

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

BEST PRACTICES

AWARDS

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

2020 BEST PRACTICES AWARD



MEDEZE

SOUTHEAST ASIA STEM CELL BANKING
TECHNOLOGY INNOVATION LEADERSHIP AWARD

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Letter of Congratulations

I am proud to present you with this year's award for best practices in Technology Innovation Leadership in the stem cell banking industry.

Frost & Sullivan's global teams of analysts and consultants research a wide range of markets in multiple industries and regions, and identify companies that consistently invest in new technologies to carve out a unique and defensible position in their industries. Against the backdrop of extensive primary and secondary research across the entire value chain, Frost & Sullivan is pleased to recognize Medeze as the Technology Innovation Leader in the stem cell banking industry.

Exhibiting leadership in technology is never an easy task, and it is made even more difficult considering today's competitive intensity, customer volatility, and economic uncertainty—not to mention the difficulty of innovating in an environment of escalating challenges to intellectual property. In this context, your receipt of this award signifies an even greater accomplishment.

Frost & Sullivan recognizes that this accomplishment is the result of many employees, customers, and investors making daily choices to support your organization and contribute in a meaningful way to its future.

I enthusiastically acknowledge and celebrate these achievements, and wish you great success in the future. Frost & Sullivan is here to support you on any future endeavor.

Sincerely yours,



David Frigstad
Chairman
Frost & Sullivan

Background and Company Performance

Industry Challenges

The stem cell banking market is generally segmented into three key application areas: personalized, clinical, and research and development (R&D). The growing adoption of precision medicine techniques resulting from technological advancements coupled with the rising incidence of blood and immune-related disorders seen in newborns and children have increased demand for and awareness about personalized stem cell banking, making it the fastest-growing of the 3 application segments. Personalized banking helps individuals to retain their stem cells cryogenically by storing them when they are most active.

In Southeast Asia, the main factors driving market growth include the rising awareness about stem cell banks and therapeutics, stem cells' potential life-saving ability and treatment of various diseases, and the increase in R&D activities in stem cell applications to meet the demand for chronic disease and regenerative treatment options. In addition, the expanding patient population, increasing disposable income, and growing government support for clinical trials and stem cell research further boost the regional markets' advancements. Most stem cell banking companies have realized that although interest is on the rise among some customer groups, an extensive knowledge gap remains about the importance of stem cells and their long-term health benefits. Therefore, increasing efforts are underway from various industry players to create more awareness about the power of stem cells and to introduce multiple innovative medical technologies and related services within the industry.

Technology Leverage and Business Impact

Medeze began operations in 2010 in Thailand to offer cord blood banking, cord tissue banking, and adipose tissue banking services. Medeze is one of the most experienced mesenchymal stem cell (MSC) banks within Southeast Asia. With ten regional branches (i.e., Thailand, Singapore, Vietnam, Myanmar, Indonesia, South Korea, Taiwan, Cambodia, New Zealand, and Australia), the company is involved in the full spectrum of stem cell research with its R&D department focused on assisting researchers and scientists in evolving the field of advanced regenerative medicine that could become crucial in saving lives.

Commitment to Innovation & Commercialization Success

Medeze has implemented various growth strategies to achieve its vision of becoming a leader in the stem cell banking and regenerative medicine market. In fact, Medeze has demonstrated first-to-market solutions for the application of cord MSCs within Southeast Asia. Some of its successful innovative applications include the following:

Mesenchymal stem cells (MSC): Apart from hematopoietic stem cells derived from cord blood, the company was the first bank in the region to store MSC derived from placenta, cord tissue, and adipose tissue, which are useful in regenerative medicine and tissue

engineering. MSCs are the best source of tissue regeneration, wound healing, and cell substitution resulting from physiological or pathological causes.

Early amniotic fluid collection: In 2019, Medeze was the first company in Southeast Asia to usher in medical technology breakthroughs by collecting the amniotic fluid stem cells from a woman just four months pregnant. Amniotic fluid is a rich source of collective stem cells, a mix potentially useful in cell therapy and regenerative therapies or as a suitable solution for patients who wish to eliminate the chances of surgery. By enabling these innovative applications, Medeze has moved faster than its competitors in penetrating new markets and is highly committed to making strategic investments towards its vision of becoming the leader in stem cell banking and regenerative stem cell therapy in the region.

Breakthrough noninvasive prenatal test (NIPT): In 2018, Medeze introduced the first NIPT for determining a fetus's risk of being born with certain genetic abnormalities; it has since successfully captured about 70% (as of March 2019) of market share in Thailand for this segment after one year of introduction. NIPT is a recent technology that provides some genetic information about a fetus through the analysis of cell-free fetal DNA circulating in maternal blood. The introduction of NIPT for fetal aneuploidies is currently changing the field of prenatal screening in many countries. As it is noninvasive, safe, and accurate, this technique allows for a broad implementation of first-trimester prenatal screening, which raises ethical issues related, for instance, to informed choice and adverse societal consequences. This test is one of the essential steps in providing security; prenatal testing ensures that customers stay informed about their pregnancy status, which gives customers peace of mind as NIPT is most commonly used to search for chromosomal abnormalities.

Beyond these innovative stem cell applications, Medeze has experienced success in stem cell therapy for osteoarthritis, rheumatoid arthritis, cirrhosis, and other degenerative diseases, and has successfully delivered quality services with more than 97% customer satisfaction. Frost & Sullivan identifies that because of the company's strong scientific expertise, it has successfully advanced numerous promising technologies quickly into clinical practice, which resulted in gaining market leadership in technical stem cell innovation.

Technology Incubation & Application Diversity

Medeze upholds its pioneering role across Southeast Asia largely by investing significantly in R&D efforts focused on delivering innovative stem cell therapies intended to help families safeguard their future. For example, one of its services is providing immunotherapy to families with a history of cancer, through its Natural Killer (NK) cell treatment that aims to provide increased immunity and preventive abilities. Also, the company's R&D division, Singapore Medical Innovative Technology Pte Ltd (SMIT), is developing cornea from stem cells and expects to have success in 2 years. Through this new development, the company aims to build on advanced stem cell sciences and

nanotechnologies, and to turn these innovations into goods that preserve and enhance acuity of vision.

Moreover, the company has formed partnerships with various established stakeholders and private education organizations to advance diverse applications of stem cells, including universities in Japan (Jo Chi Medical University), Singapore (Nanyang Technology University), and Thailand (Chulalongkorn University) that support its R&D in regenerative stem cell therapies. Moreover, Medeze has cooperated with Tokyo University in Japan to perform a human clinical trial on hair growth using autologous stem cell hair follicles, the results of which were published in a research paper in 2018. In Thailand, the company has supported clinical trials at Pramongkut Medical College on osteoarthritis treatment using stem cells, and it formed a strategic partnership with Mae Fah Luang University's School of Medicine to research follicle hair stem cells for the treatment of baldness in men. The company's continuous initiatives in broadening its stem cell banking services and strong commitment and investment in developing regenerative therapies through various research partnerships position Medeze as a reliable and fast-growing competitor in the Southeast Asian market.

Growth Potential & Customer Acquisition

The company has exercised several competitive strategies that drive customer numbers and help fortify their loyalty. For instance, Medeze is the only company in the world that guarantees the quality of the stem cells banked by offering to reimburse customers ten times the service fee if the quality of the cells drops by 10%. Medeze also provides storage services for 60 years, instead of the standard 20 or 25 years that is commonly practiced in the industry. With these best practices in place, Medeze continually receives positive customer feedback across all countries served, indicating their satisfaction and love for its services. Also, customers comment on seeing improvement in the health of their family members.

As competition increases, market players are expanding into new geographies to tap opportunities in neighboring developing markets. In 2019, Medeze reported customer growth of more than 50%, which encouraged it to expand further in other countries. Cognizant of growth opportunities in the region, Medeze expanded into Singapore, Myanmar, and Vietnam. Vietnam has shown tremendous uptake with nearly 100% growth in the last 4 years. In 2017, the company established its presence in Indonesia and Cambodia. The next stop will be Dubai.

Frost & Sullivan finds Medeze has moved faster than its competitors in penetrating new markets and is highly committed to making strategic investments to attain its vision of becoming the leader in the region's stem cell banking and regenerative stem cell therapy sector. Additionally, as a network with laboratories in many countries, the company allows its customers to choose where they would like to store their stem cells as well as provides back-up banking in alternate countries so that in case of a severe crisis, customers' stem cells remain safe. As part of its business growth plans, Medeze plans to be listed as a public company in October 2021.

Although the development of therapeutics based on stem cells and their function is gaining traction worldwide, public awareness remains lacking in Southeast Asia. Taking a proactive step ahead, the company has established the Medeze Foundation to operate as a learning and knowledge sharing medium that supports the exploration of current technological advances and successful medical innovations that propel stem cell industry growth. More and more initiatives designed to raise public awareness about the medical benefits of stem cells have had a positive impact on industry growth. As such, enhancing knowledge and understanding of stem cell applications is a key approach the Medeze Foundation utilizes to engage with stakeholders at all levels. For instance, providing regular updates on stem cell applications, new services, stem cell utility development, and relevant industry news to its prospective and existing customers through various digital platform channels, such as Facebook and Instagram, supporting hospitals in all marketing events, and placing LED monitors and advertising the Medeze brand at the entrance of antenatal clinics are some of the initiatives implemented to increase awareness about stem cell benefits and to enhance the company's brand image.

Conclusion

Medeze stands out amidst Southeast Asia's stem cell banking competition for its firm commitment to upholding industry-leading quality and international standards, high rate of customer satisfaction, and future-focused initiatives not only in stem cell storage but through development of clinical applications and research. Medeze has successfully become the first provider of various innovative stem cells services, such as MSC banking, early amniotic fluid collection, and NIPT. Also, it has widened its footprint across Southeast Asia through various research partnerships in Singapore, Thailand, and Japan that have propelled the company to become a well-reputed, innovative, and fast-growing player in the market.

For its strong overall performance, Medeze has earned Frost & Sullivan's 2020 Southeast Asia Stem Cell Banking 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

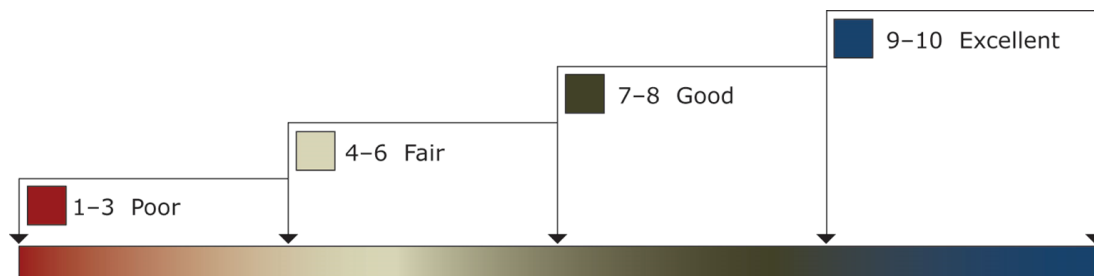
- Criterion 1: Financial Performance
- Criterion 2: Customer Acquisition
- Criterion 3: Operational Efficiency
- Criterion 4: Growth Potential
- Criterion 5: Human Capital

Best Practices Award Analysis for Medeze

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
Medeze	9	9	9
Competitor 1	8	8	8
Competitor 2	7	7	7

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

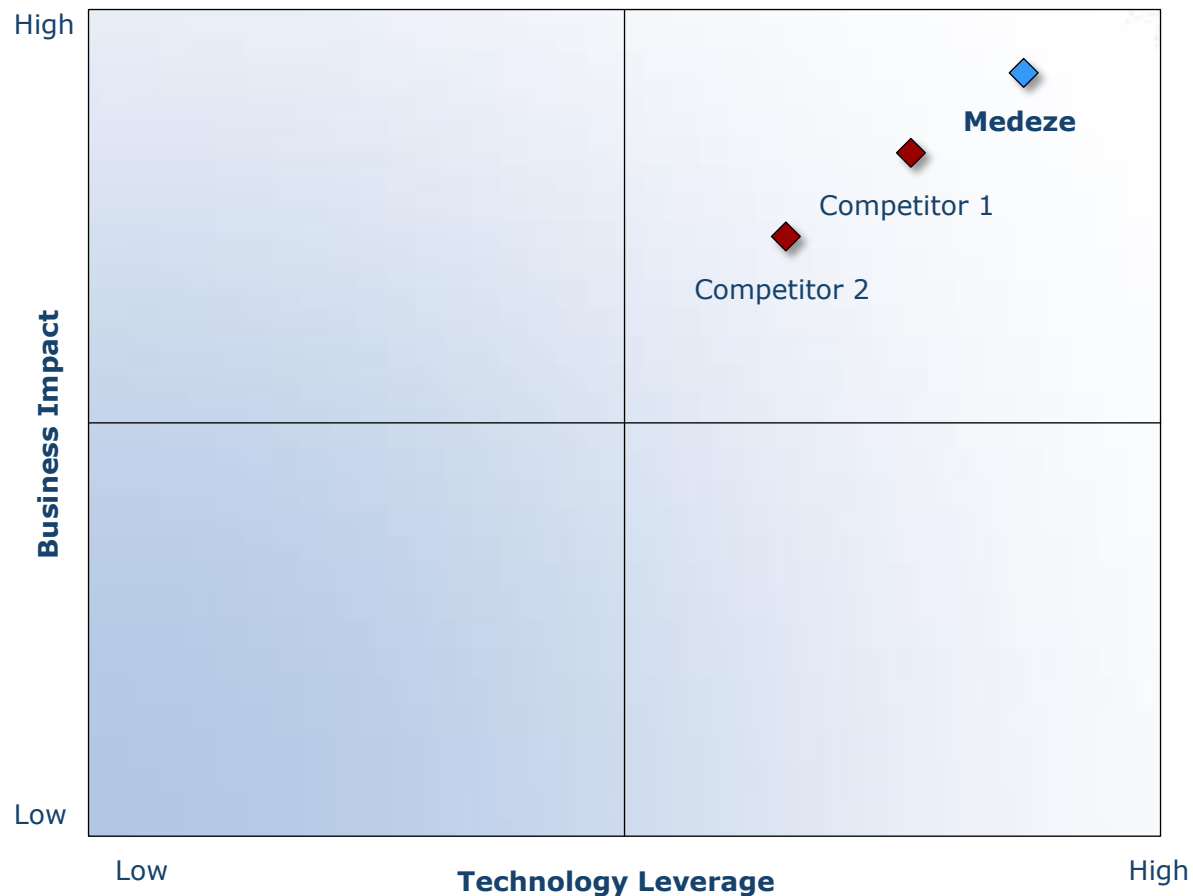
Requirements: Technology focus strengthens brand, reinforces customer loyalty, and enhances growth potential.

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.

360-DEGREE RESEARCH: SEEING ORDER IN THE CHAOS



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>.

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