



2018 North American Public Safety Answering Point Solutions
Product Leadership Award



2018
BEST PRACTICES
AWARDS

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Background and Company Performance

Industry Challenges

As the dramatic pace of innovation has transformed consumer behaviors, a game-changing public safety paradigm shift is imminent in the United States. In particular, the proliferation of next-generation networks and devices has led to a dramatically more diverse set of consumer communication exchanges (beyond simply voice), including text, data, photos, and video. Evolving consumer behaviors, driven by technology innovation, has created a variety of unique challenges for the U.S. public safety sector.

The Proliferation of Smartphones Trigger Digital Transformation

Frost & Sullivan research indicates smartphones accounted for just over 21% of mobile phone connections in 2009. This number increased to nearly 85% in 2017, and is expected to surpass 95% by 2023. Moreover, the average smartphone user consumed nearly 5 GB of data per month in 2017. This is expected to double over the next 5 years. Interestingly, smartphone users now dedicate approximately 90% of their mobile usage time to non-voice activities. In this environment, Frost & Sullivan research indicates approximately 85% of emergency 911 calls originated from mobile devices in 2017. This upward trend is only expected to continue.

The Rise of the Millennial Drives Diversity in Communications Exchanges

Millennials represent the largest generation since the Baby Boomers, with a population of approximately 75 million in the US, and are re-shaping traditional communications norms. Millennials differ from previous generations in many ways, including a general increase in the use of, and familiarity with, mobile communications and digital technologies. The associated growth in new forms of communication exchanges is ushering in an array of new requirements and opportunities for the public safety sector.

A Framework for Public Safety Entities to Support IP Based Communications

To address these industry challenges, the National Emergency Number Association (NENA) approved a framework of core technical guidelines for the implementation of a Next Generation 9-1-1 (NG9-1-1) system known as the 'i3 architecture'. The i3 framework is an architecture designed as an IP-based 'network of networks' for all public safety and emergency service entities. In contrast to a legacy voice-centric E911 network, NG9-1-1 supports a more diverse set of IP-based communications, including text, data, photos, and video exchanges that enhance the speed, accuracy, and preparation of first responders.

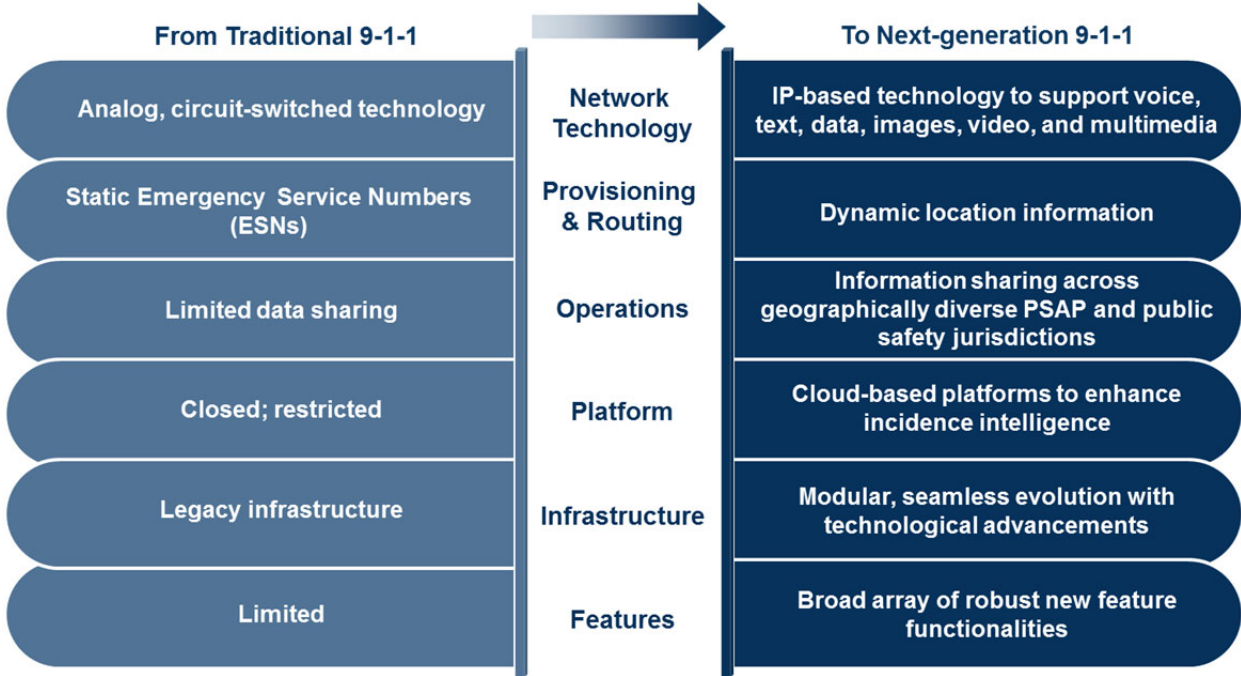
Moreover, FirstNet is in the deployment process – a nationwide public safety broadband network dedicated to public safety communications. FirstNet will deliver high-speed data, location information, images, and video in real time to first responders and public safety personnel.

Personal Safety Answering Points (PSAPs) Obligated to Conform

The public safety market has traditionally been characterized by rapidly changing technology, evolving industry standards, dynamic customer demands, and sluggish new product and service introductions. Public Answering Safety Points (PSAPs) are now challenged to keep up with the pace of technology innovation. In today’s environment, it will be critical to improve the speed to market, performance, and reliability of public safety products, services, and solutions as the demands of the market evolve.

In this environment, the public safety sector is obligated to conform by replacing legacy systems with new versatile NG9-1-1 solutions. NG9-1-1 introduces an array of innovative features and functionality that will significantly expand public safety capabilities and allow end users to efficiently relay text, data, video and IP based voice calls in emergency situations.

Exhibit 1.0 A Game-Changing Paradigm Shift for 9-1-1 is Imminent



Source: Frost & Sullivan

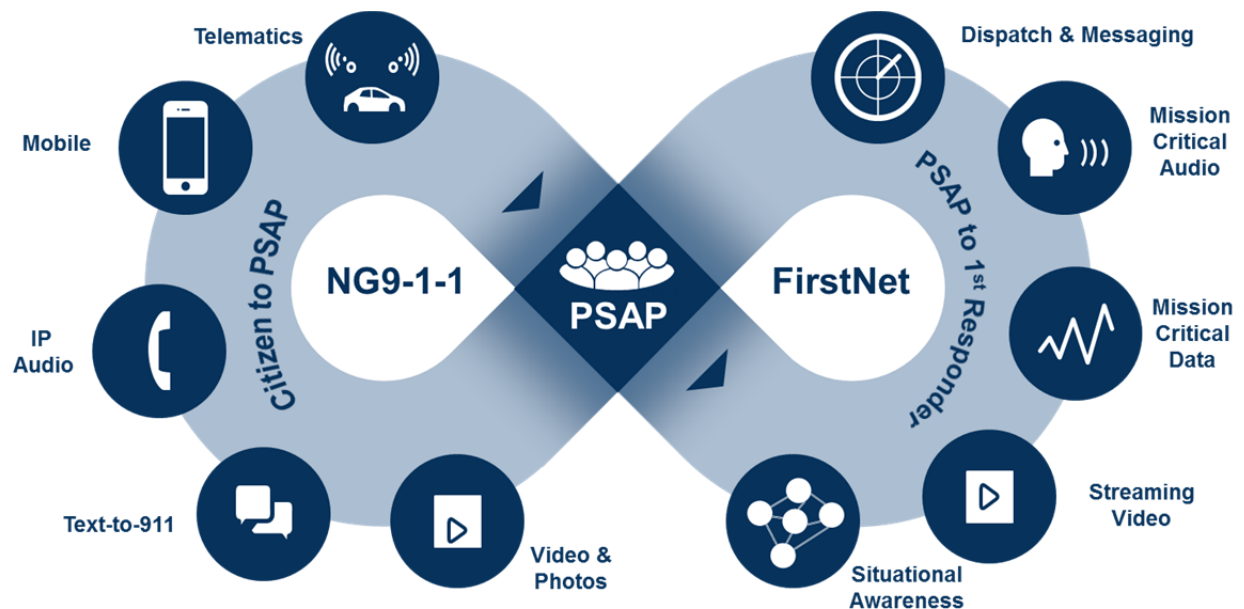
Product Family Attributes and Business Impact

Matching Product Attributes to PSAP Needs

Requirement: PSAP needs directly influence and inspire the design and positioning of the product family.

NG9-1-1 and FirstNet are ushering in a new era in data-rich multimedia communications for public safety, and with it, unprecedented change. Together, they will enable the seamless exchange of broadband-rich multimedia communications between the public, 9-1-1 and first responders. The convergence of these networks in the PSAP will dramatically enhance public safety communications. But it will also introduce new complexities for telecommunicators who will need to coalesce and manage more data. In this new era, PSAPs will become nerve centers (see Exhibit 2 below).

Exhibit 2.0 PSAPs at Center of Convergence



Source: Frost & Sullivan

For decades, emergency call handling has been through voice, and there has been very limited data outside of voice being shared between telecommunicators, first responders and the general public. As more IP-based communications and data inundate PSAPs, they will be barraged with multimedia information.

The APCO Report, Project 43: Broadband Implications for the PSAPs, spells out the types of information that telecommunicators might be required to handle, ranging from automated alarms and building and floor plans, to vehicle telematics and photos and videos from citizens, surveillance camera systems, drones and body-cams. Some of it may be distressing to look at, some of it may be extremely valuable and provide a lot of insight, and some of it may be a complete distraction. All of this information will need to be sorted, analyzed and understood to determine what’s critical, what’s supplemental, and what’s background noise, and what should be passed along to first responders.

The same *APCO Report* states, “The increased scope of broadband-based information will enable a more effective response, it is also likely to claim more time to process.” These complexities will impose new stresses on PSAPs and potentially impact staffing levels. PSAPs, which have had decades to hone and practice procedures for handling voice calls, won’t have the luxury of time when it comes to preparing for multimedia calls in the new era of NG9-1-1 and FirstNet.

This will in turn place greater demands on PSAP managers to get out ahead of potential issues so they can address problems before they get out of hand. The ability to have near real-time insight into how these new sources of multimedia information are impacting PSAP performance and operations will be absolutely essential.

For example, are telecommunicators able to handle the same number of calls with the same accuracy and speed? How quickly can they respond with all of the new sources of multimedia data coming at them? Is the PSAP equipped to handle the influx of new digital media coming in from citizens and other sources? Can it still meet its call handling and dispatching KPIs in light of these new challenges? Is it taking longer to answer certain types of calls, and if so why? Are abandoned calls increasing?

As PSAPs become more virtualized through ESInets, and the lines between individual PSAPs start to blur, this could raise other questions as well. Why is the PSAP getting calls from other jurisdictions? Why is it taking so long for calls to reach the PSAP? How will the new types of communications impact incident reconstruction and investigations?

Having clear and timely answers to these questions will be absolutely critical. Unfortunately, for most PSAPs timely consolidation and reporting on metrics is not possible today. Staff can spend hours manually compiling data from various systems into spreadsheets and for all the effort, still lack insight to make real operational improvements.

The NICE Inform Intelligence Center addresses these very same problems.

Product Design & Analytics

Requirement: The product features an innovative design, enhancing operations and ease of use for PSAP personnel.

Frost & Sullivan believes that one of the key things that differentiates NICE from other public safety solution providers is NICE’s ability to provide near real-time data analytics, metrics and reporting that can help public safety agencies gain unique insight into the incident journey and use this understanding to improve their emergency response and operational effectiveness. The incident journey isn't just that moment in time when the telecommunicator interacts with the 9-1-1 caller; it spans the time from which the 9-1-1 multimedia call is initiated and routed to the PSAP, to when it's answered and dispatched, to the time the first responder(s) arrive on scene. Helping PSAPs to understand this incident

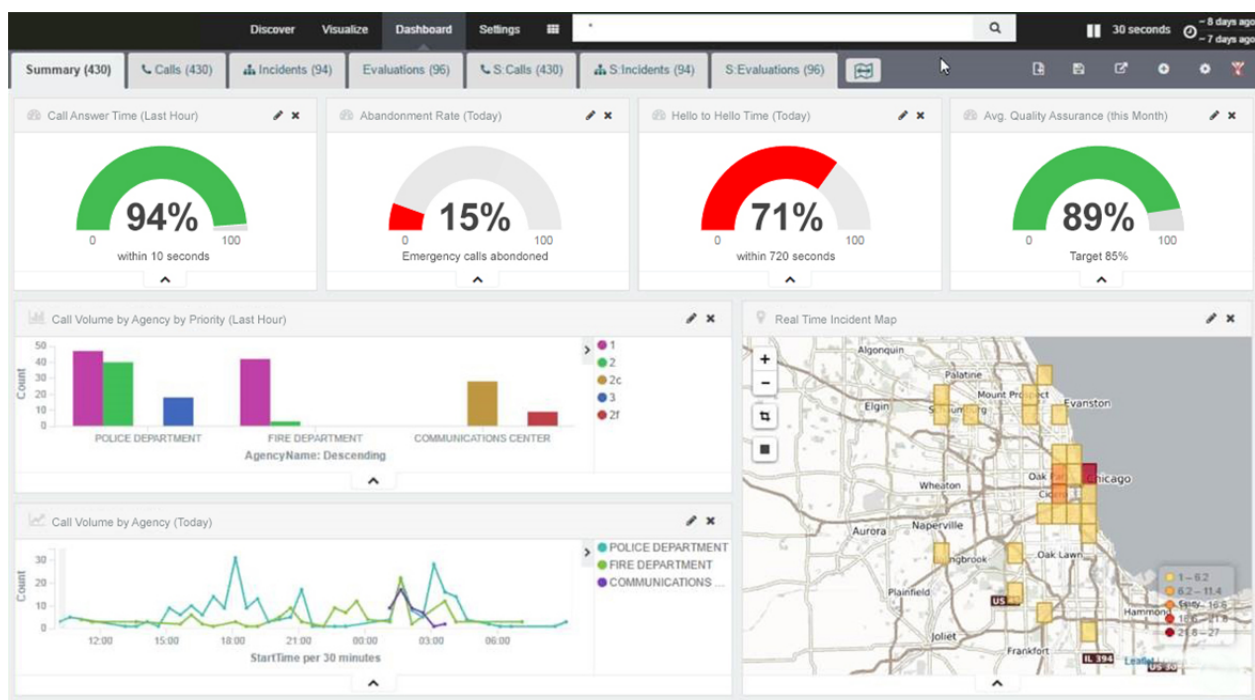
journey and the many factors that contribute to it is unique capability of the NICE Inform Intelligence Center.

Introduced in the latest version of NICE Inform (version 9), the [NICE Inform Intelligence Center](#) puts powerful near real-time analytical tools within reach of PSAP managers, making it easy to identify, understand, and address the factors that drive operational performance.

Leveraging and overlaying GIS mapping information, data from Computer Aided Dispatch (CAD) and the multimedia recordings captured by NICE Inform Elite (multimedia recording) system, the NICE Inform Intelligence Center generates unprecedented insight into daily emergency communication center operations, illuminating problems that can impact service before they get out of hand. It breaks down the barriers of bringing together, analyzing and acting on operational, phone, radio, CAD and quality metrics – empowering PSAPs with a single view of the truth.

Web-based dashboards provide up-to-the-minute snapshots of key performance metrics that PSAP managers can use to gauge operational performance, improve service levels, and address staffing, training and other issues. Information is presented in easily digestible charts, graphs, maps and incident timelines, viewable on smartphones, tablets, desktops and wallboards.

The Inform Intelligence Center provides immediate insight into whether or not PSAPs are meeting targeted performance levels. Managers can easily spot trends and outliers, and immediately drill into details to better understand what's driving them. Managers get unprecedented insight into the metrics that really matter, without all of the work, including metrics that are difficult to measure, like 'hello to hello time.'



The Intelligence Center comes with ten out of the box web-based dashboards that provide insight on over 100 key performance indicators, presented on easy-to-read charts, graphs and maps, including:

- **911 Summary:** Shows top level metrics on 911 call types, how quickly 911 calls are being answered and dispatched, how quickly first responders are arriving on scene, and more.
- **Call Durations:** Shows how efficiently 911 call takers are handling various types of incidents, with the ability to drill down to data and voice recordings to troubleshoot problems.
- **Time-to-Enter:** Displays average 'Time-to-enter' (how quickly call takers can process different types of calls and transfer them for dispatch), with the ability to drill down to individual call taker metrics and voice recordings.
- **Time-to-Dispatch:** Displays average 'Time-to-dispatch' (how quickly calls are dispatched), with the ability to isolate and understand the impact of incident types, priorities, individuals.
- **Time-to-On-Scene:** Displays average 'Time-to-on-scene' (defined as the time from when the 911 call comes in to the first responder arrives on scene), with the ability to identify contributing factors.
- **Radio Transmissions:** Shows radio transmission volumes and trends by talk-group, plus the ability to analyze and identify longer transmissions.
- **Incident Investigation:** Provides insight into the volumes and types of incidents handled by the PSAP, with the ability to view and drill down to incidents and voice recordings from maps and word clouds.
- **Public Non-Emergency Call Summary:** Shows the percentage of calls that are emergency vs. non-emergency so managers can develop contingency plans for offloading non-emergency calls.

Managers can drill down to specific incident types, telecommunicators, timelines and geographic areas to get detailed insights on what's happening and where improvements can be made. The dashboards even feature drill-through links to underlying audio recordings for context. No other solution can provide that.

[The City of Westminster \(CO\) Police Department](#) is one of the first agencies to use the solution. F. Russell Bowers, ENP, Public Safety Communications Administrator, City of Westminster (CO) Police Department, said: "Our agency prides itself on being on the leading-edge of technology and we find the new NICE Inform Intelligence Center really

exciting. It's giving us access to performance metrics that weren't previously available, enabling us to develop much greater insights into our call volume, and even helping us pinpoint what's happening where from a crime perspective. NICE has done a really great job of simplifying the way we gather and distill performance metrics and other information, so we can do a better job serving the public."

Building on the Next Gen capabilities of NICE Inform

The NICE Inform Intelligence Center builds on [NICE Inform Elite](#) which provides a full suite of multimedia recording, incident reconstruction and operational intelligence capabilities that PSAPs need as they migrate to Next Gen 9-1-1 and FirstNet environments.

Next Gen Recording

The recording and archiving of voice, text, audio, photographs, video, data, location information, etc. will be a major operational concern for PSAPs as NG9-1-1 and FirstNet take hold. PSAPs will need to record multimedia calls for all of the same reasons they record voice emergency calls today, including: incident reconstruction/debriefing, investigations, and QA (Quality Assurance).

With NG9-1-1 and FirstNet, however, there will be new considerations. For example, how will agencies record 9-1-1 texts and synchronize them in incident reconstruction with recorded verbal communications? How will they record complete incident recordings, including all related multimedia, to NENA's i3 standard? Will they be able to capture all current and future communication modalities in one platform for seamless reconstruction? Will they be able to record streaming video from first responders as well?

Today, recording is very much focused on the dispatch center. As Next Gen 9-1-1 and FirstNet proliferates, there will be a shift in what is recorded and where that recording takes place. Recording will take place at the edge of the networks where audio, video, pictures, and multimedia flow in from the general public and out to first responders.

NICE Inform Elite is an all-in-one, NENA i3-compliant, cloud-ready solution designed to address these multimedia recording needs – from today's telephony, P25 radio, SMS texts and screen recording, to tomorrow's data-rich NG9-1-1 and LTE broadband communications. This enables PSAPs to face the future with confidence and stay a step ahead.

Complete Incident Reconstruction

Growing volumes of multimedia communications will also make it more complex to reconstruct incidents. With so many new sources of information, it could be easy to miss something. Thus, it's critical for PSAPs to have the ability to review data, photos, video, and

other forms of IP based communications associated with incidents to assess how this information was utilized by the relevant public safety entities.

NICE Inform Elite is the most comprehensive incident reconstruction solution available today. All multimedia information – 9-1-1 calls, radio transmissions, SMS texts, operator screens, video, and extensive CAD Data – can all be easily located and reviewed with one interface, assembled and visualized on an incident timeline or map. In addition to hearing what happened, PSAP managers can visualize when calls came in, what actions telecommunicators took, what distractions they had to deal with while making decisions, and when first responders were dispatched and arrived on the scene of an incident.

Incident Quality Assurance

In this increasingly dynamic and disruptive environment, proactive quality assurance (QA) will be a key factor in determining how PSAPs are adapting to Next Gen 9-1-1 and FirstNet. PSAPs will need to be able to capture, analyze, understand and learn from ‘the incident journey.’

Until now, QA focused on listening to the 9-1-1 call, but this will no longer be the case with NG9-1-1 and FirstNet, as telecommunicators will be required to handle text, video, images and many other types of data. PSAPs will need technology that can capture, record and synchronize everything so they can review how the telecommunicator managed these new data inputs. Voice recordings will be just a small piece of a much larger picture.

Screen recording: An Essential Element in the Future of QA

New data sources will play into the decisions that telcommunicators make, and sometimes those decisions will be called into question. That means it’s critical to be able to reconstruct incidents from the telecommunicator's vantage point. That’s where screen recording will come in.

Finally, with limited resources and budgets, many PSAPs find it difficult to make QA a priority, and chances are that’s not going to change. Given that QA will be a need-to-have in Next Gen environments, PSAPs are going to need to be more strategic about how they apply QA resources. By integrating CAD and recording, NICE not only makes it easier to rapidly find all recordings related to an incident (e.g. by typing in a CAD incident number), PSAPs can also automate the selection of calls to QA (for example by setting up rules to QA specific types of calls based on their CAD incident type and/or priority).

NICE Inform Elite makes all of these things possible today.

Growth Potential

Requirements: Product quality strengthens brand, reinforces customer loyalty, and enhances growth potential.

While the public safety sector moves past the early adoption stage of NG9-1-1, significant momentum is being seen in the number of state-wide and local NG9-1-1 RFPs as standards have become clearer. Moreover, the entry of large integrators has accelerated progress and reduced complexity of NG9-1-1 for PSAPs.

Frost & Sullivan measures the growth opportunity of NG9-1-1 by tracking closed ESInet contracts. The ESInet is simply the managed IP network that supports the NG9-1-1 solution. Frost & Sullivan research suggests that ESInet market penetration, based on the US population covered by ESInets under contract, will grow from approximately 31.5% in 2017 to approximately 72.7% by 2023, representing a compound annual growth rate (CAGR) of over 16%.

Thus, there is a clear and substantial growth opportunity for solution providers that can cater to the evolving needs of PSAPs with innovative solutions that differentiate from competitors. Through its *NICE Inform Intelligence Center* (and a range of complementary capabilities available through NICE Inform Elite), NICE has emerged as a true market leader, equipping public safety agencies with innovative solutions to succeed in their mission of delivering a fast and high quality response to communities, even as emergency communications are going through disruptive changes.

Conclusion

Frost & Sullivan believes the next 12 to 24 months to be the most critical time period for PSAPs to identify and secure the appropriate partners to optimize their operations as NG9-1-1 and FirstNet networks are deployed. Success will rely on identifying specialized vendors that cater to the public safety sector with solutions that can quickly adjust to the rapidly changing technologies and industry challenges.

NICE has embraced the evolution of the PSAP by providing comprehensive recording and incident intelligence, coupled with digital evidence management solutions, that optimize emergency communications, streamline operations, and significantly improve public safety. For its strong overall performance, NICE has earned Frost & Sullivan's 2018 Product Leadership Award for Public Safety Answering Points (PSAP) Solutions.

Significance of Product Leadership

Ultimately, growth in any organization depends upon customers purchasing from a company and then making the decision to return time and again. A comprehensive product line, filled with high-quality, value-driven options, is the key to building an engaged customer base. To achieve and maintain product excellence, an organization must strive to be best-in-class in three key areas: understanding demand, nurturing the brand, and differentiating from the competition.



Understanding Product Leadership

Demand forecasting, branding, and differentiating all play a critical role in finding growth opportunities for your product line. This three-fold focus, however, must be complemented by an equally rigorous focus on pursuing those opportunities to a best-in-class standard. Customer communications, customer feedback, pricing, and competitor actions must all be managed and monitored for ongoing success. If an organization can successfully parlay product excellence into positive business impact, increased market share will inevitably follow over time.

Key Benchmarking Criteria

For the Product Leadership Award, Frost & Sullivan analysts independently evaluated two key factors—Product Family Attributes and Business Impact—according to the criteria identified below.

Product Family Attributes

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

Business Impact

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

Product Family Attributes

Criterion 1: Match to Needs

Requirement: Customer needs directly influence and inspire the design and positioning of the product family.

Criterion 2: Reliability and Quality

Requirement: Products consistently meet or exceed 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: Products or services address unique, unmet need that competitors cannot easily replicate or replace.

Criterion 5: Design

Requirement: The product features an innovative design, enhancing both visual appeal and ease of use.

Business Impact

Criterion 1: Financial Performance

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

Criterion 2: Customer Acquisition

Requirement: Product 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: Product quality strengthens brand, reinforces customer loyalty, and enhances growth potential.

Criterion 5: Human Capital

Requirement: Company culture is characterized by a strong commitment to product quality and customer impact, which in turn enhances employee morale and retention.

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 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 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-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 recipient 	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"> • 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 future 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 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 participants 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, 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 more than 50 years of experience in partnering with Global 1000 companies, emerging businesses, and the investment community from 45 offices on six continents. To join our Growth Partnership, please visit <http://www.frost.com>.