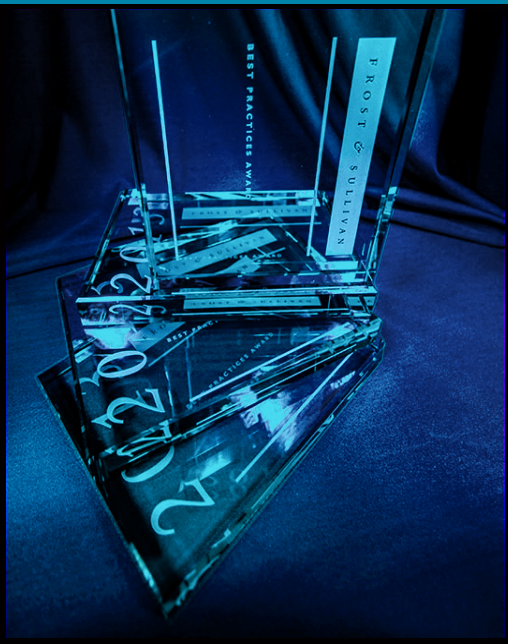


F R O S T & S U L L I V A N



LexisNexis®

2016 North American
Healthcare Identity Management
Technology Innovation Award



FROST & SULLIVAN

BEST
2016 PRACTICES
AWARD

NORTH AMERICAN
HEALTHCARE IDENTITY MANAGEMENT
TECHNOLOGY INNOVATION AWARD

2016
BEST PRACTICES
AWARDS

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Background and Company Performance

Industry Challenges

During the past decade the US healthcare system has embarked upon a highly ambitious agenda of increasing the digitization of all forms of data across the healthcare ecosystem. The push for digital healthcare has been accelerated by government-sponsored financial incentives for the use of Electronic Health Records (EHRs)—and penalties for certain providers that don't comply with specific government-defined criteria for the use of EHRs. Overall, the push to adopt health information technology (IT) has been highly successful. Recent data from the Department of Health and Human Services (HHS) finds that nearly 97 percent of hospitals and three-fourths of ambulatory providers currently use a certified EHR system. Today, the new focus is on optimizing the use of EHRs and all health IT by improving functionality, workflow integration, user experience, data sharing, and, most importantly, patient safety. With regard to data sharing and patient safety, it is important to consider how the widespread use of EHRs and other types of health IT—and the increased sharing of the patient data that resides within these systems— is driving a new imperative for better digital identification processes and technologies.

Today's dynamic healthcare environment is characterized by a growing focus on clinical integration requiring a high degree of mobility and information sharing among various stakeholders. A robust and flexible IT infrastructure that connects devices, applications, and data is the foundation that supports clinical integration. However, clinical integration cannot happen without reliable, consistent and accurate identification of patients and clinicians. Digital identity matching can often be a challenge in many business environments including healthcare organizations. In addition, identity errors in a healthcare context present unique concerns for patient privacy and safety. In its recent annual report on healthcare safety (*Top 10 Patient Safety Concerns for Healthcare Organizations*), the ECRI Institute ranked patient identification errors second, finding such errors to be "not only frequent, but serious." As ECRI and others have acknowledged, the problem of mismatched patient identities is real and growing.

The key objective of health IT is to help us move towards a better standard of care that maximizes quality and safety, improves patient outcomes, and drives operational and cost efficiencies. Health IT is essential to enabling patient care that must be coordinated across an increasingly dispersed care landscape. The full promise of health IT cannot be realized without a true referential, persistent ID system such as that provided by LexisNexis® Risk Solutions proprietary LexID® linking technology.

Technology Attributes and Future Business Value

Established Expertise in Identity and Risk Management across Key Industry Verticals Ensures Exceptional Value for Customers

LexisNexis® Risk Solutions (LNRS) is a long-established market leader in the provision of technology products and services that enable an end-to-end risk and identity management platform for a variety of companies. LexisNexis® Risk Solutions' flagship product is its proprietary LexID® linking technology which has access to over 37 billion public records and resolves identities with over 99.9% accuracy. LexisNexis® Risk Solutions sells its products across almost every major industry vertical including insurance, government, retail, communications, financial services, healthcare, and more, bringing together vast, disparate information resources. The company's penetration and reach across the market is unique and further enhances its ability to gather, compare, analyze, and link data and information from numerous primary and secondary sources, thus further facilitating the accuracy and value of their solutions.

Much of LexisNexis® Risk Solutions' legacy expertise is derived from the insurance industry—auto, commercial, home, life, and, more recently, health. Over the years, LexisNexis® Risk Solutions has built a database of every single motor vehicle record and every insurance claim paid. This database encompasses different socioeconomic and financial background information on people which is then used to create a score that is correlated to an individual's risk—information that is essential in helping insurers appropriately price their products. Today, LexisNexis® Risk Solutions is the recognized industry standard for risk management for the US insurance industry with a reach extending to over 95% of every single insurance decision made in the US.

LexisNexis® Risk Solutions also sells its identity and risk management capabilities extensively across the financial services sector. For its customers in the government sector, LNRS is able to leverage the fact that they have built a huge database that covers almost everyone in the US, continuously tracking and updating that information so that it is complete and accurate. The government utilizes the company's proprietary database to perform skip tracing—finding missing or wanted people—as well as for risk mitigation around identity theft, fraud, waste, and abuse and for other functions.

Broad Solution Suite Designed to Offer Significant Value for Healthcare Customers

For healthcare, the LexisNexis® Risk Solutions identity and risk management suite for healthcare customers combines proprietary analytics, science and technology with the industry's leading sources of provider, member, claims and public records information. The company's LexID® linking capabilities are particularly valuable in this industry. LexisNexis® Risk Solutions pulls information together from all its various and disparate data sources so that an identity can be looked at holistically and not in isolation. The LexID® is able to offer

a persistent key that follows an identity throughout its evolution. Furthermore, LNRS' identity verification capabilities help to ensure that a person is authentic—that they are who they say they are, that their identity is real, and that all the data being brought forth on a particular individual matches up and makes sense. For healthcare organizations, the LexID® not only serves as a unique patient identifier by linking together records from numerous sources to identify patients correctly and assign them a unique ID but also helps to create a precise and accurate patient record—without having to deal with redundant information. With LexisNexis® Risk Solutions, healthcare organizations are able to increase the integrity of new enrollments, enhance compliance, and reduce fraud by properly screening, verifying, authenticating and managing essential identity information.

Most importantly, LexisNexis® Risk Solutions risk and identity management products and services are highly adaptable and scalable to the dynamic healthcare environment.

Unmatched Depth and Breadth of Data Assets Provides Extraordinary Level of Data Accuracy

Organizations can deploy several different methods to create identity matching algorithms. Many chose to use commercial solutions while some even build their own tools. The differentiation LexisNexis® Risk Solutions brings to the market is the depth and breadth of all the data and referential information that the company continuously collects. LexisNexis® Risk Solutions is truly big data – perhaps, in fact, the biggest of big data. The company's database brings together data covering around 270 million Americans (almost 84% of the US population) dating back 35 years. The database encompasses over 2 petabytes of information, 45 billion public record data sets, 20 billion insurance records, 4 billion property records, over 1 billion vehicle title records, and 258 million unique cell phone numbers. Added together, the LexisNexis® Risk Solutions database has over 10,000 data assets tracking 585 million identities. These data are brought into the LNRS master database on a daily, weekly, or monthly basis as different sources of public records sets and private sources are consistently procured. Also included in the database is information from all three credit bureaus and from 739 million businesses that are continuously tracked. The reach of this vast data solutions enables LexisNexis® Risk Solutions with the ability to persistently assign a LexID® that can be associated with any consumer in the US, including those under 18—a feat that is particularly challenging. LexisNexis® Risk Solutions combines its cutting-edge technology, unique data and advanced analytics to bring an exceptionally high degree of confidence and accuracy to the process of identify management, with fidelity at over 99.9% match—an extraordinary achievement. Furthermore, the company's general philosophy is that if it can't ultimately be highly certain that the identity match is true, the LexID® will come up as a zero. In that rare case, LNRS has other processes that help clients assign dynamic ID's.

A Feature-Rich and Scalable Big Data Analytics Platform for High-Performance Data Processing

LexisNexis® Risk Solutions' master database is powered by its proprietary big data analytics platform, the High Performance Computing Cluster (HPCC), also known as the DAS (Data Analytics Supercomputer). This open source, data-intensive computing system platform was announced in 2011, after ten years of in-house development by LexisNexis Risk Solutions, and has since revolutionized its capabilities in performing advanced analytics on large volumes of data. According to the company, the HPCC platform includes system configurations to support both parallel batch data processing and high-performance online query applications using indexed data files. The platform is very similar to Hadoop in that it is a leveraged platform utilizing computer clustering technologies; however, HPCC operates with its own proprietary code base, the Scalable Automated Linking Technology (SALT), which enables highly sophisticated processes for internal and external linking. Performance testing of HPCC against Hadoop and some other big data platforms has proven that the LexisNexis® Risk Solution analytics platform is the fastest solution on the market for accessing big data for the purpose of matching and recall.

Leveraging Cross Industry Reach to Drive Technology Innovation and Leadership

An organization's deployment of solutions for fraud, risk and identity management is one of the most important and far-reaching decisions a business can make. The financial viability, reputation, and ultimate survival of a business is often dependent upon its selection of the right vendor partner for business protection services. LexisNexis® Risk Solutions fully understands the importance of establishing and maintaining a high degree of trust with its clients and how that trust allows a business to extend value to its own customers, members, and business partners. An example of how LexisNexis® Risk Solutions helps provide exceptional protection for its clients is seen with the LexisNexis® Fraud Defense Network, a cross-industry initiative that enables comprehensive identity proofing and fraud protection by compiling and linking known fraudulent activities that occur across various industries. This unique, powerful, first-of-its-kind solution for risk management is made possible due to LexisNexis® Risk Solutions' extensive reach across numerous industry verticals. The comprehensive risk management capabilities enabled by the LexisNexis® Fraud Defense Network is particularly valuable for healthcare organizations due to the alarming acceleration in data breaches and identify theft across healthcare payer and provider organizations.

Identity Management Solutions Uniquely Suited to Meet Healthcare Challenges

One of the key challenges faced by healthcare organizations in enabling patient matching is that full patient data is often derived from many different data sources across many types of organizations. These data typically lack standards and consistency and thus have a great deal of variability. Furthermore, it is often extremely difficult or impossible for a

health system, hospital, or payer to really have an understanding of the actual quality of the data as health information can be often be self-reported, prone to data entry errors, out of date, inaccurate, redundant, and so on. Healthcare organizations thus need to deploy a sophisticated algorithm that has the ability to take these data variances into account when creating a patient ID. LexisNexis® Risk Solutions' proprietary LexID® is equipped with a deep and robust matching algorithm that goes beyond other identity management tools on the market, most of which leverage probabilistic or fuzzy matching algorithms to link records. LexID® combines a variety of referential information, that is the specific context within which the data is used, with standard input data, thus improving the probability of an accurate match. In addition, LexisNexis® Risk Solutions constantly evaluates the quality of the data using stewardship and analytics around data sourcing so that they can resolve inconsistencies, latency and omissions that impact data quality.

Conclusion

As part of its ongoing coverage of the market for information technology solutions for healthcare organizations, Frost & Sullivan research has identified **LexisNexis® Risk Solutions as a market-leading vendor of identity and risk management products and services.**

Today, healthcare organizations store patient information across many different databases and use different methods to identify patients and match data residing in these IT systems. Frost & Sullivan recognizes that growing concerns about erroneous, missing, or duplicate digital health data and information presents a significant hazard that can negatively impact the quality and efficiency of patient care. Markets are taking notice of the increased interest in technology solutions that can help mitigate the problem of digital patient identity matching and a variety of new vendors are expected to emerge to address this need. LexisNexis® Risk Solutions is an established technology vendor that understands the challenges healthcare organizations face in creating an accurate, reliable, consistent, and secure patient ID. Furthermore, LexisNexis® Risk Solutions understands the important role of robust identity management relative to protecting privacy and security in an era of growing healthcare data breaches and in advancing patients' engagement with their personal health data. Frost & Sullivan finds that LexisNexis® Risk Solutions is well-positioned to capitalize on attractive market opportunities developing in healthcare risk and identity management and commends the company for its ability to deliver exceptional customer value particularly demonstrated by its commitment to product innovation through the its HPCC big data platform and recent strategic acquisitions in the healthcare market.

Due to its strong overall performance, LexisNexis® Risk Solutions has earned Frost & Sullivan's 2016 Technology Leadership Award in Healthcare Identity Management.

Significance of Technology Innovation

Ultimately, growth in any organization depends upon finding new ways to excite the market, and upon maintaining a long-term commitment to innovation. At its core, technology innovation or any other type of innovation can only be sustained with leadership in three key areas: understanding demand, nurturing the brand, and differentiating from the competition.



Understanding Technology Innovation

Technology innovation begins with a spark of creativity that is systematically pursued, developed, and commercialized. That spark can result from a successful partnership, a productive in-house innovation group, or the mind of a singular individual. Regardless of the source, the success of any new technology is ultimately determined by its innovativeness and its impact on the business as a whole.

Key Benchmarking Criteria

For the Technology Innovation Award, Frost & Sullivan analysts independently evaluated two key factors—Technology Attributes and Future Business Value—according to the criteria identified below.

Technology Attributes

- Criterion 1: Industry Impact
- Criterion 2: Product Impact
- Criterion 3: Scalability
- Criterion 4: Visionary Innovation
- Criterion 5: Application Diversity

Future Business Value

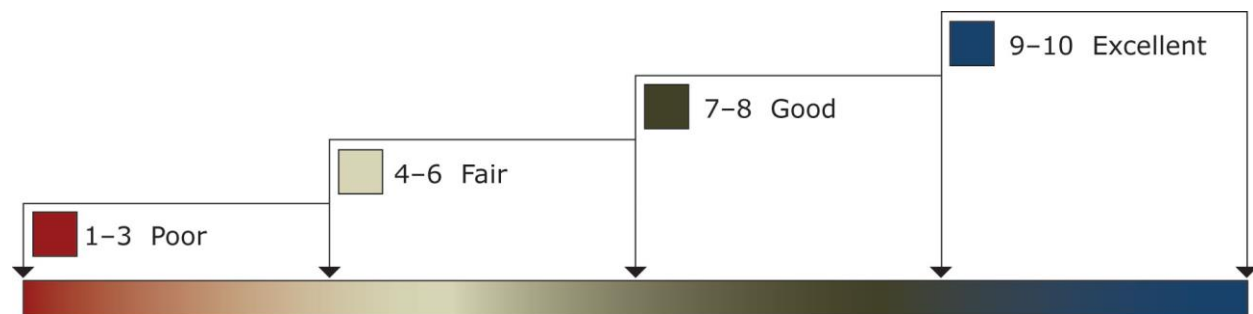
- Criterion 1: Financial Performance
- Criterion 2: Customer Acquisition
- Criterion 3: Technology Licensing
- Criterion 4: Brand Loyalty
- Criterion 5: Human Capital

Best Practice Award Analysis for LexisNexis Risk Solutions

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 our 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 is organized by Technology Attributes and Future Business Value (i.e., the overarching categories for all 10 benchmarking criteria; the definitions for each criteria 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, we have chosen to refer to the other key players as Competitor 2 and Competitor 3.

DECISION SUPPORT SCORECARD FOR TECHNOLOGY INNOVATION AWARD

<i>Measurement of 1–10 (1 = poor; 10 = excellent)</i>			
Technology Innovation	Technology Attributes	Future Business Value	Average Rating
LexisNexis Risk Solutions	10.0	10.0	10.0
Competitor 2	9.0	9.0	9.00
Competitor 3	8.0	8.2	8.10

Technology Attributes

Criterion 1: Industry Impact

Requirement: Technology enables the pursuit of groundbreaking new ideas, contributing to the betterment of the entire industry

Criterion 2: Product Impact

Requirement: Specific technology helps enhance features and functionality of the entire product line for the company

Criterion 3: Scalability

Requirement: Technology is scalable, enabling new generations of products over time, with increasing levels of quality and functionality

Criterion 4: Visionary Innovation

Requirement: Specific new technology represents true innovation based on a deep understanding of future needs and applications

Criterion 5: Application Diversity

Requirement: New technology serves multiple products, multiple applications, and multiple user environments

Future Business Value

Criterion 1: Financial Performance

Requirement: High potential for strong financial performance in terms of revenues, operating margins and other relevant financial metrics

Criterion 2: Customer Acquisition

Requirement: Specific technology enables acquisition of new customers, even as it enhances value to current customers

Criterion 3: Technology Licensing

Requirement: New technology displays great potential to be licensed across many sectors and applications, thereby driving incremental revenue streams

Criterion 4: Brand Loyalty

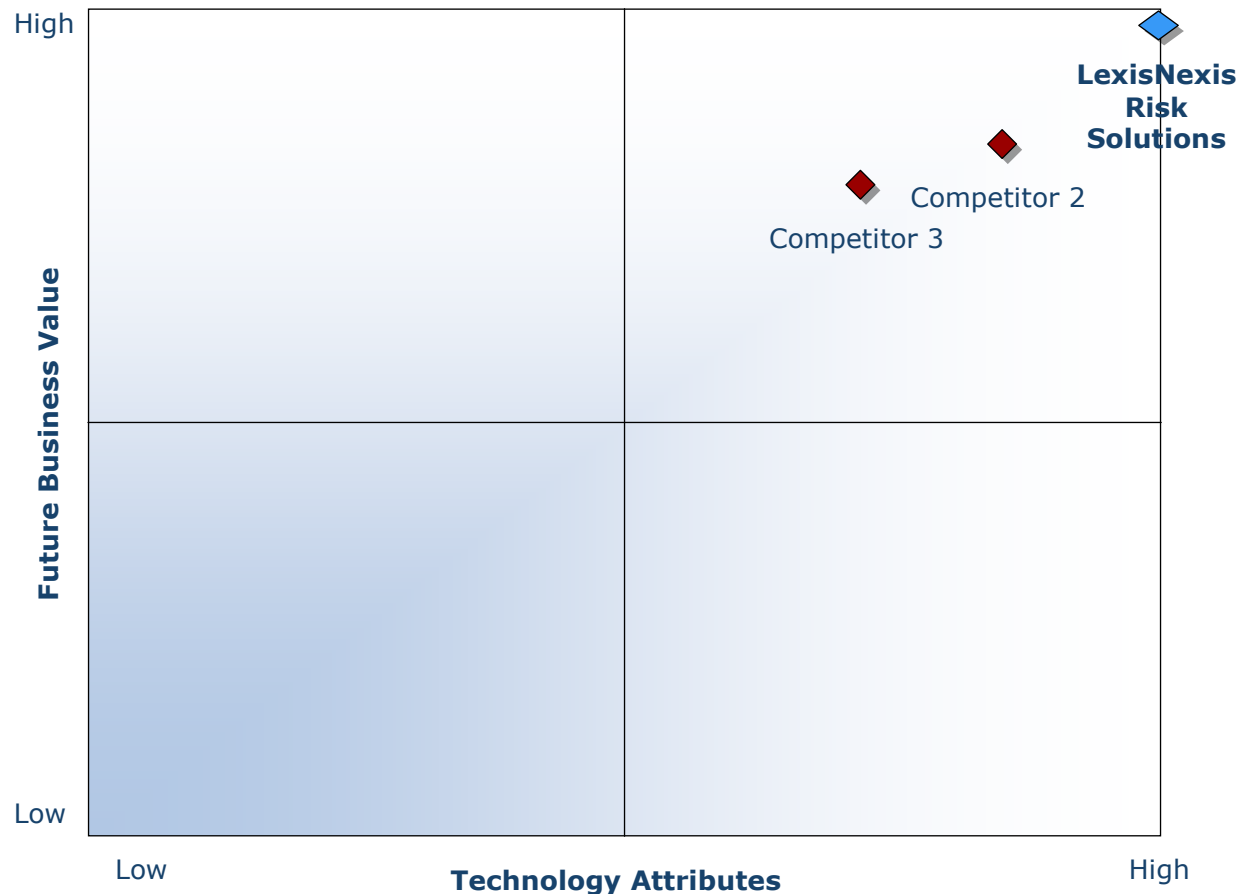
Requirement: New technology enhances the company's brand, creating and/or nurturing brand loyalty

Criterion 5: Human Capital

Requirement: Customer impact is enhanced through the leverage of specific technology, translating into positive impact on employee morale and retention

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

DECISION SUPPORT MATRIX FOR TECHNOLOGY INNOVATION AWARD

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

360-DEGREE RESEARCH: SEEING ORDER IN THE CHAOS



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

Frost & Sullivan Awards follow a 10-step process to evaluate award candidates and assess their fit with select best practice 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 globe	<ul style="list-style-type: none"> • Conduct in-depth industry research • Identify emerging sectors • Scan multiple geographies 	Pipeline of candidates who potentially meet all best-practice 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-practice criteria • Rank all candidates 	Matrix positioning 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-practice 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-practice 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-practice award recipient	<ul style="list-style-type: none"> • Review analysis with panel • Build consensus • Select winner 	Decision on which company performs best against all best-practice criteria
9 Communicate recognition	Inform award recipient of award recognition	<ul style="list-style-type: none"> • Present 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 may 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 future strategic planning 	Widespread awareness of recipient's award status among investors, media personnel, and employees

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>.