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BEST PRACTICES

AWARDS

FROST & SULLIVAN

2020 BEST PRACTICES AWARD



**2020 UNITED STATES
NEXT GENERATION 9-1-1 (NG9-1-1)
MARKET LEADERSHIP AWARD**

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Background and Company Performance

Industry Challenges

Next Generation 911 (NG9-1-1) represents an industry transformation that proactively enhances public safety by acknowledging, and catering to, the rapidly evolving demands, products, lifestyles, and technologies of citizens. NG9-1-1 introduces a broad array of public safety advancements that will significantly expand emergency communications capabilities and drive growth opportunities for an increasing number of stakeholders.

In contrast to the legacy 'voice-centric' E9-1-1 network, NG9-1-1 will support a more diverse set of IP-based communications including text, data, photos, and video exchanges that will enhance the speed, accuracy, and preparation of first responders. The Federal Communications Commission (FCC) is currently working closely with key stakeholders in the public safety sector to ensure a seamless and cost-effective transition to NG9-1-1.

The emergence of COVID-19 has elevated pressure on states and counties that have not yet initiated NG9-1-1 deployments to accelerate roll-outs. Moreover, the possibility of federal funding for NG9-1-1 tied to coronavirus rescue legislation, which places an emphasis on infrastructure projects, has the potential to dramatically accelerate market growth.

Some of the key industry challenges in the NG9-1-1 market include:

- States, regional coalitions, and counties have been challenged to procure sufficient funding for NG9-1-1 upgrades.
- The public safety sector, by nature, is conservative and many public safety entities are in a 'wait and see' mode to make sure new technology is proven before making significant investments into new infrastructure.
- The highly regulated telecommunications industry, coupled with the inherent sensitive nature of public safety, has led to an array of stringent regulations and security requirements that can temper the speed of deployments.
- The adoption of new technologies comes with a steep learning curve. Public safety answering points (PSAPs) will be handling exponentially more data, and interacting with citizens and first responders in new ways, requiring significant training and education.
- While the emergence of the COVID-19 has generated elevated urgency on states and counties that have not yet initiated NG9-1-1, the virus itself has tempered timelines for in-progress deployments.

The National Emergency Number Association (NENA) estimates that approximately 250 million calls are made to 9-1-1 each year. Frost & Sullivan research suggests that nearly 85% of these calls now originate from a mobile device. Yet less than 30% of PSAPs across the U.S. are equipped to handle text-to-9-1-1 messages from mobile devices. In this rapidly evolving environment, the public safety sector will be challenged to keep up with the pace of innovation and evolving consumer behaviors. Replacing legacy systems with

new versatile NG9-1-1 solutions is a critical step in the journey to create smarter, safer, and stronger communities across the United States.

Market Leadership of AT&T

Criterion 1: Growth Strategy Excellence

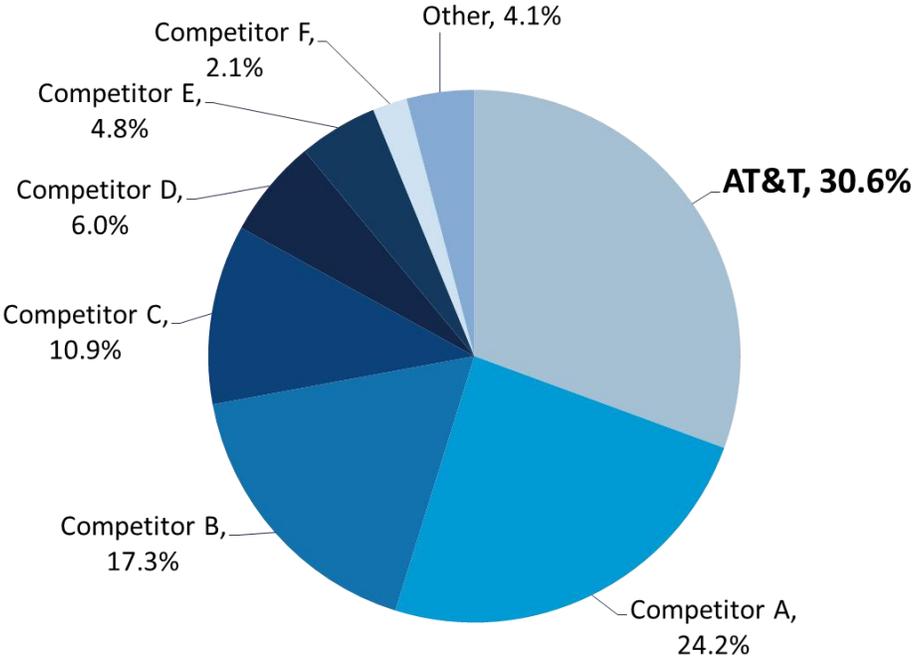
Ability to Consistently Identify, Prioritize, and Pursue Emerging Growth Opportunities

AT&T is at the forefront of the public safety sector providing industry-leading solutions that modernize communications and transform emergency reporting and response. By leveraging proven experience and technological know-how with a comprehensive portfolio of innovative public safety solutions, AT&T has emerged as the market leader in the NG9-1-1 market and maintains a distinguished reputation among customers.

Frost & Sullivan research indicates AT&T was the leading NG9-1-1 primary service provider in the United States at year end 2019 with approximately 30.6% market share.

Exhibit 1.0

NG9-1-1 Primary Contract Holders Market Share (YE 2019)



Source: Frost & Sullivan

Frost & Sullivan market share metrics are based on the population covered by a primary NG9-1-1 contract holder. A closed NG9-1-1 contract constitutes a legal agreement between the purchasers of NG9-1-1 systems—generally, counties or states that control PSAPs—and the primary NG9-1-1 service provider. AT&T direct NG9-1-1 contracts covered a population of more than 48 million, leading all competitors in the U.S. market, according to Frost & Sullivan analysis.

Criterion 2: Product Quality

Product or Service Receives High Marks for Performance, Functionality, and Reliability at Every Stage of the Life Cycle

In 2011, the National Emergency Number Association (NENA) approved a framework of core technical guidelines for the implementation of a 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. The i3 standard details the infrastructure and interfaces designed to provide the foundation of the NG9-1-1 architecture.

Although NG9-1-1 is still in the early adopter stage, as standards have become more clear there has been momentum in the number state wide and local NG9-1-1 request for proposals (RFPs). In this environment, AT&T’s NG9-1-1 solution enables public agencies to modernize their legacy TDM (time-division multiplexing) circuits with IP-based networks, supporting rapid processing of text messaging and advanced IP based communications. Frost & Sullivan analysis confirms that AT&T’s high performance, fully integrated solution is accelerating the transition to NG9-1-1 by reducing complexity for PSAPs and ensuring new forms of communications can be efficiently and securely routed to the appropriate PSAP.

The solution provides a nationally distributed, geographically diverse and redundant service architecture designed to enhance the customer service experience. AT&T has a nation-wide network of data centers co-located with existing 9-1-1- databases across the U.S., which provide pre-deployed call processing (with capacity to support twice the current volumes). Moreover, the solution’s architecture is unique from competitive offerings and allows PSAPs to handle unexpected call volumes by automatically redistributing these calls to neighboring PSAPs.

Exhibit 2.0

AT&T NG9-1-1 Solution Drives Paradigm Shift in Public Safety

		Traditional 9-1-1	Next-Generation 9-1-1
1	Network Technology	Analog, Circuit-switched Technology	IP-based technology to support voice, text, data, images, video, and multimedia
2	Provisioning & Routing	Static Emergency Service Numbers (ESNs)	Dynamic location information
4	Platform	Closed, Restricted	Cloud-based platforms to enhance incidence intelligence
5	Infrastructure	Legacy Infrastructure	Modular, seamless evolution with technological advancements
6	Features	Limited	Broad array of robust new features and functionalities
Growth Opportunities		Traditional 9-1-1	Next-Generation 9-1-1

Source: Frost & Sullivan

Criterion 3: Customer Purchase Experience

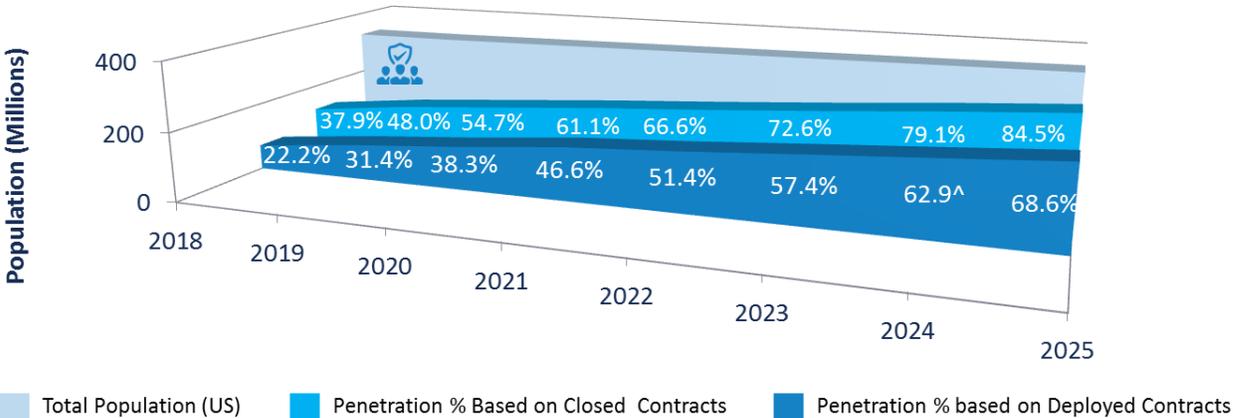
Customers Feel they are Buying the Optimal Solution to Address their Unique Needs

Generally, counties or states that control PSAPs are the purchasers of NG9-1-1 systems. Many states have centrally organized their PSAPs to conduct state-wide NG9-1-1 upgrades, while others choose to purchase upgrades on a PSAP-by-PSAP basis or through regional coalitions. Often, states implement NG9-1-1 incrementally, based on their ability to fund deployments. As standards have become clearer, significant momentum is being seen in the number of statewide and local NG9-1-1 RFPs.

Frost & Sullivan estimates NG9-1-1 market penetration, based on the percentage of the US population covered by closed NG9-1-1 contracts, to grow from approximately 48.0% at year-end 2019 to approximately 84.5% by year end 2025

Exhibit 3.0

NG9-1-1 Market Penetration Forecast (2018-2025)



Source: Frost & Sullivan

In this environment, AT&T has secured primary NG9-1-1 contracts in the following states: Connecticut, Indiana, Kansas, Maryland, North Carolina, Tennessee, Texas, Virginia, and the District of Columbia. AT&T’s progress with existing deployments, coupled with the company’s momentum in capturing new contracts, is a testament to the customer purchase experience. Frost & Sullivan research indicates customers are asserting a positive experience with the deployment process, and feel they have purchased a solution that addresses their unique NG9-1-1 needs and requirements.

Frost & Sullivan believes the next 12 months will be a critical time period for state and local 9-1-1 administrators to identify and secure the appropriate partners for NG9-1-1 implementations. The emergence of COVID-19, in particular, has elevated pressure on states and counties that have not yet initiated NG9-1-1 deployments to accelerate roll-outs. In this environment Frost & Sullivan believes AT&T is particularly well positioned to

expand its current market leadership positioned and accelerate growth in the NG9-1-1 market.

Conclusion

Advancements with next-generation networks and devices have led to a dramatically more diverse set of consumer communication exchanges, including text, data, photos, and video. In this environment, AT&T's NG9-1-1 solution equips PSAPs with the tools to transform the way citizens and public safety entities report, react, and respond to emergency situations, ultimately, leading to safer, smarter and stronger communities.

With its strong overall performance, AT&T has achieved a leadership position in the Next Generation NG9-1-1 market with a share of 30.8% at year end 2019, and Frost & Sullivan is proud to bestow AT&T with the Market Leadership Award in NG9-1-1.

Significance of Market Leadership

Ultimately, growth in any organization depends on customers purchasing from a company, and then making the decision to return time and again. Loyal customers become brand advocates, brand advocates recruit new customers, and the company grows, and then attains market leadership. To achieve and maintain market leadership, an organization must strive to be best in class in 3 key areas: understanding demand, nurturing the brand, and differentiating from the competition.



Understanding Market Leadership

Driving demand, strengthening the brand, and differentiating from the competition all play critical roles in a company's path to market leadership. This three-fold focus, however, is only the beginning of the journey and must be complemented by an equally rigorous focus on the customer experience. Organizations that demonstrate best practices, therefore, commit to the customer at each stage of the buying cycle and continue to nurture the relationship once the customer has made a purchase. In this way, they build a loyal, ever-growing customer base and methodically add to their market share.

Key Performance Criteria

For the Market Leadership Award, Frost & Sullivan Analysts focused on specific criteria to determine the areas of performance excellence that led to the company's leadership position. The criteria include (although are not limited to) the following:

Criterion	Requirement
Growth Strategy Excellence	There is a demonstrated ability to consistently identify, prioritize, and pursue emerging growth opportunities.
Implementation Excellence	Processes support the efficient and consistent implementation of tactics designed to support the strategy.
Brand Strength	The brand is respected, recognized, and remembered.
Product Quality	The product or service receives high marks for performance, functionality, and reliability at every stage of the life cycle.
Product Differentiation	The product or service has carved out a market niche, whether based on price, quality, or uniqueness of offering (or some combination of the three) that another company cannot easily duplicate.
Technology Leverage	There is a commitment to incorporating leading-edge technologies into product offerings for greater product performance and value.
Price/Performance Value	Products or services offer the best value for the price, compared to similar offerings in the market.
Customer Purchase Experience	Customers feel they are buying the optimal solution that addresses both their unique needs and their unique constraints.
Customer Ownership Experience	Customers are proud to own the company's product or service, and have a positive experience throughout the life of the product or service.
Customer Service Experience	Customer service is accessible, fast, stress-free, and of high quality.

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 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.

360-DEGREE RESEARCH: SEEING ORDER IN THE CHAOS



About Frost & Sullivan

Frost & Sullivan, the Growth Partnership Company, helps clients accelerate growth and achieve best-in-class positions in growth, innovation and leadership. The company's Growth Partnership Service provides the CEO and the CEO's growth team with disciplined research and best 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>.