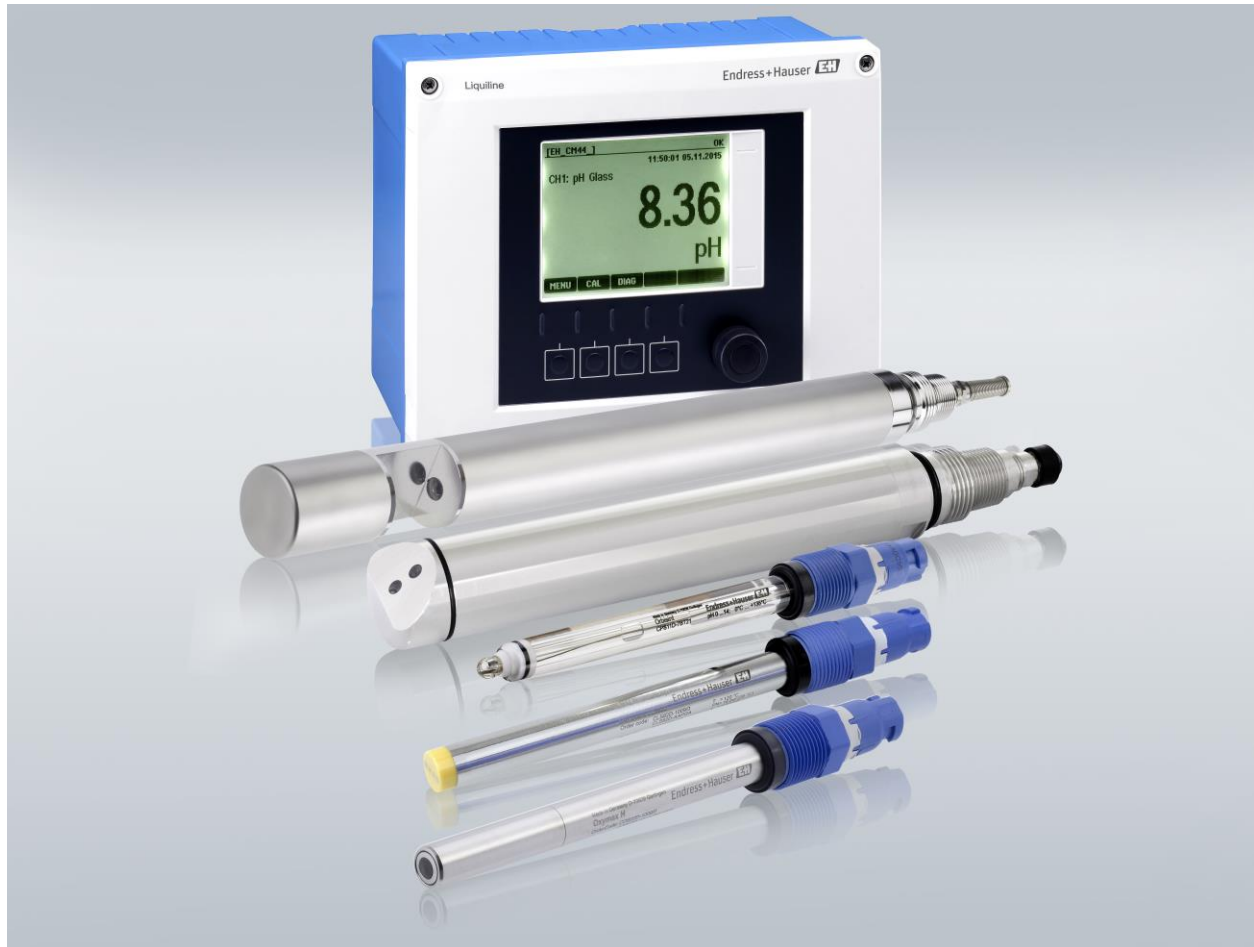
The other noted concern that water analysis instrumentation vendors face is related to the stiff competition present among companies. To create an edge of superiority over their peers in such a scenario, companies must induce differentiation in their existing line of products, maintain competitive price points, and enhance the value proposition of their offerings from a technological aspect. Thus, companies that are efficient in manufacturing such niche products, can render optimum price-performance value, and are also technologically robust find themselves best positioned to lead the market, in spite of such a challenging environment.

Visionary Innovation & Performance and Customer Impact

Addressing Unmet Needs

In an attempt to enhance the value proposition for its customers, the 63-year strong Endress+Hauser has effectively addressed unmet customer requirements by ensuring consistent water quality and overall safety by introducing cutting-edge products and technologies. The Memosens technology from Endress+Hauser clearly testifies to the company's competence to redefine the concept of liquid analysis by converting the measured value to a digital signal and transferring it to a transmitter without a contacting

connection and thus eliminating all problems caused by moisture and corrosion. The option of alert messaging in the event of any disruption in signal transmission further helps eliminate the chances of error in measurement.



Liquiline and Memosens plug & play platform for easy handling

Customer Testimonial:

"Memosens is a sophisticated technology that offers simple handling of the measuring instruments for the user."

Lutz Loos

Project Leader, Heizkraftwerk Zwickau Süd GmbH, Germany

Without the need for calibration in the field, this technology edges over competing technologies by optimizing process control through its lab-oriented calibration systems and providing customers with a platform that requires extremely low maintenance. These capabilities are explicitly instrumental in bringing down the operating costs for end users. The digital sensors of Endress+Hauser, based on the Memosens technology, are further equipped with the ability to store data related to calibration, sensor, and process analysis.

This empowers the sensors to predict the right time to perform system maintenance and thus, optimize the overall liquid analysis process. Additionally, its Liquiline transmitters are an array of instruments that enhance the company's value proposition. The Memosens sensors can be readily linked with the Liquiline transmitters, which helps to promptly recognize the sensor type and analyze the data stored in the sensor. This transmitter function is also embedded in the new Liquiline System CA80 wet-chemical analyzer platform allowing direct connection of Memosens sensors. Such seamless functioning of the plug-and-play setup assists in reducing the process downtime and automatically speeding up the liquid analysis process.



Liquiline System CA80 combines ease-of-use with regulation-compliant limit monitoring in water and wastewater

Customer Testimonial:

"With Memosens, the sensor can be calibrated in the laboratory and be replaced very easily in the plant."

Hassan Maati B AlHarbi

Analyzer Supervisor, Saudi Kayan – SABIC, Saudi Arabia

Endress+Hauser offers a comprehensive product range to cover all the analytical parameters needed to monitor water quality. Additionally, it also has a strong presence in drinking water, wastewater, and industrial process water monitoring applications. Indeed, the company positions itself to be a market leader in the pH and conductivity instrumentation segments. Deviating from the common industry trend of selling out-of-

the-box products, the company emphasizes providing its customers with a comprehensive suite of solutions that feature innovative capabilities. Automated systems for pH measurement are examples for such innovative offerings. They are perfectly suited for applications that require high accuracy in measurement results and are known for high reproducibility due to incorporation of advanced features such as automated cleaning and calibration.

The compact product functionalities that Endress+Hauser provides clearly eliminate the need for adherence to multiple standards for addressing individual parameters, thus bringing down the total cost of ownership that users incur. The company's competence to address this unmet need has resonated extremely well with customers across diverse industry verticals, be it chemical, pharmaceutical, power and energy, or even food and beverages. An instance of such positive customer experience is evident from a use case by Dow Chemical Company, wherein the company was able to improve the quality of its pH measurements and considerably bring down the process costs. By using Endress+Hauser's highly reliable and precise liquid analysis instruments (sensor electronics, and pre-calibrated Memosens probes), Dow Chemical Company increased the number of pH loops by a factor of 5, currently counting several hundreds.



Endress+Hauser offers Memosens sensors for a great variety of applications in different industries.

Implementation of Best Practices

Continually developing new products and technologies in tandem with technological advancements as a way to overcome emerging challenges—without compromising on the measurement quality—is one of the best-in-class practices that Endress+Hauser adopts. This is clearly evident from the significant research and development (R&D) investment (The company invests nearly 7.5% of its annual turnover in R&D.) that it makes every year. Previously, there existed numerous, different transmitters to carry out specific measurements; Currently, leveraging Endress+Hauser's sophisticated technologies, with a Liquiline transmitter customers can now derive a diverse range of benefits all through a single instrument, thus lowering the cost incurred by the end users. Additionally, its offer of lab-oriented high-quality sensor calibration further demonstrates the company's impeccable finesse in implementing best practices. Contrary to competitors, Endress+Hauser has been able to revolutionize the liquid analysis process through its Memosens technology, supported by its pre-calibrated sensing mechanisms under favorable laboratory conditions, thus denoting optimum user-friendliness. Such capabilities ensure precise measurements, clearly strengthening the reliability quotient of its offerings. By implementing pioneering best practices, Endress+Hauser has been able to provide highly reliable measurements and has also brought down the cost of ownership for end users, which was previously not achievable with the use of conventional analytical instruments.

Customer Testimonial:

"We'd started trying to avoid the job... now we calibrate religiously every week because it's so easy."

Paul Martindale Maintenance Manager Harvest Biofuels, USA

Price/Performance Value

Handling diverse customer demands with ease is Endress+Hauser's core strength. Leveraging its decades of experience, rich engineering expertise, and in-depth technical know-how, the company has devised a strategy to offer best value for money to its broad customer base (nearly 100,000+ customers globally). Not keen on positioning itself as a low-cost solution provider, Endress+Hauser has designed an array of premium products (loaded with rich functionalities, such as user-friendliness, pre-calibrated sensor probes, reduced cost of ownership, and comparatively low maintenance cost) to befittingly meet the different user requirements. With no compromise on the measurement quality, Endress+Hauser performs the liquid analysis within seconds and in a highly compact manner.

Additionally, contrary to its competitors, Endress+Hauser is a family-owned business that further strengthens its market positioning by enabling it to strategically design a product development pipeline and then reinvest a major portion of its profits in R&D. This indomitable spirit to drive innovation and render unmatched customer benefits certainly

provides the company with an edge over its peers. As a complement to its competitively advantageous market position, is the company's success in acquiring highly positive feedback from its customers regarding price-performance.

Customer Ownership Experience

The success of Endress+Hauser is clearly determined by the quality of experience it is able to render to its customers. The company stresses ensuring optimum satisfaction from existing customers through its offer of tailored solutions. Carrying out customer surveys and interacting with them help the company gather feedback (be it good or bad), which, at a later point in time, is incorporated into the product development process to aptly address their changing preferences. Striking an engaging conversation face-to-face and arranging for a follow-up call further assist the company in augmenting its value chain, such that customers' responses are given due weightage. Additionally, feedback from its sales channel contributes to designing products with functionalities that are effective in instilling a sense of pride in customers about owning Endress+Hauser products.

Customer Testimonial:

"I used to carry all my cleaning stuff around just to calibrate one pH sensor. Now I can calibrate the sensor inside the laboratory."

*Hassan Maati B AlHarbi, Analyzer Supervisor,
Saudi Kayan, SABIC Saudi Arabia, about
Memosens*

Customer Service Experience

Customer service is an important component for a company's success in this market. On similar lines, Endress+Hauser works extensively to ramp up its support services in order to distinguish itself from competition in the global market. The company specializes in offering pre- as well as post-sales services. With a wide base of customers in the United States, the company has opened up 5 regional offices in that country alone, wherein there is a product specialist to provide support across the entire product line. Beyond this, its provision of technical support on a 24/7 basis throughout the year enhances the reliability quotient of Endress+Hauser as a brand. As a way to empower its customers with knowledge about the different benefits that its products render as well as insight into emerging industry trends, the company also arranges training programs. This is certainly a unique strategy towards enhancing the customer experience. And to consistently maintain an engaging relationship with customers, the company conducts customer satisfaction surveys every year, on a corporate level. They are, thereafter, reviewed by the management board of the company and in self-service centers too. Additionally, customers are able to submit their complaints or issues to a specific email address, which are thereon addressed by the Internal Quality Control team.

Brand Equity

Endress+Hauser has been enjoying a prominent brand image in the global water analysis instrumentation market for the past 63 years. Strategically focused on creating customer value with its highly differentiated products, services, and solutions, the company has stayed ahead of competition, driven by its passion for excellence in product innovation to render a superior customer experience. It has positioned the Memosens technology and Liquiline transmitters as two of its chief offerings and aims to further enhance its brand value going forward. The innovative Memosens technology was also made available to other manufacturers and has, currently, become an industry standard, driving its competitors to follow suit.

Conclusion

A robust product portfolio coupled with strong acumen for innovation and focused customer centricity has been instrumental in strongly positioning Endress+Hauser amidst competition in the global water analysis instrumentation market. The comprehensive solution offered by Endress+Hauser is a resultant factor of its well-devised business strategies. Recognizing customer usage patterns and rightly identifying their diverse requirements have proven to be crucial in positioning the company to build a strong brand reputation in the global arena. Thus, leveraging its wide presence across the globe and domain expertise of more than 60 years, the company has acquired an elite list of customers. With such consistent success at length, the company aims to further strengthen its market presence and extend its product line and service offerings.

With its strong overall performance, Endress+Hauser has earned Frost & Sullivan's 2016 Company of the Year Award.

Significance of Company of the Year

To win the Company of the Year award (i.e., to be recognized as a leader not only in your industry, but among your non-industry peers as well) requires a company to demonstrate excellence in growth, innovation, and leadership. This kind of excellence typically translates into superior performance in three key areas: demand generation, brand development, and competitive positioning. These areas serve as the foundation of a company's future success and prepare it to deliver on the two criteria that define the Company of the Year Award (Visionary Innovation & Performance and Customer Impact).



Understanding Company of the Year

As discussed above, driving demand, brand strength, and competitive differentiation all play a critical role in delivering unique value to customers. This three-fold focus, however, must ideally be complemented by an equally rigorous focus on visionary innovation to enhance customer value and impact.

Key Benchmarking Criteria

For the Company of the Year Award, Frost & Sullivan analysts independently evaluated two key factors—Visionary Innovation & Performance and Customer Impact—according to the criteria identified below.

Visionary Innovation & Performance

- Criterion 1: Addressing Unmet Needs
- Criterion 2: Visionary Scenarios Through Mega Trends
- Criterion 3: Implementation Best Practices
- Criterion 4: Blue Ocean Strategy
- Criterion 5: Financial Performance

Customer Impact

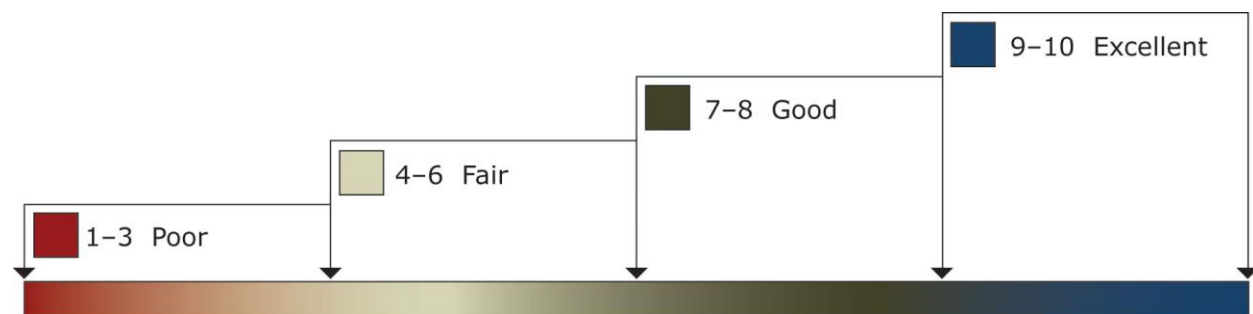
- Criterion 1: Price/Performance Value
- Criterion 2: Customer Purchase Experience
- Criterion 3: Customer Ownership Experience
- Criterion 4: Customer Service Experience
- Criterion 5: Brand Equity

Best Practice Award Analysis for Endress+Hauser

Decision Support Scorecard

To support its evaluation of best practices across multiple business performance categories, Frost & Sullivan employs a customized Decision Support Scorecard. This tool allows our research and consulting teams to objectively analyze performance, according to the key benchmarking criteria listed in the previous section, and to assign ratings on that basis. The tool follows a 10-point scale that allows for nuances in performance evaluation; ratings guidelines are illustrated below.

RATINGS GUIDELINES



The Decision Support Scorecard is organized by Visionary Innovation & Performance and Customer Impact (i.e., the overarching categories for all 10 benchmarking criteria; the definitions for each criteria are provided beneath the scorecard). The research team confirms the veracity of this weighted scorecard through sensitivity analysis, which confirms that small changes to the ratings for a specific criterion do not lead to a significant change in the overall relative rankings of the companies.

The results of this analysis are shown below. To remain unbiased and to protect the interests of all organizations reviewed, we have chosen to refer to the other key players as Competitor2 and Competitor3.

DECISION SUPPORT SCORECARD FOR COMPANY OF THE YEAR AWARD

<i>Measurement of 1–10 (1 = poor; 10 = excellent)</i>			
Company of the Year	Visionary Innovation & Performance	Customer Impact	Average Rating
Endress+Hauser	9.5	9	9.25
Competitor2	9	8	8.5
Competitor3	8	7	7.5

Visionary Innovation & Performance

Criterion 1: Addressing Unmet Needs

Requirement: Implementing a robust process to continuously unearth customers' unmet or under-served needs, and creating the products or solutions to address them effectively

Criterion 2: Visionary Scenarios Through Mega Trends

Requirement: Incorporating long-range, macro-level scenarios into the innovation strategy, thereby enabling "first to market" growth opportunities solutions

Criterion 4: Implementation of Best Practices

Requirement: Best-in-class strategy implementation characterized by processes, tools, or activities that generate a consistent and repeatable level of success.

Criterion 3: Blue Ocean Strategy

Requirement: Strategic focus in creating a leadership position in a potentially "uncontested" market space, manifested by stiff barriers to entry for competitors

Criterion 5: Financial Performance

Requirement: Strong overall business performance in terms of revenues, revenue growth, operating margin and other key financial metrics

Customer Impact

Criterion 1: Price/Performance Value

Requirement: Products or services offer the best value for the price, compared to similar offerings in the market

Criterion 2: Customer Purchase Experience

Requirement: Customers feel like they are buying the most optimal solution that addresses both their unique needs and their unique constraints

Criterion 3: Customer Ownership Experience

Requirement: Customers are proud to own the company's product or service, and have a positive experience throughout the life of the product or service

Criterion 4: Customer Service Experience

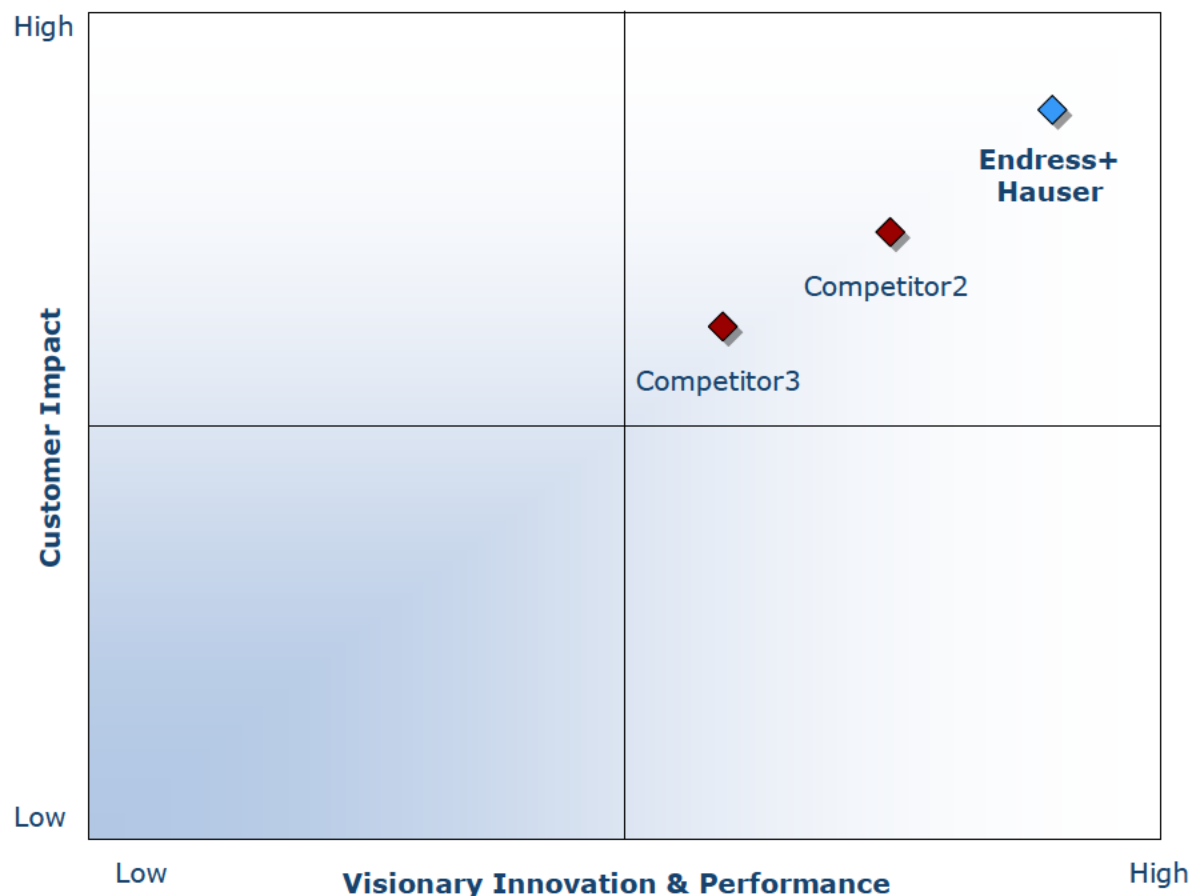
Requirement: Customer service is accessible, fast, stress-free, and of high quality

Criterion 5: Brand Equity

Requirement: Customers have a positive view of the brand and exhibit high brand loyalty

Decision Support Matrix

Once all companies have been evaluated according to the Decision Support Scorecard, analysts can then position the candidates on the matrix shown below, enabling them to visualize which companies are truly breakthrough and which ones are not yet operating at best-in-class levels.

DECISION SUPPORTMATRIX FOR COMPANY OF THE YEAR AWARD

The Intersection between 360-Degree Research and Best Practices Awards

Research Methodology

Frost & Sullivan's 360-degree research methodology represents the analytical rigor of our research process. It offers a 360-degree-view of industry challenges, trends, and issues by integrating all 7 of Frost & Sullivan's research methodologies. Too often, companies make important growth decisions based on a narrow understanding of their environment, leading to errors of both omission and commission. Successful growth strategies are founded on a thorough understanding of market, technical, economic, financial, customer, best practices, and demographic analyses. The integration of these research disciplines into the 360-degree research methodology provides an evaluation platform for benchmarking industry players and for identifying those performing at best-in-class levels.

360-DEGREE RESEARCH: SEEING ORDER IN THE CHAOS



Best Practices Recognition: 10 Steps to Researching, Identifying, and Recognizing Best Practices

Frost & Sullivan Awards follow a 10-step process to evaluate award candidates and assess their fit with select best practice criteria. The reputation and integrity of the Awards are based on close adherence to this process.

STEP	OBJECTIVE	KEY ACTIVITIES	OUTPUT
1 Monitor, target, and screen	Identify award recipient candidates from around the globe	<ul style="list-style-type: none"> • Conduct in-depth industry research • Identify emerging sectors • Scan multiple geographies 	Pipeline of candidates who potentially meet all best-practice criteria
2 Perform 360-degree research	Perform comprehensive, 360-degree research on all candidates in the pipeline	<ul style="list-style-type: none"> • Interview thought leaders and industry practitioners • Assess candidates' fit with best-practice criteria • Rank all candidates 	Matrix positioning all candidates' performance relative to one another
3 Invite thought leadership in best practices	Perform in-depth examination of all candidates	<ul style="list-style-type: none"> • Confirm best-practice criteria • Examine eligibility of all candidates • Identify any information gaps 	Detailed profiles of all ranked candidates
4 Initiate research director review	Conduct an unbiased evaluation of all candidate profiles	<ul style="list-style-type: none"> • Brainstorm ranking options • Invite multiple perspectives on candidates' performance • Update candidate profiles 	Final prioritization of all eligible candidates and companion best-practice positioning paper
5 Assemble panel of industry experts	Present findings to an expert panel of industry thought leaders	<ul style="list-style-type: none"> • Share findings • Strengthen cases for candidate eligibility • Prioritize candidates 	Refined list of prioritized award candidates
6 Conduct global industry review	Build consensus on award candidates' eligibility	<ul style="list-style-type: none"> • Hold global team meeting to review all candidates • Pressure-test fit with criteria • Confirm inclusion of all eligible candidates 	Final list of eligible award candidates, representing success stories worldwide
7 Perform quality check	Develop official award consideration materials	<ul style="list-style-type: none"> • Perform final performance benchmarking activities • Write nominations • Perform quality review 	High-quality, accurate, and creative presentation of nominees' successes
8 Reconnect with panel of industry experts	Finalize the selection of the best-practice award recipient	<ul style="list-style-type: none"> • Review analysis with panel • Build consensus • Select winner 	Decision on which company performs best against all best-practice criteria
9 Communicate recognition	Inform award recipient of award recognition	<ul style="list-style-type: none"> • Present award to the CEO • Inspire the organization for continued success • Celebrate the recipient's performance 	Announcement of award and plan for how recipient can use the award to enhance the brand
10 Take strategic action	Upon licensing, company may share award news with stakeholders and customers	<ul style="list-style-type: none"> • Coordinate media outreach • Design a marketing plan • Assess award's role in future strategic planning 	Widespread awareness of recipient's award status among investors, media personnel, and employees

About Frost & Sullivan

Frost & Sullivan, the Growth Partnership Company, enables clients to accelerate growth and achieve best in class positions in growth, innovation and leadership. The company's Growth Partnership Service provides the CEO and the CEO's Growth Team with disciplined research and best practice models to drive the generation, evaluation and implementation of powerful growth strategies. Frost & Sullivan leverages almost 50 years of experience in partnering with Global 1000 companies, emerging businesses and the investment community from 31 offices on six continents. To join our Growth Partnership, please visit <http://www.frost.com>.