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2014

LifeBot®

2014 North American Portable Telemedicine Solutions
New Product Innovation Leadership Award

FROST & SULLIVAN

50 Years of Growth, Innovation & Leadership

Background and Company Performance

Industry Challenges

The telehealth industry consists of an ecosystem of different markets stemming from the converging interests of information communication technologies (ICT) and healthcare, including video telemedicine, remote patient monitoring, and mHealth.

Telemedicine is remotely directed patient care through use of information and communication technologies, including audio, video, and data transfer. Telemedicine is evolving from a research topic to a valuable and practical application of modern healthcare services due to the increase in global healthcare expenditure, aging populations, and the proliferation of the Internet.

While the use and application of telemedicine will more than double within the next three to five years, the changing landscape in healthcare finance and reimbursement not only provides opportunities for, but also provides barriers for new healthcare technologies. The lack of a defined rationale for the reimbursement for the application of telemedicine technology is the largest barrier preventing it from assuming a sanctioned place at the accepted and approved mainstream of healthcare delivery.

One significant cost-saving opportunity faced by the healthcare industry is in the avoidance of non-reimbursable patient transport by emergency medical service (EMS) personnel. Payers, including Medicare, Medicaid, and private insurance, are increasingly denying reimbursement for transports for patients that are deemed unnecessary; those patients who could be treated by EMS personnel in the field. However, emergency room (ER) physicians and EMS personnel face significant liability for not admitting the patient into the emergency room. The ability to ensure a proper assessment of the patient in the field could help to mitigate this challenge.

Visionary Innovation and Product Excellence of LifeBot, LLC

Unmet Needs

The healthcare industry has largely been a physician-driven industry, not a process-driven industry. With the Affordable Care Act (ACA) and other changes, healthcare is slowly moving towards a process-driven industry. Physicians, who are resistant to telemedicine, are not comfortable making remote patient decisions without all of the supporting information. To effectively use remote telemedicine for consultation and triage, infrastructure and data transfer reliability is of the utmost importance. This resistance is expected to gradually reduce as healthcare shifts towards value based care and telemedicine technology continues to evolve.

LifeBot, LLC (LifeBot), a telemedicine solutions company, launched the LifeBot 5 commercially in April of 2013. The LifeBot 5, the world's smallest, lightest, and most advanced telemedicine system, promises to revolutionize the way remote care is delivered by reducing the risks and costs of deploying telemedicine systems communications in rural, urban, and underserved areas. It is based on technology called Disaster Relief and Emergency Medical Services (DREAMS), an exclusive patented and military developed technology for healthcare.

The LifeBot 5 is fully portable, mobile, ruggedized, and integrated. Weighing around 18 to 25 lbs., the LifeBot 5 and all of its functionalities can be used almost anywhere, from remote jungles to patients' homes around the globe.

The LifeBot 5 is the only portable telemedicine system with an intelligent communications manager (ICM), a critical wireless connectivity management system developed through the DREAMS project. The ICM manages 4G, 3G, LTE, WiMax, cellular, Wi-Fi, satellite, and military data radio connections automatically, aggregating all available bandwidth, in order to provide efficacy in very low-bandwidth situations. The ICM's bandwidth management extends to the interactive video functionality. Even in challenging bandwidth environments, the ICM allows a remote specialist to select an area of particular interest on the patient, providing high definition imagery of the selected area.

The data transmission is secure, using Advanced Encryption Standard (AES), in order to meet Health Insurance Portability and Accountability Act (HIPAA) standards. If the connection is lost, the data is automatically saved. Upon reconnecting, the most critical life-saving data is transmitted first. This is a key differentiator of this product in terms of value.

Most medical monitoring systems control the chemical and physiological raw data created by their medical devices, whether it is a medical monitor or intensive care unit (ICU) monitor. Often times, the data output is transmitted in the form of a video or an image file requiring a large amount of bandwidth, which makes mobile communications difficult. The LifeBot 5's ICM transmits the raw data, which makes mobile communications and integration easier for the receiver.

Unlike most telemedicine platforms that simply provide voice and video feeds, the LifeBot 5 provides direct patient connection and full physiological monitoring. Physiologic data feeds include electrocardiogram (ECG), 12-lead STEMI, blood gases, ultrasound, electronic patient call report (e-PCR), electronic health record (EHR), blood pressure, live clinical waveform, NIBP, dual invasive blood pressure, SpO2 with plethysmogram, etCO2 with capnogram, tpCO2, dual temperatures, etc.

LifeBot 5 has a unique functionality as the monitoring device which integrated into its communication solution, providing the system with more flexibility when e-mailing a 12-lead ECG. Patients can store it as part of their medical record and do not have to purchase these ECGs. LifeBot can provide this service as it has its own in-house medical record

system.

Use of Mega Trends

Telehealth refers to the provision of medical and health services at a distance, through the use of advanced communication technologies. The very ambiguity in this definition lends telehealth its scope that ranges from extremely physician-focused clinical and/or diagnostic platforms to completely consumer-driven wellness applications. While the physician end of the spectrum is symbolized by an acute care setting, where clinical telemedicine is managed and delivered by medical professionals, consumer-driven applications are owned and operated by individuals who may or may not have a healthcare background.

The 'Triple Aim' for healthcare is a fundamental concept articulated in the Affordable Care Act (ACA), which is to manage a defined population's health, continually strive to improve the experience of care, and learn to control the per capita costs of healthcare across a continuum by moving to more accountable care. The end goal of telehealth matches the 'Triple Aim' concept in ACA; to enable individuals to take greater responsibility for their own health and be more actively involved in managing their health. Involvement is not restricted to the individual patient alone but extends to all care-givers who are directly concerned about the patient.

The drivers for the adoption of telehealth solutions include: cost savings, access to care, improved efficiency, and improved outcomes. With the Telehealth Promotion Act of 2012– a bill that represents a solution for federal involvement in telemedicine, along with incentives in the recovery act for doctors and hospitals to shift to electronic records, barriers are eliminated and opportunities are created for remote healthcare. With such movement by the government, for the first time in 20 years of telemedicine technology advances, a new marketplace and platform for innovation in telemedicine has presented itself.

Match to Needs

From top domestic healthcare executives to users in developing countries, all customers have expressed the desire for portable, mobile, and integrated mobile telemedicine solutions. The LifeBot 5 is an effective solution to help improve the quality of treatment by EMS personnel, transmit lifesaving information to ER physicians ahead of arrival, and reduce non-reimbursable patient transport in a way that helps to minimize liability.

The LifeBot 5 displays high quality of conformance. The system is modular and scalable as a result of a customer-centric quoting process, where customers choose the platform and communications that they want integrated. LifeBot is currently leveraging the successful development of the LifeBot 5 toward the creation of a mobile micro-hospital, a platform driven by customer demand and direct input. The funding will be provided by the Harris Foundation and the Paul Mark Turk Charitable Foundation to modify the LifeBot 5 into a

mobile micro-hospital to support medical missionaries in developing countries.

The mobile micro-hospital will share much of the Lifebot 5's core technology. It will be a main communications hub with telecommunications support, an input station, and a pharmacy station. If deployed in a developing country, it can serve as a micro-hospital, providing remote support for core medical, dental, and pharmaceutical activities. In essence, the mobile micro-hospital can deliver the vast majority of modern technology found in a medical clinic in the United States, serving as the hub that manages the communications for a wide variety of medical applications. Rather than build a stationary medical facility in a rural village, a mobile micro-hospital can be quickly deployed by a mobile medical team at the site of the patient, with the ability to remotely access specialists from around the globe.

The micro-hospital concept is ideal for disaster response because the LifeBot 5 is a fully portable device. In distressed areas, post disaster, they may be instantly deployed in scale to respond to not only the simplest of human health needs, but also for the most demanding life-saving requirements.

Aspirational Ideals

The LifeBot 5 is more affordable than most existing mobile telemedicine systems with less functionality, beginning at under $20,000. The company set a more affordable price point in order to be a viable option to serve developing countries and underserved communities within the United States.

A forward-looking company, LifeBot understands reimbursement policies are changing. Controlling cost and minimizing non-reimbursable expenses have become increasingly critical. With the rise of the use and application of telemedicine solutions, LifeBot offers a small, lightweight, self-contained, multidisciplinary, and cost-effective telemedicine solution for mobile integrated healthcare and community paramedicine.

Product/Service Value

LifeBot's differentiation strategy lies in its advanced technology and modular design. The ICM aggregates the bandwidth of 3G, 4G, cellular, satellite, and data radio with HIPAA security. In August 2011, LifeBot obtained a worldwide exclusive licensing agreement for DREAMS, placing the company far beyond any other company that develops emergency and disaster management systems. The LifeBot 5 also has the first live ePCR system built-in so that web browser interfaces are integrated to provide ready access to existing web-based ePCR systems and EHR systems.

Complete call reports, including 12-lead ECG reports, can be generated in portable data file (PDF) formats, which may be easily attached directly to patient records. The platform is ideal for achieving health information exchange (HIE) objectives for use by accountable care organizations' (ACO) viewing for timely reimbursement.

The LifeBot 5 was designed modularly to provide added value to healthcare customers. Since the LifeBot 5's design is modular and scalable, it enables the company to upgrade subset component parts when they become available without having to go through an entire redesign. If there is a particular upgrade, whether hardware or software, customers do not need to purchase a subsequent version. Instead, the company will inform customers once a particular upgrade is available so that the upgrade can be added.

Design

Unlike most existing systems, the LifeBot 5's modular design allows the system to be modified to fit the specific needs of the organization rather than the organization changing to meet the design of the technology. Multiple LifeBot 5 systems were also designed to be able to communicate with one another, allowing for collaborative efforts on difficult procedures.

The LifeBot Interceptor on the LifeBot 5 is an on-board medical electronics module that allows for direct patient connection and full physiological monitoring. The system offers a 10.2 inch diagonal display, which eliminates the need for a separate monitor. Other portable features include: ruggedized weatherproof military specifications, 12.1 inch durable glass display, sunlight surviving display, reverse lighted slim keyboard, and stylus with storage.

The LifeBot 5 was designed to be readily adaptable to new technologies and easily upgraded, while taking customer's budgets into consideration. Future upgrades include patient record lookup and edit, central data repository server, electronic stethoscope, hands-free audio system, video laryngoscope, and fully integrated ultrasound, to name a few.

Costs of Deployment and Scalability

Critical to containing the costs of deployment of telemedicine systems is scalability and the speed or efficiency at which deployments may successfully occur. It should have minimal impact on personnel training requirements. Most telemedicine solutions utilize multiple separate devices to meet their needs, but not the LifeBot 5. The LifeBot 5 is a fully integrated mobile solution that minimizes related costs with just one system. This eliminates the needs for training of personnel on multiple connected, but separate, medical devices. Multiple devices also cannot be put into use as quickly and efficiently as a single unified system which is fully scalable. In addition, they often require separate maintenance programs from different manufacturers which may also increase ongoing recurring expenditures.

Conclusion

The ACA, changing healthcare business models, ACO, and customers are all driving telemedicine innovation and adoption in the United States. ACOs are financially incentivized to provide a higher quality of care at a lower cost, which helps push telemedicine solutions. Similarly, payers are also incentivized to provide high-quality care, while controlling costs. Lastly, patients are becoming increasingly alarmed at rising healthcare costs and, as a result, are becoming more cognizant of their health and exhibit greater desire of managing their health conditions more effectively.

With the shift in healthcare delivery and philosophy come unprecedented opportunities to establish telemedicine as an integral part of a more effective healthcare organization in the United States and beyond. Telemedicine platforms such as LifeBot 5 have been developed with fully integrated solutions that are coherent with the healthcare reform process to become a major contributor in providing solutions for stakeholders by creating answers for the integration, effectiveness, and efficiency of the medical care system. Because of this, Frost & Sullivan is proud to present LifeBot, LLC with the 2014 North American New Product Innovation Leadership Award for Portable Telemedicine Solutions.

Significance of Product Innovation Leadership

Ultimately, growth in any organization depends upon continually introducing new products to the market, and commercializing those products to the greatest extent possible. For these dual goals to occur, a company must be best-in-class in three key areas: understanding demand, nurturing the brand, differentiating from the competition. This three-fold approach to delivering Product Innovation Leadership is explored further below.

- Acquire competitors' customers
- Increase renewal rates
- Increase upsell rates
- Build a reputation for value
- Increase market penetration

- Earn customer loyalty
- Foster strong corporate identity
- Improve brand recall
- Inspire customers
- Build a reputation for creativity

DEMAND

BRAND

New Product Innovation Leadership

COMPETITIVE POSITIONING

- Stake out a unique market position
- Promise superior value to customers
- Implement strategy successfully
- Deliver on the promised value proposition
- Balance price and value

Understanding Product Innovation Leadership

Ultimately, innovation is about finding a productive outlet for creativity – for translating ideas into things people want to buy, and doing it over and over again. Even a very good idea – or even a series of very good ideas –will amount to nothing without successful implementation at each stage of development and commercialization.   Creativity and implementation are therefore two sides of the same coin, as explored further below.
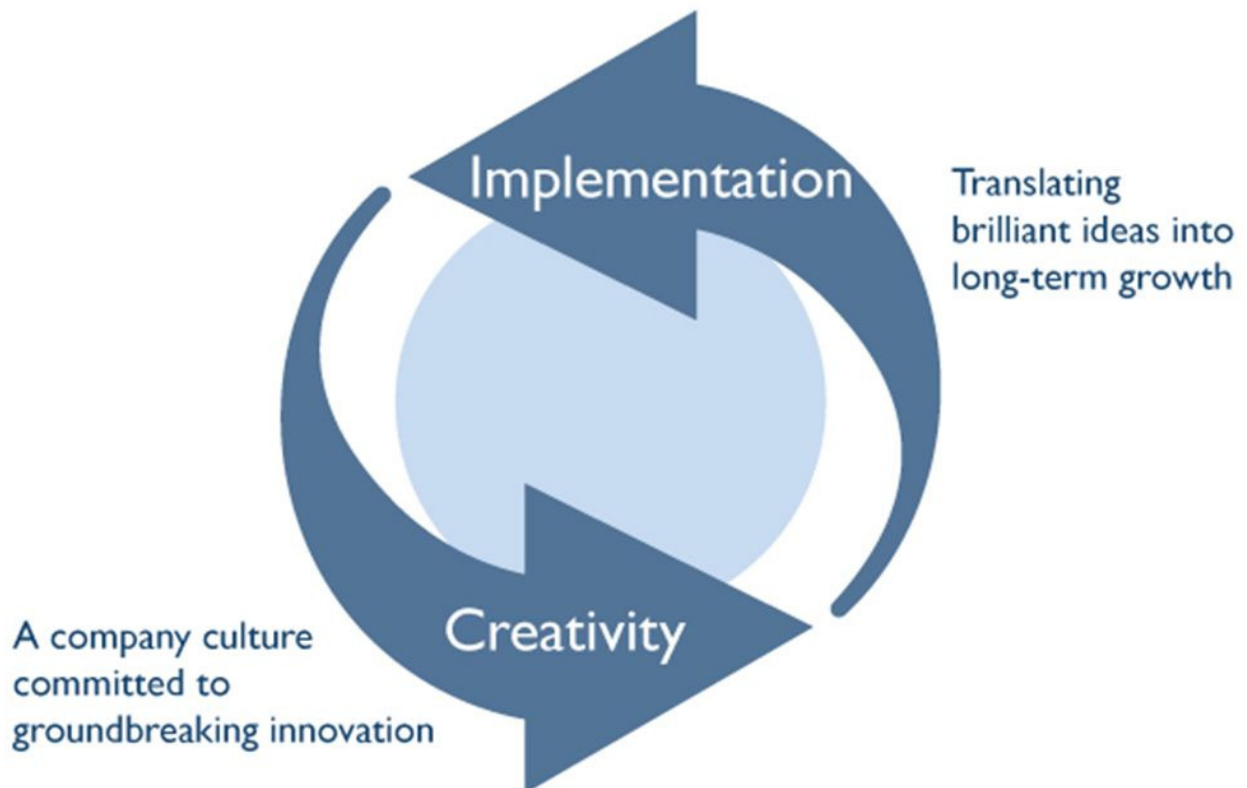
Frost & Sullivan's Global Research Platform

Leveraging more than 50 years of experience, Frost & Sullivan is 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, a holistic research methodology that encourages us to consider growth challenges, and the solutions companies employ to solve them, from every angle. This unique approach enables us to determine how best-in-class companies worldwide manage growth, innovation and leadership. Based on the results of our research in product innovation leadership, Frost & Sullivan is proud to present the 2014 North American New Product Innovation Leadership Award in portable telemedicine solutions to LifeBot, LLC.

Key Benchmarking Criteria

For the New Product Innovation Leadership Award, we evaluated the total client experience and strategy implementation excellence according to the criteria detailed below.

Visionary Innovation

     Criterion 1: Unmet Needs
     Criterion 2: Use of Mega Trends
     Criterion 3: Pioneering Best Practices
     Criterion 4: Blue Ocean Strategy
     Criterion 5: Aspirational Ideals

Product Excellence

     Criterion 1: Match to Needs
     Criterion 2: Reliability and Quality
     Criterion 3: Product/Service Value
     Criterion 4: Positioning
     Criterion 5: Design

# 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

360-DEGREE RESEARCH: SEEING ORDER IN THE CHAOS

platform for benchmarking industry players and for identifying those performing at best-in-class levels.

Decision Support Scorecard and Matrix

To support its evaluation of best practices across multiple business performance categories, Frost & Sullivan employs a customized Decision Support Scorecard and Matrix. This analytical tool compares companies' performance relative to each other. It 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. This tool allows our research and consulting teams to objectively analyze performance, according to each criterion, 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.

9–10 Excellent
7–8 Good
4–6 Fair
1–3 Poor
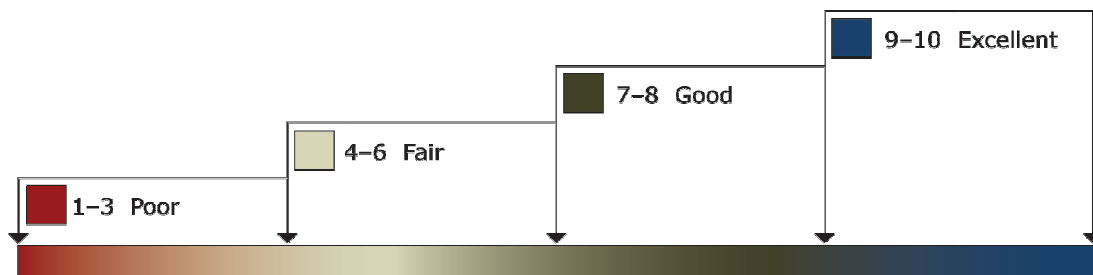
Best Practice Award Analysis for LifeBot, LLC

Decision Support Scorecard: Visionary Innovation

The Decision Support Scorecard, shown below, includes all performance criteria and illustrates the relative importance of each criterion and the ratings for each company under evaluation for the New Product Innovation Leadership Award. 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.

Finally, to remain unbiased and to protect the interests of all organizations reviewed, we have chosen to refer to the other key players in as Company 2 and Company 3.

DECISION SUPPORT SCORECARD FOR THE NEW PRODUCT INNOVATION LEADERSHIP AWARD: VISIONARY INNOVATION

Measurement of 1–10 (1 = poor; 10 = excellent)	Award Criteria					
Visionary Innovation	Unmet Needs	Use of Mega Trends	Pioneering Best Practices	Blue Ocean Strategy	Aspirational Ideals	Weighted Rating
Relative Weight (%)	20%	20%	20%	20%	20%	100%
LifeBot, LLC	10.0	10.0	9.0	9.0	10	9.6
Company 2	9.0	9.0	9.0	9.0	8.0	8.8
Company 3	8.0	8.5	8.0	8.0	8.0	8.1

Criterion 1: Unmet Needs
Requirement: A clear understanding of customers' desired outcomes, the products that currently help them achieve those outcomes, and where key gaps may exist

Criterion 2: Use of Mega Trends
Requirement: Ability to incorporate long-range, macro-level scenarios into strategic plans, thereby anticipating and preparing for multiple futures that could occur

Criterion 3: Pioneering Best Practices
Requirement: A nothing-ventured-nothing-gained approach to strategy implementation that results in processes, tools, or activities that generate a consistent and repeatable level of success.

Criterion 4: Blue Ocean Strategy
Requirement: Proven track record of creating new demand in an uncontested market space, rendering the competition obsolete

Criterion 5: Aspirational Ideals
Requirement: A willingness to look beyond the simple goal of generating a profit to embrace a more powerful ideal of bringing greater value to customers or the planet

Decision Support Scorecard: Product Excellence

DECISION SUPPORT SCORECARD FOR THE NEW PRODUCT INNOVATION LEADERSHIP AWARD: PRODUCT EXCELLENCE

Measurement of 1–10 (1 = poor; 10 = excellent)	Award Criteria					
Product Excellence	Match to Needs	Reliability and Quality	Product/Service Value	Positioning	Design	Weighted Rating
Relative Weight (%)	**20%**	**20%**	**20%**	**20%**	**20%**	**100%**
LifeBot, LLC	10.0	9.0	10.0	9.0	10.0	9.6
Company 2	9.0	8.25	8.5	9.0	8.0	8.55
Company 3	8.0	80	8.0	8.0	8.0	8.0

Criterion 1: Match to Needs
Requirement: Customer needs directly influence and inspire a product's design and positioning

Criterion 2: Reliability and Quality
Requirement: The product consistently meets or exceeds customer expectations for performance and length of service

Criterion 3: Product/Service Value
Requirement: Products or services offer the best value for the price, compared to similar offerings in the market
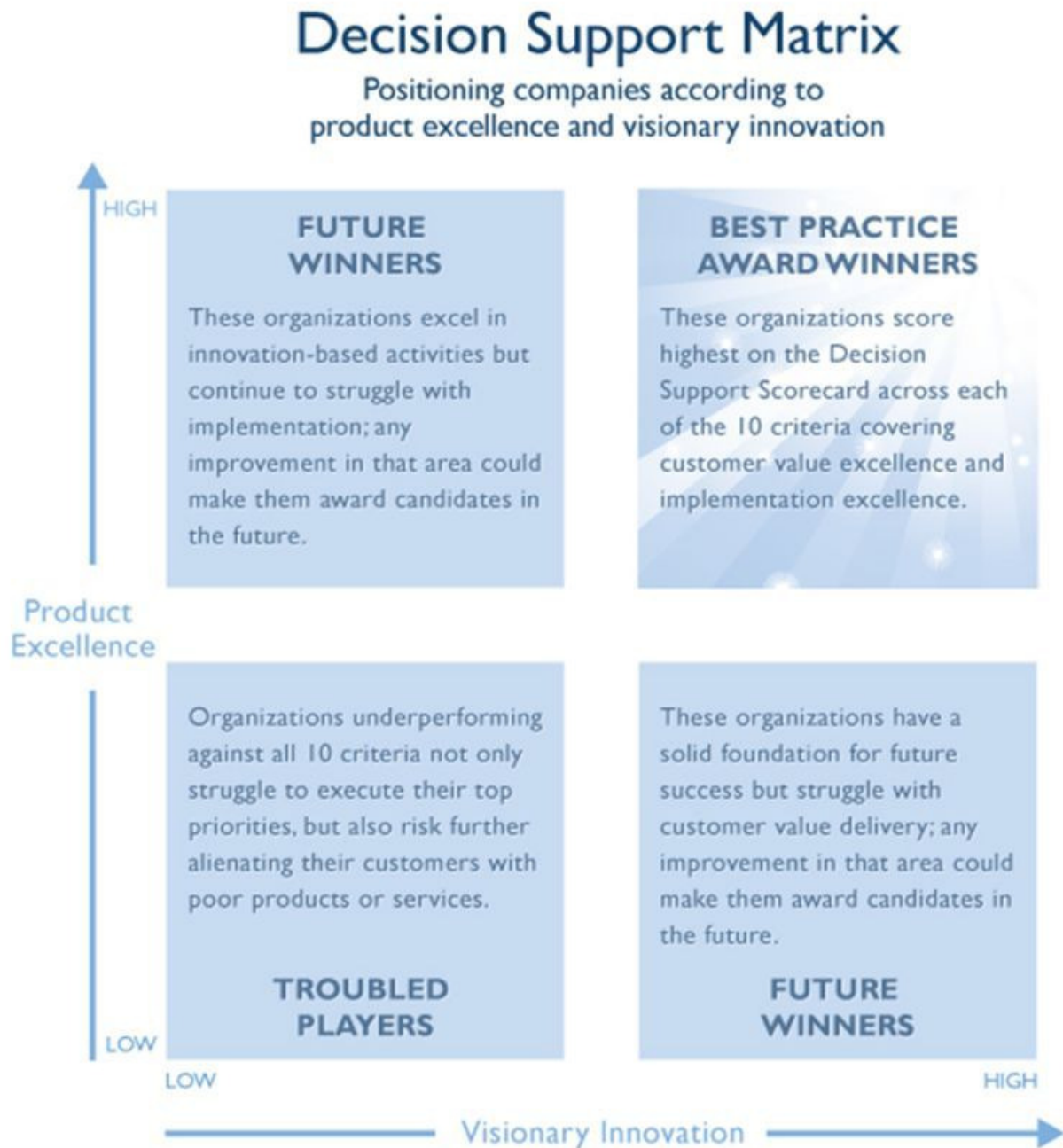
Criterion 4: Positioning
Requirement: The product or service delivers a unique, unmet need that competitors cannot easily replicate or replace

Criterion 5: Design
Requirement: The product's visual presentation makes it easy to use, and makes customers happy to use it

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 are not yet operating at best-in-class levels.

Decision Support Matrix

Positioning companies according to product excellence and visionary innovation

Product Excellence (vertical axis, LOW to HIGH)
Visionary Innovation (horizontal axis, LOW to HIGH)

FUTURE WINNERS (High Product Excellence, Low Visionary Innovation)

These organizations excel in innovation-based activities but continue to struggle with implementation; any improvement in that area could make them award candidates in the future.

BEST PRACTICE AWARD WINNERS (High Product Excellence, High Visionary Innovation)

These organizations score highest on the Decision Support Scorecard across each of the 10 criteria covering customer value excellence and implementation excellence.

TROUBLED PLAYERS (Low Product Excellence, Low Visionary Innovation)

Organizations underperforming against all 10 criteria not only struggle to execute their top priorities, but also risk further alienating their customers with poor products or services.

FUTURE WINNERS (Low Product Excellence, High Visionary Innovation)

These organizations have a solid foundation for future success but struggle with customer value delivery; any improvement in that area could make them award candidates in the future.

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.