New Product Innovation of the Year Award, Ultrasonic Inspection Equipment, Global, 2010

Frost & Sullivan's Global Research Platform

Frost & Sullivan is entering its 50th year in business with a global research organization of 1,800 analysts and consultants who monitor more than 300 industries and 250,000 companies. The Company's research philosophy originates with the CEO's 360 Degree Perspective,* which in turn serves as the foundation of its TEAM Research** methodology. This unique approach enables us to determine how best-in-class companies worldwide manage growth, innovation and leadership. Based on the findings of this Best Practices research, Frost & Sullivan is proud to present the 2010 Global New Product Innovation of the Year Award in the Ultrasonic Inspection Equipment Market to Imperium Inc. of Beltsville, Maryland.

Significance of the New Product Innovation Award

Key Industry Challenges Addressed by New Product Innovation

The non destructive testing (NDT) market's traditional end users such as petrochemical, nuclear, automotive, transportation, aerospace & defense require ultrasonic scanners in the field for inspecting the test object in order to ensure safety. Portability becomes a key issue as the scanners are usually bulky, thereby restricting mobility.

With the emergence of newer markets such as the wind energy industry, the scope of the NDT market has broadened. One of the key challenges that remain in the market is the lack of availability of skilled personnel. User-friendliness and ease-of-use of nondestructive solutions are key requirements of customers and companies that are capable of addressing this issue effectively are likely to succeed in this market.

Impact of New Product Innovation Award on Key Stakeholders

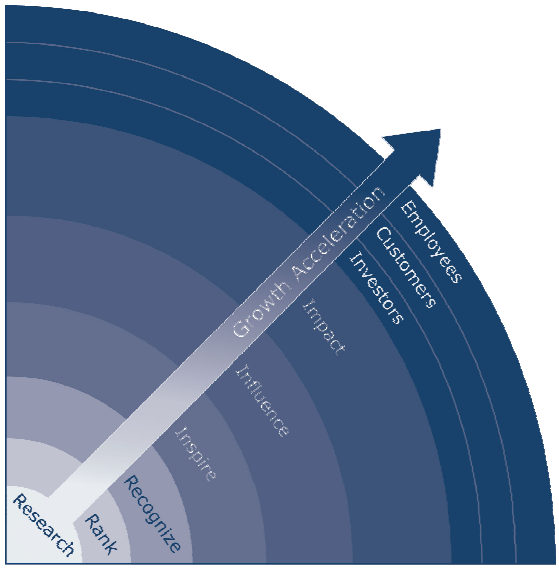
The Technology Leadership Award is a prestigious recognition of Imperium's accomplishments in the World Ultrasonic Inspection Equipment Market. An unbiased, 3rd party recognition can provide a profound impact in enhancing the brand value and thereby accelerating the Imperium's growth. As captured in Chart 1 below, by researching, ranking, and recognizing those who deliver excellence and best practices in their respective endeavors, Frost & Sullivan hopes to inspire, influence, and impact three specific constituencies:

- **Investors**
  Investors and shareholders always welcome unbiased and impartial third party recognition. Similarly, prospective investors and shareholders are drawn to companies with a well-established reputation for excellence. Unbiased validation is the best and most credible way to showcase an organization worthy of investment.

- **Customers**
  3rd party industry recognition has been proven to be the most effective way to assure customers that they are partnering with an organization that is leading in its field.

- **Employees**
  This Award represents the creativity and dedication of Imperium's executive team and employees. Such public recognition can boost morale and inspire your team to continue its best-in-class pursuit of a strong competitive position for Imperium.

Chart 1: Best Practices Leverage for Growth Acceleration



Key Benchmarking Criteria for New Product Innovation Award

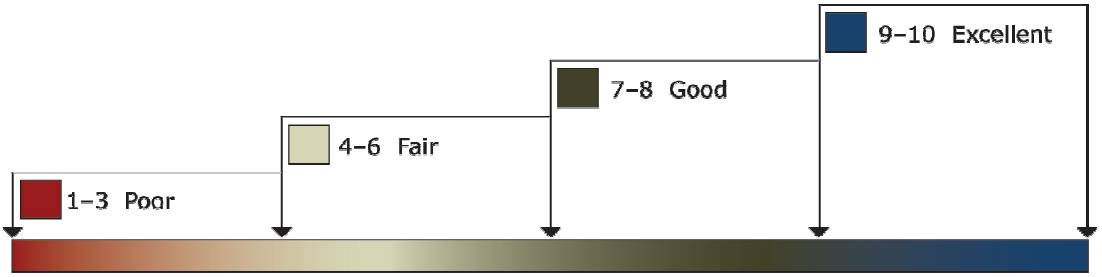
For the New Product Innovation Award, the following criteria were used to benchmark Imperium's performance against key competitors:

- Innovative Element of the Product
- Leverage Leading Edge Technologies in Product
- Value Added Features/Benefits
- Increased Customer ROI (small change)
- Customer Acquisition/Penetration Potential

Decision Support Matrix and Measurement Criteria

To support its evaluation of best practices across multiple business performance categories, Frost & Sullivan employs a customized Decision Support Matrix (DSM). The DSM is an analytical tool that compares companies' performance relative to each other with an integration of quantitative and qualitative metrics. The DSM features criteria unique to each award category and ranks importance by assigning weights to each criterion. The relative weighting reflects current market conditions and illustrates the associated importance of each criterion according to Frost & Sullivan. Fundamentally, each DSM is distinct for each market and award category. The DSM allows our research and consulting teams to objectively analyze each company's performance on each criterion relative to its top competitors and assign performance ratings on that basis. The DSM follows a 10-point scale that allows for nuances in performance evaluation; ratings guidelines are shown in Chart 2.

Chart 2: Performance-based Ratings for Decision Support Matrix



This exercise encompasses all criteria, leading to a weighted average ranking of each company. Researchers can then easily identify the company with the highest ranking. As a final step, the research team confirms the veracity of the model by ensuring 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.

Chart 3: Frost & Sullivan's 10 Step Process for Identifying Award-Recipients

Best Practice Award Analysis for Imperium Inc.,

The Decision Support Matrix, shown in Chart 4, illustrates the relative importance of each criterion for the New Product Innovation Award and the ratings for each company under evaluation. To remain unbiased while also protecting the interests of the other organizations reviewed, we have chosen to refer to the other key players as Competitor 1 and Competitor 2.

Chart 4: Decision Support Matrix for New Product Innovation Award

Measurement of 1–10 (1 = lowest; 10 = highest)	**Award Criteria**					
	Innovative Element of the Product	Leverage Leading Edge Technologies in Product	Value Added Features/Benefits	Increased Customer ROI (small change)	Customer Acquisition/Penetration Potential	**Weighted Rating**
Relative Weight (%)	**20%**	**20%**	**20%**	**20%**	**20%**	**100%**
Imperium	9.0	9.0	8.0	8.0	9.0	8.6
Competitor 1	7.0	6.5	6.5	7.0	7.0	6.8

Innovative Element of the Product

Nondestructive testing (NDT) usually involves extensive test setups and requires expertise to interpret images of device under test. Providing a solution that integrates high resolution at an affordable cost besides ease-of-use always catches the imagination of the user. With the ultrasound imaging technique being extensively used for many industrial NDT requirements, Imperium's i600 Acoustocam is targeted at applications in aerospace & defense, marine, petrochemical and non-renewable power generation industries, to meet the test needs in various product development stages - design, production as well as maintenance stages.

Imperium's i600 Acoustocam, besides providing improved mobility, also blends some of the most unique elements in mechanical as well as electronic components. It includes acoustic lenses inside a water filled camera tube. A customized integrated chip that underwent six analog design changes before optimization provides the much required analysis capability to the system. The uniqueness of the system can be summed up by the integration of the real time C-scan and A-scan – which differentiates it from the other comparable testers available in the market.

Leverage Leading Edge Technologies in Product

Composites materials are increasingly being used across several industrial applications – such as the petrochemical and wind-energy industry. In wind turbines, the blades are made of composite material as they provide enhanced performance. The capability of the i600 Acoustocam perfectly meets the NDT test requirements throughout the complete lifecycle of a product.

The i600 is built with Imperium's patented Digital Acoustic Video™, or DAV™ technology which represents a vast improvement over current ultrasound techniques. The DAV™ powered Acoustocam produces images that remove the uncertainty typically associated with conventional B-scan ultrasound thereby improving the performance of the system.

With government and provide funding, Imperium has invested about $15 million for the development of the portable system. Also, it collaborates with universities for product development. A case in point is the signal processing solution for the i600 which was a result of its association with the Northwestern University, Chicago, Illinois.

Value Added Features/Benefits

Acoustocam i600 was derived from the earlier version, the Acoustocam i500, with improvements to its weight and size – it is nearly 1/3rd its weight and half its size, enabling effortless overhead handling for making comprehensive non-destructive inspection (NDI) examinations. Also, the i600's design is meant to provide higher level of defect detection when used by both experienced and inexperienced users. While the existing range of ultrasound imaging testers available in the market require extensive training sessions for operators, the i600's preset functions for different composites enables users to learn on the job, making it significantly easier to use. Setup is minimal.

The i600 Acoustocam is strategically simplified for industrial use with the patented DAV technology, thereby reducing the time frame required for training up to 90% over legacy systems. However, the simplicity of the tester doesn't limit the performance or the output for an in-depth analysis. Moreover, it provides better resolution than the phased array testers. Its simplicity enables it to be applied as standard flaw detector in NDT procedures and can replace the phased array B-mode scan technology which otherwise is a procedure, requiring technology expertise and skilled interpretation.

The i600 comprises of a control unit (a touch screen interface) and handheld probe, together with the remote operator interface for remote inspection/maintenance applications. This allows operators to review composite structures located remotely at another facility, in real-time.

Increased Customer ROI

The i600 Acoustocam, with a complete range of inspection features, combines efficiency and portability, packaged together to provide improvement in measurement speed. The system was which was designed in collaboration with Boeing, is enabled for use in remote NDI applications. Boeing plans to develop an innovative damage assessment process to improve operational readiness in the field for the V-22 Osprey aircraft, with real-time collaboration over a wireless communication network and sharing of real-time images and analysis. The fleet support team of Boeing that manages maintenance is likely to benefit tremendously as a result of shorter downtimes, which can translate to savings of up to $100,000 per day for a grounded aircraft.

The new system allows even line mechanics and product engineers to use an NDI system in inspection process with less training, the company is embarked on expanding the NDI market beyond the traditional users as it simplifies a highly complex procedure requiring trained technicians.

Customer Acquisition/Penetration Potential

Imperium evaluates the needs of its clients through constant communication and interaction. Collaboration with end users which include Boeing, Bell Helicopters and NASA have resulted in constant upgrades of its products. In a recent development, Bell Helicopter in their effort to develop an inspection technology has taken in the i600 system as part of their joint program with the Federal Aviation Administration (FAA) to address maintenance concerns. This is a result of the growing usage of composite materials in structural applications for modern rotorcraft and fixed wing aircraft components. The soon to be developed inspection technology will be applied to Bell's composite rotorcraft such as Bell 429, 407, 412 and Bell/Agusta 609, in addition to its fixed wing composite aircraft.

The CEO 360 Degree Perspective™ - Visionary Platform for Growth Strategies

The CEO 360 Degree Perspective model provides a clear illustration of the complex business universe in which CEOs and their management teams live today. It represents the foundation of Frost & Sullivan's global research organization and provides the basis on which companies can gain a visionary and strategic understanding of the market. The 360 degree perspective is also a "must-have" requirement for the identification and analysis of best-practice performance by industry leaders.

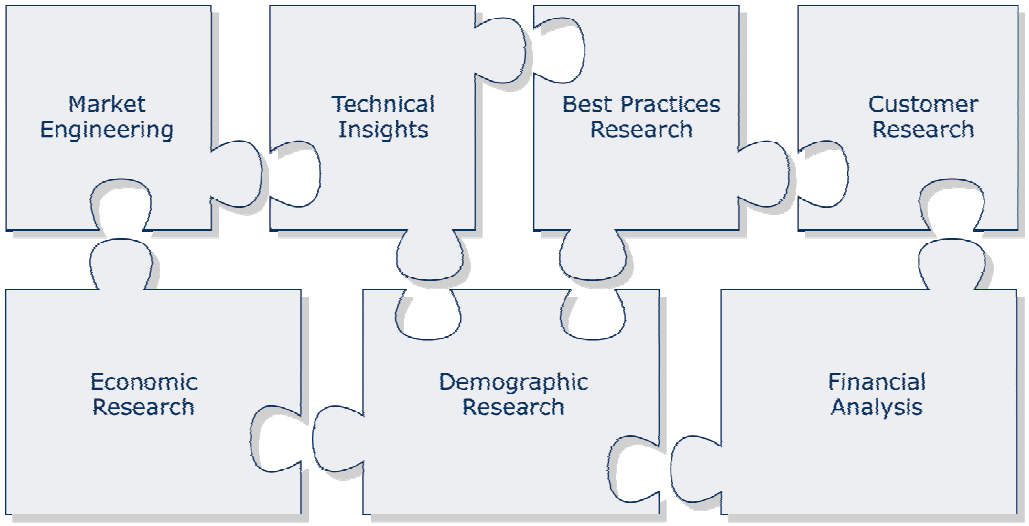
The 360 degree model enables our clients to gain a comprehensive, action-oriented understanding of market evolution and its implications for their companies' growth strategies. As illustrated in Chart 5 below, the following six-step process outlines how our researchers and consultants embed the 360 degree perspective into their analyses and recommendations:

Chart 5: How the CEO's 360 Degree Perspective Model Direct Our Research?

Critical Importance of TEAM Research

Frost & Sullivan's TEAM 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. Our experience has shown over the years that companies too often make important growth decisions based on a narrow understanding of their environment, leading to errors of both omission and commission. Frost & Sullivan contends that the successful growth strategies are founded on a thorough understanding of market, technical, economic, financial, customer, best practices and demographic analyses. In that vein, the letters T, E, A and M reflect our core technical, economic, applied (financial and best practices) and market analyses. The integration of these research disciplines into the TEAM Research methodology provides an evaluation platform for benchmarking industry players and for creating high-potential growth strategies for our clients.

Chart 6: Benchmarking Performance with TEAM Research



About Imperium Inc.,

Imperium Inc., headquartered in Beltsville, Maryland, USA is a privately-held corporation that develops and manufactures advanced ultrasound imaging systems. It sells its products to companies such as Boeing, Airbus, Bell Helicopter, US Army, US Navy, US Air Force, US Army, and NASA. The applications of these products can be found in industrial, medical, sub sea, and biometric settings. It holds several granted and pending patents.

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.