FROST & SULLIVAN

FORTEM™ TECHNOLOGIES

2018 North American Airspace Awareness and Security Solutions Technology Innovation Award

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2018 BEST PRACTICES AWARD

NORTH AMERICA AIRSPACE
AWARENESS AND SECURITY SOLUTIONS
TECHNOLOGY INNOVATION AWARD

2018
BEST PRACTICES
AWARDS

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Unmanned aerial vehicles (UAVs) — i.e., drones — can deliver countless benefits to businesses and their daily operations, such as decreased labor costs and operational expenditures; increased productivity, safety, and revenue; and overall company growth. Drones enable organizations to complete jobs that are too challenging, perilous, or laborious to achieve manually. However, drones operated by a malicious individual can generate serious issues for businesses — e.g., trafficking drugs, weapons, or other illegal objects; terrorist attacks; unauthorized surveillance or intelligence gathering; and stolen confidential information.

As accessibility increases and cost decreases, Frost & Sullivan's independent research confirms that drone purchases among businesses and consumers are on the rise, consequently positioning the UAV industry for considerable impending growth. The United States (US) Federal Aviation Administration (FAA) predicts between 238,000 and 1.6 million commercial UAVs and between 2.75 and 4.47 million consumer UAVs in operation by 2021, totaling over 6 million drones in operation in the US alone. Moreover, global numbers are estimated to reach 4 times US figures; subsequently, there could be over 20 million UAVs in use worldwide by 2021.

As the UAV industry develops at a meteoric rate, businesses realize the need to protect their assets against nefarious drones, chiefly with automated features, as manual methods reduce productivity and increase operational costs. In response to this need, Frost & Sullivan monitors how UAV technology companies have developed counter unmanned aerial systems (C-UAS). Due to the infancy of the industry, many C-UAS vendors are pre-revenue; however, the market entry barriers are low. As such, the industry grew from a few to over 50 companies within two to three years. Currently, a combination of C-UAS market nascence and vendor saturation leaves many businesses unsure which vendor they should select for their counter-drone needs; Frost & Sullivan feels that C-UAS companies must clearly differentiate from competitors through ground-breaking technologies, superior customer service, and other best practices to capture a significant market share.

Lastly, Frost & Sullivan research shows that C-UAS that utilize only one detection or remediation method will lose out to more comprehensive systems capable of incorporating several sensor types, which increase the range and consistency of the technology. Moreover, new technology integration with legacy devices, sensors, and systems provides low initial costs by reducing the need for rip-and-replace strategies. As a result, enterprises can scale and customize their C-UAS effortlessly and quickly. C-UAS vendors that can tackle these issues through innovative technologies — while providing a high return on investment (ROI), low initial cost, and advanced security capabilities — will gain significant market share in the airspace awareness safety and security solutions industry.

Technology Attributes and Future Business Value

Founded in 2016, Pleasant Grove, Utah-headquartered Fortem Technologies (Fortem) leverages advanced SWAP-C (small size, weight, power and cost) radar technologies coupled with advanced airspace digitization software to deliver game-changing C-UAS to protect clients' airspace from unwanted potential threats. Fortem's technologies are key to unlocking a multi-billion dollar future drone economy from enabling mass scale package delivery, to people transportation. The company understands customers' need to integrate its solutions with legacy systems while operating seamlessly with third-party technologies. Notably, the company's solutions are available globally and are utilized by clients worldwide. Fortem's customers include airports, data centers, prisons, stadiums, border patrol agencies, oil refineries, law enforcement officers, search and rescue teams, militaries, and many more organizations.

Providing Comprehensive Airspace Awareness and Security Solutions

Fortem develops beyond visual line of sight (BVLOS) and detect-and-avoid (DAA) solutions to empower customers to take control of and manage the safety and security of their airspace. With a strong focus in artificial intelligence (AI), radar, robotics, and machine learning, Frost & Sullivan recognizes how the company provides comprehensive airspace awareness, safety, and security solutions unparalleled by other competing technologies. Fortem's military-grade, TrueView™ radar product line, SkyDome™ Software and DroneHunter™ platform optimize clients' ability to detect and remediate UAV risks both air-to-air and ground-to-air. The patented AI capability embedded in SkyDome and TrueView solutions enable customers to detect, classify, and assess incoming threats through immediate alerts of invasive or truculent drones, swarms, and manned aerial vehicles. Impressing Frost & Sullivan's analyst team, TrueView's three-dimensional radar sensors are quite compact — 1.5 pounds or less — and monitor and report any airspace activities to operators, any time of day (regardless of the weather).

TrueView's lightweight and air-to-air capabilities enable clients to mount the technology on their drones to survey their airspace, extend the reach of ground sensors and be a force-multiplier for identifying and assessing potentially careless, clueless, or criminal drones making detect and avoid (DAA) and flight beyond visual line of sight (BVLOS) possible. The solution's ground-to-air feature allows customers to monitor their local airspace with superior awareness via the detection range, scalability, and field of view capabilities of TrueView by placing the radars in strategic ground locations. For instance, a network mesh of TrueView radar positioned throughout a city can augment safe city initiatives and make package delivery by drones available on a large scale. Furthermore, TrueView overcomes challenges other competing RF and GPS jamming technologies struggle to conquer such as detecting non-RF emitting drones or "dark drones". Also, by achieving a wider field of view that costs 1/15th of the price, Fortem brings a high ROI and immediate value to clients through superior capabilities and a low initial cost.

Fortem DroneHunter is equipped with TrueView radar and an optional live-feed-capable camera, enabling clients to defend their airspace autonomously. The solution combats malicious UAVs by launching a tethered net that grabs the threatening UAV and prevents the nefarious drone from falling onto people or assets on the ground. DroneHunter either gently sets the offending UAV on the ground in the location it was captured, or delivers the drone to a predetermined area. Fortem SkyDome is an airspace awareness and security platform that enables operators to collect and view data in real time or view history reports for investigations and distinguish between friendly and unfriendly objects. The solution allows operators to customize C-UAS settings — e.g., what action to take with a captured drone or establish monitoring zones and boundaries — according to their security level needs. SkyDome allows third-party technology integration — e.g., cameras, acoustic sensors, and other detection and mitigation solutions. Fortem partners with two camera companies to ensure the payloads are capable of detecting fast-moving drones and can integrate seamlessly with Fortem's solutions. SkyDome supports a portable surveillance solution through a 15-pound, 3-minute installation wireless system that can detect objects in the air and on the ground, which is ideal for border patrol agents, law enforcement officers, and military personnel. Operators can mount the technology in various locations such as a tripod or vehicle — and monitor their environment, even while in transit. Fortem is working with aircraft manufacturers to install the technology on helicopters, allowing pilots to be more aware of their surroundings and avoid potential threats while in flight.

Leveraging Exceptional Customer Service and Innovative Technology to Attract Investors

With the purchase of Fortem's technology and a three-year contract, clients receive in-depth training, customer support, and technical services (including SkyDome software upgrades) via the company's teams. Fortem provides these services to clients directly, therefore positioning the company as the only expert on its solutions. Such strategies allow Fortem to own its solutions, and partner with third-party vendors through a robust set of APIs, thus decreasing the technology's financial cost for clients.

The company has received funding from investors — e.g., Boeing Horizon X, Data Collective, Mubadala Investment Company, and Signia Venture Partners — as these stakeholders clearly recognize that Fortem's solutions solve industry issues that other competing technologies cannot overcome. These investments serve as a testament to Fortem's robust and future-facing position in the airspace awareness, safety, and security solutions industry. Frost & Sullivan affirms Fortem's market leadership, as the company truly differentiates itself from competitors — which is quite evident through client loyalty, investor backing, and superior solutions.

Conclusion

With the growing number of drones — i.e., unmanned aerial vehicles (UAVs) — organizations need to protect their airspace and assets via counter unmanned aerial systems solutions.

Fortem Technologies offers ground-breaking solutions via low size, weight, power, and cost radars, artificial intelligence-enabled drone mitigation, and an innovative airspace awareness and security platform, allowing for legacy security system integrations and unmatched scalability. The company's technologies are field-proven in the industry through customer loyalty and sizeable funding from investors.

With its innovative solutions, investor backing, and strong overall performance, Fortem Technologies earns the 2018 Frost & Sullivan Technology Innovation Award.

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. This spark can result from a successful partnership, a productive in-house innovation group, or a bright-minded 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 Practices Recognition: 10 Steps to Researching, Identifying, and Recognizing Best Practices

Frost & Sullivan analyst 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	• 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	• 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	• 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	• Brainstorm ranking options • Invite multiple perspectives on candidates' performance • Update candidate profiles	Final prioritization of all eligible candidates and companion best-practice positioning paper

STEP		OBJECTIVE	KEY ACTIVITIES	OUTPUT
5	**Assemble panel of industry experts**	Present findings to an expert panel of industry thought leaders	• 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	• 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	• 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	• 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	• 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 is able to share Award news with stakeholders and customers	• 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.