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BEST PRACTICES

AWARDS

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2020 BEST PRACTICES AWARD

AIRSYS

2020 GLOBAL COOLING SOLUTIONS
CUSTOMER VALUE LEADERSHIP AWARD

Contents

Background and Company Performance	3
<i>Industry Challenges</i>	3
<i>Customer Impact and Business Impact</i>	3
<i>Conclusion</i>	7
Significance of Customer Value Leadership	8
Understanding Customer Value Leadership	8
<i>Key Benchmarking Criteria</i>	9
Best Practice Award Analysis for Airsys	9
<i>Decision Support Scorecard</i>	9
<i>Customer Impact</i>	10
<i>Business Impact</i>	10
<i>Decision Support Matrix</i>	11
Best Practices Recognition: 10 Steps to Researching, Identifying, and Recognizing Best Practices	12
The Intersection between 360-Degree Research and Best Practices Awards.....	13
<i>Research Methodology</i>	13
About Frost & Sullivan	13

Background and Company Performance

Industry Challenges

One of the critical challenges in the global cooling solutions industry is related to energy efficiency. End users are highly concerned about both CAPEX and OPEX involved with cooling solutions where “total cost of ownership” has emerged as a prominent driver for purchase of cooling equipment. This is true for end user applications across the board. Several data centre operators seek to reduce the operating costs by reducing the amount of energy needed to run data centres. As cooling takes up more than 40% of the power required to run a data centre, several operators are resorting to free cooling or the use of natural cooling. The other pressing challenge is pertaining to the reliability and availability of the cooling units. It is vital for cooling solution providers to come up with products that offer high reliability while also offering considerable amount of energy savings.

Customer Impact and Business Impact

Focus on Technology and Innovation to Drive Price/Performance Value

Airsys’ deep understanding of end user needs and specific requirements is the foundation of its product development process. The company’s excellence in the cooling market can primarily be attributed to its ability to develop products that perfectly align not only with customers’ current expectations but also anticipated future requirements. This is due to the simple fact that its product designs are directly inspired and influenced by evolving customer needs. Airsys is always ahead of the competition when it comes to identifying/analyzing market trends and developing products and solutions that effectively address customer frustrations and unmet needs; ultimately enhancing customer value. By evaluating its core strengths and by investing in functionalities highly valued by the end users, Airsys has developed a distinguished set of core competencies. This includes delivering highly reliable and energy efficient cooling products embedded with intelligent controls. It is able to achieve this by leveraging a combination of cutting edge technologies and industry leading manufacturing best practices; eventually offering its customers the best of both worlds – best value in CAPEX and low OPEX.

Airsys’ UNICOOL, a next generation wall packaged unit (WPU) employing a variable speed compressor is a perfect testament of the company’s commitment to creating new standards in energy efficiency and reliability; thereby matching the evolving demands of a networked environment. The UNICOOL WPU has been specifically designed for IT and telecom environments where the focus on cooling capacity has been completely shifted towards sensible heat removal. It is noteworthy that the company’s inverter driven technology is not just a run of the mill variable speed drive; it actually employs a unique technology that leverages brushless DC motors that significantly cut down electrical noise, brush wear/residue and risks of sparking, and eventually enhancing overall system reliability.

UNICOOL is loaded with a comprehensive set of value adding features and functionalities, key highlights include – Precise Heat Load Match which reduces sudden loading and unloading of the compressor and thus contributing to extended lifetime and reliability of

the overall system; a synchronized cooling mode function which allows buildings with redundant units to achieve 14-16 EER while maintaining full redundancy (with exception of emergency situations). Other prominent value additions include, integrated free cooling economizer as a standard on all units, extreme temperature ranges allowing for operation between -35°C and 55°C, dual layer exterior protection, power monitoring and EC supply fans that further enhance energy efficiency and enables the unit to deliver high volumes of air even during high external resistance within the air ducts. The UNICOOL system also employs a unique Electronic Expansion Valve (EEV) function that responds swiftly and adapts according to environmental changes and cooling system feedback. By monitoring aspects such as real-time compressor suction temperature and pressure, the EEVs are able to precisely adjust the opening to control the superheat. On the other hand, Airsys' patented AFPD (Air Filter Protection Device) offers end users a two pronged benefit; it optimizes free cooling efficiency and reduces maintenance costs. Furthermore, the UNICOOL system has the ability to operate in conjunction with Airsys' "Intelligent Multi-Unit Controller" that has the ability to control up to six units at any given time (and up to 16 units with an extension module). It is interesting to note that the unit is also equipped with its own individual controller, which allows the system to operate in a fully functional standalone mode when communication between the HVAC unit and the controller is lost. This ensures that the controller does not cause any potential single points of failure for the HVAC system.

Customer Ownership Experience

Frost & Sullivan's research findings suggest that Airsys offers top notch customer ownership experience throughout the life cycle of the product. When it comes to delivering excellent customer ownership experience, there are two key aspects that drive success; technical performance of the product and client relationship. Airsys excels at both aspects. The company's rapport with the customer has been one of its key success factors in building and maintaining a positive experience, resulting in a lasting bond. This is apparent from its continually increasing list of orders and positive customer testimonials. From a product's technical performance perspective, Airsys employs a multitude of best practices to enhance overall customer ownership experience. For instance, its UNICOOL system leverages an intelligent control system that allows self-diagnosis and self-learning functions. This not only enables the unit to operate at optimum efficiency but also verifies the accuracy of the system's key components and assists service engineers in identifying the problem swiftly. This ease of serviceability aids in the early resolution of field problems.

Based on the data centre market need for modular architecture, unmanned management and multi data centre management, Airsys recently launched its Innova Series Micro Modules and Datarak Series of integrated cabinets. The Datarak integrated solution is a cabinet level computer room product integrating standard 19 inch cabinet, refrigeration, power supply and distribution, and monitoring. It is specifically designed to cater to the exact needs of small enterprises, branches of governments, education, finance, and edge computing environments. The Datarack solution offers safety and reliability of the highest

magnitude while delivering high levels of efficiency and energy savings. It also brings in a significant cost advantage to the equation (by effectively reducing both CAPEX and OPEX), making it a highly attractive offering to the end user.

Customer Acquisition

Airsys' vast technology know-how and manufacturing expertise in ICT cooling has allowed it to create an industry leading cooling product family, specifically designed to enhance customer value multi fold. Frost & Sullivan finds Airsys' manufacturing excellence second to none. The company has gone to great lengths to ensure product quality of the highest magnitude by leveraging cutting edge processes and tools in its manufacturing facilities. Frost & Sullivan firmly believes that Airsys has high potential to further strengthen its position in the market with its cutting edge cooling and data centre solutions, enabled by its long-range, macro-level innovation strategies. A perfect example to demonstrate Airsys' excellence in this aspect is its Innova series product line, which is an integrated micro data centre (IMDC). The Innova series of micro modules is a data centre product which integrates a cabinet, power supply & distribution, lighting, refrigeration, intelligent monitoring, fire linkage, wiring and other functional modules. This solution has been designed to cater to small and medium-sized data centres. With the Innova series, some of the critical aspects that contribute to a superior customer ownership experience include high efficiency, reliability and flexibility along with reduced capital investment. It offers rapid deployment and installation where construction period is reduced by more than 50%. With the concept of core components modularization, the Innova Series is able to offer a high degree of flexibility, reduces initial investment significantly and makes future expansion (based on business needs) a simple and seamless process. Furthermore, it reduces the energy consumption of the data centre by 30% to 50% and reduces operating costs by up to 44%. This is made possible by leveraging a combination of hot and cold aisle containment, localized zone cooling, integrated frequency conversion technology and on-demand cooling due to the closed hot and cold channel and close refrigeration.

Industry Leading Operational Efficiency

Given that efficiency is of paramount importance to end users, Airsys employs a two pronged approach to optimize efficiency and in turn enhance customer ownership experience. The first one is "product efficiency"; where it leverages cutting edge technologies and innovative designs to deliver industry leading efficiency levels. The other one is "resource efficiency"; where it thoroughly explores, evaluates and optimizes other peripheral aspects, namely reducing product footprint, increasing product flexibility and scalability, ease of use, seamless maintenance and repair. This ultimately translates in to significantly improved overall operational efficiency and reduces operational expenditure.

Airsys' deep knowledge and expertise around variable speed technology utilizing direct fresh air free cooling is highly commendable. One of the fine best practice examples to demonstrate its industry leading operational efficiency and design excellence is a critical cooling project that the company executed for a leading UK based telecom company. The requirement was for four units of 80KW CRAC (computer room air conditioners) systems

to supply conditioned air to a raised floor with a hot aisle containment set up; where the CRAC units were to be controlled on supply air and also enabled with direct fresh air cooling capabilities. Airsys chose its Optima-INV.DXA.DFC product for this project and performed a variety of adaptations to match the exact requirements of the client. The company's design philosophy behind this innovative project was to exploit the cube law; i.e. running the fans at minimum speed during low ambient conditions, thereby reducing its client's carbon foot print and OPEX. From a design perspective, firstly it ensured that the external static pressure from the EC fans was sufficient for the raised floor, IT equipment and the return air path through the ceiling plenum and duct work. It optimized the software to provide variable speed control of the EC fans within the unit based on the remote supply air temperature sensors; also additionally adjusting the CRAC unit dampers to temper the air where required. This allowed the CRAC unit to run in fresh air free cooling at very low ambient conditions, however ensuring air temperatures were not too low and were within specification. Additionally, when in direct fresh free cooling mode, the Optima CRAC units control the third party variable speed extract fans, ensuring that the hot aisle air was expelled through the ceiling plenum to the ambient air outside.

Growth Potential

Airsys has high potential to further fortify its position in the market with its cutting edge cooling solutions, aided by its long-range, macro-level innovation strategies. The company has a razor sharp focus in identifying and analyzing Mega Trends and performing scenario analysis; this empowers it to develop products and solutions that cater to current market requirements as well as anticipated future needs. The company has made significant strides over the past two years by launching innovative, cutting edge products and solutions. Its UNICOOL system, Innova series, Datarak, and COM4T etc. are crucial aspects that will further drive Airsys' future growth potential. 2019 was particularly an excellent year for the company where it further expanded its sales channels into the Human Comfort HVACR market and joined the prestigious HARDI network of wholesale distributors. This is expected to create a sharp and positive impact in the company's revenue growth moving forward.

It is Frost & Sullivan's findings that Airsys' inverter driven UNICOOL Unit with precise cooling will be a major leap in improved energy efficiency for HVACR systems. It is expected to positively impact telecom cabinets and other data centre cooling environments by reducing energy needs as companies expand onto the 5G network. Frost & Sullivan believes that the UNICOOL unit for sensible cooling in particular is expected to be a key driver to the company's growth in the coming years. In a way to better serve its subsidiaries and its new sales channels in the Human Comfort HVACR market, Airsys is building a new manufacturing facility in Spartanburg, USA. It is also intriguing to see the company growing rapidly in the South East Asian market by ramping up brand awareness and market foundation, more so in the data centre segment. For instance the company has established a wide reach in Singapore where it works closely with all the leading telecom operators, including Singtel, Starhub, and many other prominent corporations. It

is also noteworthy that Airsys also has a strong client network across different regions and has been strengthening its client network by constantly adding new clients.

Looking at 2020 and beyond, Airsys has set new standards in customer value delivery through the launch of its 'One Solution' strategy. This highly innovative, customer focused, strategy combines and enriches core competencies across technology, end-to-end service design and global delivery to provide customers with unmatched value. 'One Solution' empowers telecom, data center and data service organizations with the ability to avoid CAPEX investment, reduce OPEX on an ongoing basis and underpin their own customer service strategies through future proofed and highly scalable cooling infrastructure.

Brand Equity

Airsys' brand name is synonymous with technology excellence, innovation, and most importantly, customer focus. The company has gained a reputation of delivering services and solutions of the highest standard that specifically addresses customers' unmet needs. Airsys' tremendous effort towards building and strengthening brand equity is clearly evident in the level of confidence its customers place in the company. With its new mission statement "Balance the Environment", the company has taken an inspirational stand where it has used the environment as a metaphor for igniting brand purpose across the globe and with a genuine and earnest intention to pursue the balance and harmony between humans and the environment.

Conclusion

Airsys leaves no stone unturned when it comes to innovation and customer value enhancement. This is evident from its meticulous initiatives and activities aimed at strengthening and advancing its vision of creating truly superior cooling systems and data centre solutions. With its innovative policies and strategies, Airsys has implemented a wide range of best practices that brings in several positive disruptions and offers an immense range of benefits to its customers.

With its strong overall performance, Airsys has earned Frost & Sullivan's 2020 Customer Value Leadership Award.

Significance of Customer Value Leadership

Ultimately, growth in any organization depends on customers purchasing from a company and then making the decision to return time and again. Satisfying customers is the cornerstone of any successful growth strategy. To achieve this, an organization must be best in class in 3 key areas: understanding demand, nurturing the brand, and differentiating from the competition.



Understanding Customer Value Leadership

Customer Value Leadership is defined and measured by 2 macro-level categories: Customer Impact and Business Impact. These two sides work together to make customers feel valued and confident in their products' quality and performance. This dual satisfaction translates into repeat purchases and a lifetime of customer value.

Key Benchmarking Criteria

For the Customer Value Leadership Award, Frost & Sullivan analysts independently evaluated Customer Impact and Business Impact according to the criteria identified below.

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

Business Impact

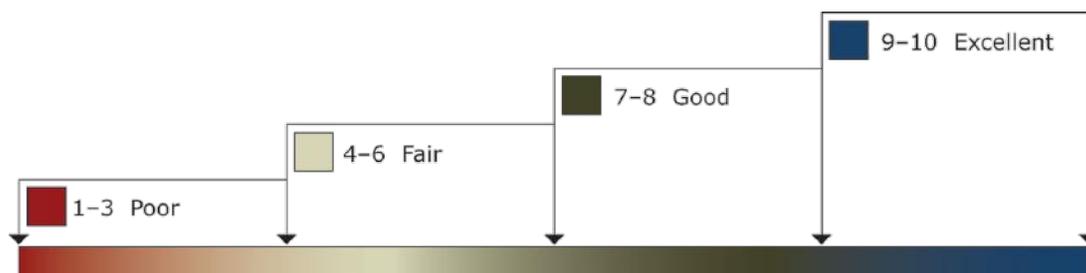
- Criterion 1: Financial Performance
- Criterion 2: Customer Acquisition
- Criterion 3: Operational Efficiency
- Criterion 4: Growth Potential
- Criterion 5: Human Capital

Best Practices Award Analysis for Airsys

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 Customer Impact 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>			
Customer Value Leadership	Customer Impact	Business Impact	Average Rating
AIRSYS	9.0	8.0	8.5
Competitor 1	7.0	6.0	6.5
Competitor 2	5.0	5.0	5.0

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 they are buying the 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.

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: Customer-facing processes support the efficient and consistent 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: Customer focus strengthens brand, reinforces customer loyalty, and

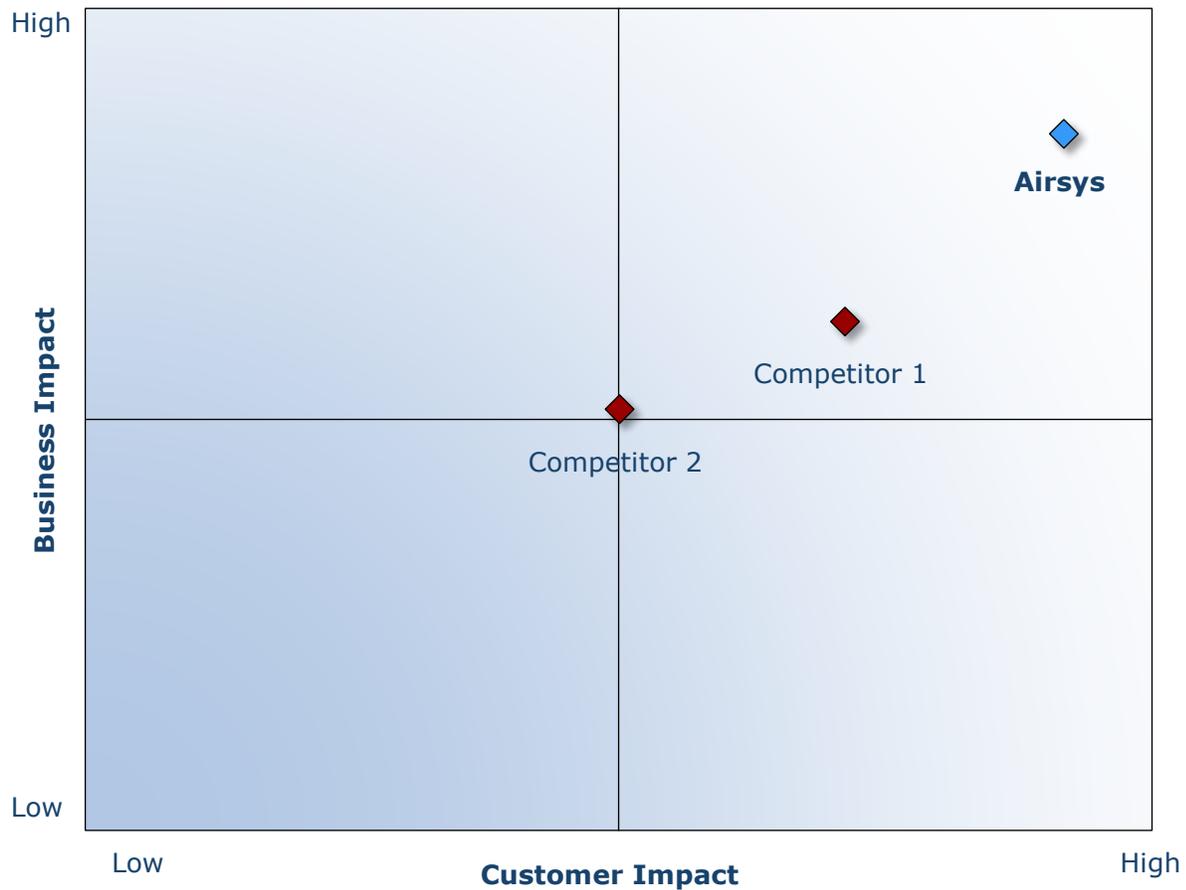
enhances growth potential.

Criterion 5: Human Capital

Requirement: Company culture is characterized by a strong commitment to quality and customers, which in turn 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 award 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 participants 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 practices 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>.