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BEST PRACTICES

AWARDS

FROST & SULLIVAN

2020 BEST PRACTICES AWARD



**2020 GLOBAL NEONATAL ICU MRI
TECHNOLOGY INNOVATION LEADERSHIP AWARD**

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Background and Company Performance

Industry Challenges

According to the World Health Organization (WHO), about 15 million babies are born preterm every year.¹ When a baby is born prematurely, its brain can suffer multiple complications, such as infection, respiratory difficulties as well as hypoxic-ischemic brain injury. Additionally, genetic abnormalities may negatively affect the infant's brain development. Consequently, preterm birth is a significant risk factor for severe brain damage.

Magnetic resonance imaging (MRI) is a medical scanning procedure that documents images of the internal structures of a human body, such as the brain. MRI systems use powerful magnetic fields and radio waves to generate images as information that is analyzed by trained physicians to determine a diagnosis. Even after demonstrating its utility as a powerful diagnostic tool, the MRI has not achieved wide acceptance for scanning premature and critically-ill neonates in hospitals. This is because most hospitals or institutions must transfer infants from the neonatal intensive care unit (NICU) to the hospital's radiology department for conducting necessary imaging procedures. Exposure to any environment outside of the NICU, however, may place the sick babies at risk for acquiring an infection that can lead to death because they are not yet fully immunized. Moreover, the current state of risk has increased due to the COVID-19 pandemic, making newborns more susceptible to contracting an infection.

A premature or ill infant with a critical health condition requires a harmonized effort between the NICU and Radiology staff to conduct an MRI scanning procedure successfully. Caring for neonates outside of the NICU and transporting them to and from radiology departments can often lead to clinical challenges such as a need for respiratory support equipment and intravenous access, which may not be MR-compatible. The process of transferring the infant to MR-compatible equipment can also create disruptions in continuous infusion of drugs, such as inotropes. High-intensity noise generated by the traditional MRI systems during imaging procedures can disturb infants, leading to body motions that affect the image quality during MRI scans. Monitoring of cardiovascular and respiratory function throughout the procedure and maintenance of thermoregulatory homeostasis are required during neonatal transfer outside of the NICU and throughout an MRI procedure.

Frost & Sullivan's research highlights the outstanding unmet need in the MRI procedures space for solutions specifically designed to cater to neonatal brain examinations and calls for an innovative device that can perform MRI imaging inside the NICU, eliminating the need to move neonates to and from other areas of the hospital. It also recognizes the importance of and need for MRI machines with low-to-no noise generation while performing scanning procedures as well as the need to ensure no harm is done to the infants due to radiofrequency radiation.

¹ [WHO: Preterm Birth, February 2018](#)

Technology Leverage and Business Impact

Commitment to Constant Innovation through Exceptional Creativity

Founded in 2007, Aspect Imaging Ltd. (Aspect), an Israel-based company, had the vision to re-define the medical MRI procedures performed for a hospital's NICU patients. It understood the challenges and difficulty involved in transporting neonates from a NICU to a radiology unit or department and strived to solve this unmet need. Aspect's exceptional commitment to innovation resulted in a technology that can reformulate traditional MRI scanning procedures for safe use on a premature and sick newborn. The company's enterprising spirit is embodied in a first-of-its-kind MRI machine, the Embrace Neonatal MRI System, that can be used directly within a hospital's NICU for conducting MRI scans on newborns as small as 1 kilogram (2.2 pounds) to acquire high-resolution 2D and 3D images.

Embrace Neonatal MRI System's extraordinary elimination of the need to move neonates from the NICU to the radiology department avoids the unnecessary health risks involved in the traditional way of conducting these procedures. Embrace is a fully enclosed system utilizing Aspect's magnet technology that does not require any cooling system and consumes less power than traditional MRI systems. The Embrace MRI System can be used for babies weighing between 1 to 4.5 kilograms, with a maximum head circumference of 38 centimeters, and enables users to set a controlled environment temperature up to 36.5 degrees Celsius. The system's incubator maintains the temperature and further insulates the infants from external noise to further eliminate any disturbance to the baby, ensuring little to no body movement during the scanning procedure. The revolutionary system is fully self-shielded, eliminating the need for a special safety zone or RF-shielded room, enabling its installation inside the NICU, and is acoustically quieter than traditional systems during scanning.

Frost & Sullivan finds the Embrace Neonatal MRI System represents a step-change in the status quo and a new approach to mitigate the risk of infection among preterm babies when moving them outside of the NICU for testing. The system promises to reduce the emotional anxiety of parents by allowing them to be present in the room and view their baby's face on a monitor along with medical staff during scanning procedures. To delight end users, the operating and maintenance costs of the Embrace MRI system are significantly lower than the currently-used superconductor MRI systems. Moreover, this breakthrough MRI system received FDA-clearance and the CE-mark in 2017, and is currently used for research purposes in Jerusalem, Israel and Boston, Massachusetts, USA.

Great Focus on Technology Incubation with Trust in Human Capital

Aspect Imaging worked with a product design consultancy firm Frog Design Inc. to create its easy-to-operate and stress-free Embrace Neonatal MRI System. The partnership focused on reducing the scanning procedure time for neonatal patients and enabling continuous care for them within the NICU before, during, and after the procedure. A team

of experts including nurses, radiologists, and other neonatal specialists were involved in the product design and development within clinical settings.

Aspect Imaging aims to support neonatologists and neuroradiologist to make accurate diagnostic decisions by delivering clinical information to them easily via connected picture archiving and communication system (PACS) servers. The system enables quick scanning of premature and critically ill term babies in the NICU immediately after birth, helping doctors to provide improved care to newborns and increase their quality of life. The company constantly acquires feedback from clinicians on their real-world use of the Embrace MRI system to develop it further and innovate as per customers' actual needs.

Aspect Imaging deeply believes in its employees and values their strengths and efforts in achieving its goal. The rich human capital at the company offers multiple services and long-term support to its customers. The technology experts and R&D specialists provide technical support to Aspect's customers either on-site or over the phone on any issue related to the MRI system. Also, the company ensures on-site technical and software training on the system. Aspect's employees specialize in superior and 24X7 customer support to minimize downtime and upgrade Embrace MRI system's performance.

Frost & Sullivan salutes the visionary spirit of Aspect Imaging's futuristic R&D team in developing the revolutionary Embrace MRI System that rightly addresses the key challenges of neonatologists for medical imaging.

Innovative Customer Acquisition Strategy to Achieve Promising Growth

The first and only FDA-approved and CE-marked MRI system dedicated to NICU, Embrace MRI System's pilot test for conducting a head MRI scan on babies was conducted in Shaare Zedek Medical Center in Jerusalem in 2017. In 2018, the system was installed in the United States at Brigham and Women's Hospital in Boston to enhance the research capabilities and neonatal neurocritical care at the hospital. End-user confidence in the Embrace Neonatal MRI System is highlighted by feedback from key stakeholders, such as Dr. Srinivasan Mukundan of Brigham and Women's Hospital, who believes that the Embrace MRI system can enhance the care provided to newborns and improve efficiency of care provided by the neonatologists.

Aspect Imaging's growth potential looks encouraging in key geographies across the globe. On the strength of its Embrace MRI system, Aspect Imaging aims to disrupt and re-define the entire neonatal medical imaging space across the globe.

Significant growth potential of Aspect has been identified by its investors, who have contributed a total of \$180 million in funding since the company's inception.

Conclusion

Premature neonatal patients are often born with critical health conditions and neurological complications. Currently-used MRI systems that scan the brain require risky transport of babies from the NICU to the radiology department, which is associated with multiple challenges such as the newborns' susceptibility to infection and the need for ventilators and temperature control mechanisms.

Aspect Imaging's Embrace solution is the only FDA-cleared and CE-marked disruptive MRI system designed specifically to perform MRI scans on critically ill babies inside the NICU, without any additional requirement for specialized ventilators or temperature control, thereby eliminating the most common fears and challenges faced by neonatologists and NICU staff. Frost & Sullivan commends the global acceptance of the Embrace MRI System in NICUs, experiencing a high unmet need for neonatal imaging validated by key leaders from the medical imaging field for improving infant care.

With its strong overall performance, Aspect Imaging Ltd. has earned Frost & Sullivan's 2020 Technology Innovation Leadership Award.

Significance of Technology Innovation Leadership

Technology-rich companies with strong commercialization strategies benefit from the demand for high-quality, technologically innovative products that help shape the brand, resulting in a strong, differentiated market position.



Understanding Technology Innovation Leadership

Technology innovation leadership recognizes companies that lead the development and successful introduction of high-tech solutions to customers' most pressing needs, altering the industry or business landscape in the process. These companies shape the future of technology and its uses. Ultimately, success is measured by the degree to which a technology is leveraged and the impact it has on growing the business.

Key Benchmarking Criteria

For the Technology Innovation Leadership Award, Frost & Sullivan analysts independently evaluated 2 key factors—Technology Leverage and Business Impact—according to the criteria identified below.

Technology Leverage

- Criterion 1: Commitment to Innovation
- Criterion 2: Commitment to Creativity
- Criterion 3: Technology Incubation
- Criterion 4: Commercialization Success
- Criterion 5: Application Diversity

Business Impact

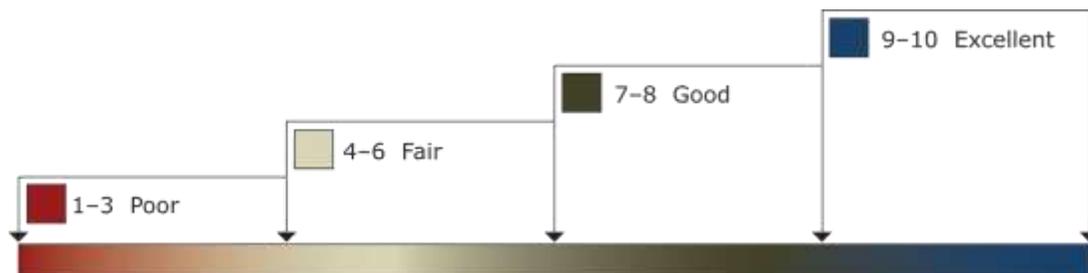
- Criterion 1: Financial Performance
- Criterion 2: Customer Acquisition
- Criterion 3: Operational Efficiency
- Criterion 4: Growth Potential
- Criterion 5: Human Capital

Best Practices Award Analysis for Aspect Imaging Ltd.

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 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 considers Technology Leverage and Business Impact (i.e., the overarching categories for all 10 benchmarking criteria; the definitions for each criterion 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, Frost & Sullivan has chosen to refer to the other key participants as Competitor 1 and Competitor 2.

<i>Measurement of 1-10 (1 = poor; 10 = excellent)</i>			
Technology Innovation Leadership	Technology Leverage	Business Impact	Average Rating
Aspect Imaging	9.8	9.7	9.8
Competitor 1	7.3	6.7	7.0
Competitor 2	5.8	6.4	6.1

Technology Leverage

Criterion 1: Commitment to Innovation

Requirement: Conscious, ongoing development of an organization’s culture that supports the pursuit of groundbreaking ideas through the leverage of technology.

Criterion 2: Commitment to Creativity

Requirement: Employees rewarded for pushing the limits of form and function by integrating the latest technologies to enhance products.

Criterion 3: Technology Incubation

Requirement: A structured process with adequate investment to incubate new technologies developed internally or through strategic partnerships.

Criterion 4: Commercialization Success

Requirement: A proven track record of commercializing new technologies by enabling new products and/or through licensing strategies.

Criterion 5: Application Diversity

Requirement: The development of technologies that serve multiple products, multiple applications, and multiple user environments.

Business Impact

Criterion 1: Financial Performance

Requirement: Overall financial performance is strong in terms of revenue, revenue growth, operating margin, and other key financial metrics.

Criterion 2: Customer Acquisition

Requirement: Overall technology strength enables acquisition of new customers, even as it enhances retention of current customers.

Criterion 3: Operational Efficiency

Requirement: Staff is able to perform assigned tasks productively, quickly, and to a high quality standard.

Criterion 4: Growth Potential

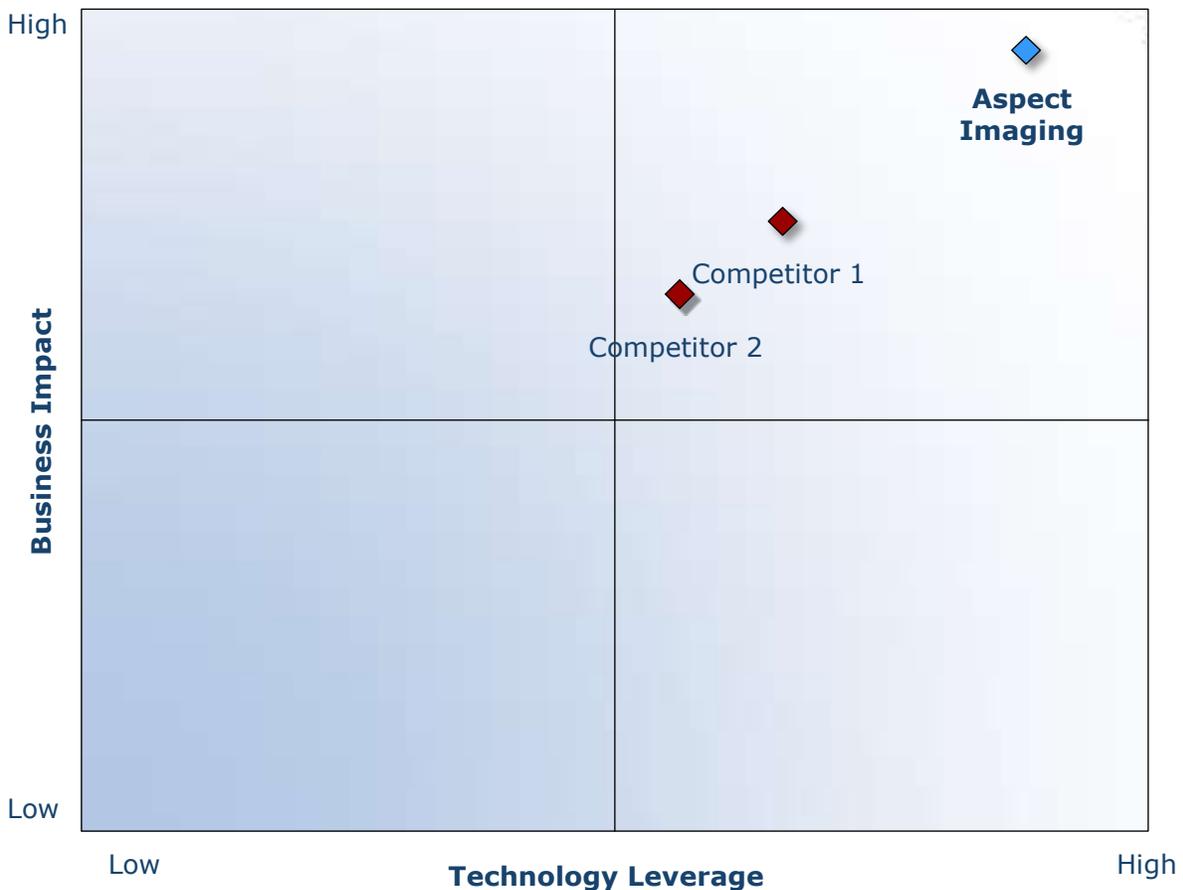
Requirements: Technology focus strengthens brand, reinforces customer loyalty, and enhances growth potential.

Criterion 5: Human Capital

Requirement: Company culture is characterized by a strong commitment to customer impact through technology leverage, which enhances employee morale and retention.

Decision Support Matrix

Once all companies have been evaluated according to the Decision Support Scorecard, analysts 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.



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

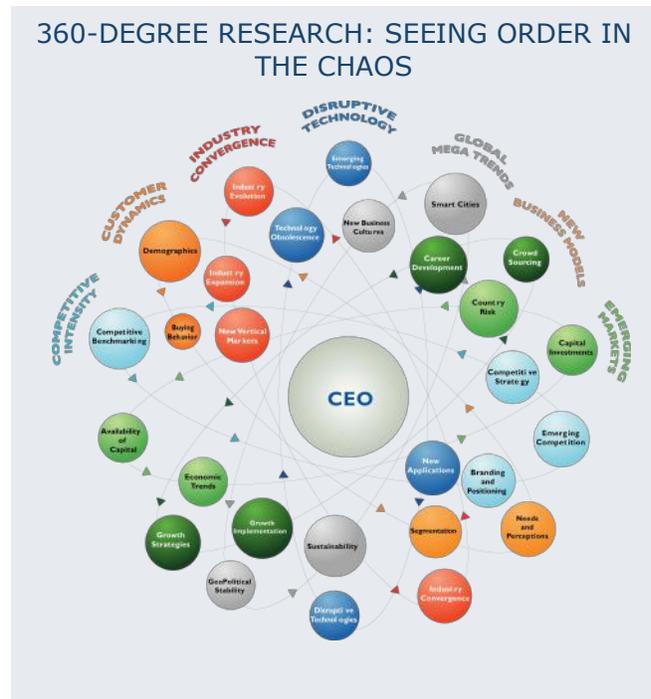
Frost & Sullivan analysts follow a 10-step process to evaluate award candidates and assess their fit with select best practices criteria. The reputation and integrity of the awards are based on close adherence to this process.

STEP	OBJECTIVE	KEY ACTIVITIES	OUTPUT
1 Monitor, target, and screen	Identify award recipient candidates from around the world	<ul style="list-style-type: none"> • Conduct in-depth industry research • Identify emerging industries • Scan multiple regions 	Pipeline of candidates that potentially meet all best practices 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 practices criteria • Rank all candidates 	Matrix positioning of 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 practices 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 practices 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 practices award recipient	<ul style="list-style-type: none"> • Review analysis with panel • Build consensus • Select recipient 	Decision on which company performs best against all best practices criteria
9 Communicate recognition	Inform award recipient of recognition	<ul style="list-style-type: none"> • Announce 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 is able to 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 strategic planning 	Widespread awareness of recipient's award status among investors, media personnel, and employees

The Intersection between 360-Degree Research and Best Practices Awards

Research Methodology

Frost & Sullivan’s 360-degree research methodology represents the analytical rigor of the 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, resulting in 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.



About Frost & Sullivan

Frost & Sullivan, the Growth Partnership Company, helps clients 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 nearly 60 years of experience in partnering with Global 1000 companies, emerging businesses, and the investment community from 45 offices on 6 continents. To join Frost & Sullivan’s Growth Partnership, visit <http://www.frost.com>.