

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

# BEST PRACTICES AWARDS

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

B E S T

2020  
P R A C T I C E S  
A W A R D



PERCEPTO

2020 GLOBAL AUTONOMOUS DRONES  
ENABLING TECHNOLOGY LEADERSHIP AWARD

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## Background and Company Performance

### *Industry Challenges*

Commercial businesses and governments are finding application opportunities for drones—i.e., unmanned aerial vehicles (UAVs)—which are poised to impact multiple industry verticals in various capacities, significantly increasing the benefits to organizations' business operations while enabling them to achieve a high return on investment (ROI). As drone applications emerge in multiple sectors, such as agriculture, mining, oil and gas, construction, utilities, and environmental conservation, technological advancements make it easier to execute complex and diverse data gathering exercises. Some of the emerging commercial drone applications include monitoring, surveillance, disaster management, environmental management, search and rescue, and infrastructure inspection—e.g., power stations, oil & gas infrastructure, mining, solar panels, wind turbines, and roofs.

Innovation in packaged software products and data visualization makes the process more accessible, efficient, and convenient to operators. Drone evolution in the last five years, coupled with the more recent convergence of artificial intelligence (AI), technological innovations, analytics, and the Internet of Things, will drive widespread drone technology adoption through 2030 and beyond. Frost & Sullivan's research analysts predict market revenue (for drone services alone) will grow more than 10-fold from 2020 to reach \$515 million by 2030.<sup>1</sup> Frost & Sullivan's research analysts expect North America to remain the dominant market and predict UAV adoption in the utilities industry to pick up rapidly in the Asia-Pacific and European regions.

The global utilities industry is undergoing a massive shift driven by three main trends—decarbonization, decentralization, and digitalization. Utilities, independent power producers, and other power companies have started leveraging digital technologies such as AI, robotics, cloud computing, edge computing, machine learning (ML), and other technical innovations like UAVs to address business-specific problems and disrupt processes, value chains, and business models.

The successful application of drones across business verticals has concentrated attention across the power sector and—while at a nascent stage—has seen a surge in activity in recent years, particularly in the transmission and distribution segment. Utilities, construction, mining, and other markets acknowledge the role played by UAVs in providing reliable, safe, and efficient inspections, inventory control, security, and a myriad of other use cases. As industries continue to transform, drone technologies will continue to find applications to improve process efficiency, detect and prevent damage (predictive and prescriptive maintenance), and extend asset lifetimes.

### *Technology Leverage and Customer Impact*

Founded in 2014, Modiin, Israel-headquartered Percepto leverages its expertise and experience in the UAV market to develop and manufacture a best-in-class end-to-end autonomous drone solution comprised of the Sparrow drone, Percepto Base, and supporting software. The company serves clients in the Americas, Asia, Europe, and Australia in the automotive, critical

<sup>1</sup> *Drones in the Global Power and Utilities Industry, Forecast to 2030* (Frost & Sullivan, February 2020)  
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infrastructure, defense, industrial, mines, ports, and utilities industries. Frost & Sullivan recognized Percepto as the 2018 Global Enabling Technology Leader and remains impressed by the company's on-going innovation, customer-centric strategies, and overall best practices.

### **Game-changing Autonomous Drone-in-a-box Platform: Percepto Solution**

Percepto equips its solution with advanced analytics, real-time AI, automation software, onboard computer vision, and ML to boost the functionality and value the platform offers clients compared to competing technologies. The company designs its UAVs to perform inspections, measurements, and surveillance at worksites autonomously to decrease the risk of employee injury significantly while enabling them to complete tasks more rapidly than traditional slow and dangerous manual ground methods or pilot-operated drones. Operators can remotely start, monitor, and complete tasks with Percepto's autonomous, intelligent drones through the cloud-based platform and user-intuitive dashboard, allowing them to continue their business operations from anywhere in the world, which considerably reduces operational downtime.

Percepto equips its solution with proprietary AI, ML, and analytics capabilities to execute and manage events that could affect an organization's business operations. The platform notifies operators in real time, enabling security teams to respond to incidents proactively, ultimately optimizing productivity, safety, and security. Furthermore, the Percepto Solution monitors a client's worksite for any external interference—such as a malicious or otherwise unauthorized individual, drone, or vehicle—or improper safety practices—such as an employee not wearing a hard hat or high-visibility safety vest. The company's UAVs use computer vision to detect abnormal activities and identify trends at a client's site and track such anomalous events—e.g., equipment failures and infrastructure damage. Moreover, the user dashboard provides a historical timeline that allows operators to view photos and footage from past events, which is critical for investigative and forensic purposes.

4K high-resolution cameras and thermal imaging optics, combined with powerful data processing capabilities enable the Sparrow to gather aerial images and videos that operators can view in real time, day or night. The thermal camera is also radiometric, enabling operators to measure temperatures of infrastructure, equipment and water. The Percepto Solution is highly compliant with industry regulations, including an Ingress Protection rating of IP55, which enables the UAV to withstand severe weather—e.g., dust, extreme temperatures, heavy winds, rain, and snow—allowing clients to utilize the technology at any time in harsh environments.

The Sparrow operates around the world in various climates, performing missions in the snow and withstanding hurricane level winds. Percepto understands security and safety are pivotal to the markets it serves; thus, the Sparrow functions autonomously to take mandatory actions on behalf of operators. As a result, an organization can avoid emergency failures and shutdowns, ultimately reducing operational downtime and revenue loss while protecting their brand reputation and retaining their customers' trust. The Sparrow can perform scheduled missions or operate on-demand as clients require. Furthermore, after a drone completes a primary job, it will later perform follow-up tasks automatically, if necessary, according to the mission data stored in the cloud.

## Customer Support and Partnerships Promoting Company and Market Growth

Percepto refers to its clients as "design partners" as the company shares its roadmap with customers and receives feedback based on what they need and want the drones to do to enhance their daily business operations. Percepto attends industry conferences, including drone and vertical market conferences, to ensure it remains on the cutting-edge of innovation. Moreover, the company offers clients with proof-of-concept (i.e., proof-of-value), try-and-buy trials, webinars, and software updates. Percepto receives the majority of its business through word-of-mouth; Frost & Sullivan's research analysts point out this demonstrates the high-value of the Percepto Solution and the company's client-centric practices. The company offers two pricing models: A one-time technology purchase or a two to three-year leasing contract.

The company designed its solution with simplicity in mind while also delivering powerful performance. Percepto spends two days with clients to train operators on how to optimize its solution's features to meet business-specific needs and to inform them of UAV industry regulations according to regional laws. For example, the company works closely with the Federal Aviation Administration (FAA) in the United States to remain abreast of new drone regulations and flight programs allowing participating clients to gain approval for specific use cases such as flight beyond visual line of sight (BVLOS). Percepto's close relationships with flight authorities around the world (including FAA, CASA, and others) enable the company to customize its platform to obtain regulatory approvals in order to meet client-specific demands. Approvals such as remote flight controls and operations without a visual observer when flying BVLOS increase the versatility and ROI of each system deployed. Furthermore, Percepto's work with the FAA allows it to contribute to the eventual eradication of some drone flight restrictions, such as acquiring a waiver to relieve a visual advisor from monitoring drones during beyond visual line of sight flights.

Percepto's drones enable clients to optimize security and inspection practices by autonomously completing tasks, such as perimeter patrols and infrastructure inspections, allowing customers to achieve a high ROI. Furthermore, Sparrow deployment provides clients with enhanced incident recognition via computer vision and AI, compared to relying on security personnel or manual inspections to detect events or damage, which can go unseen due to human error and a lack of visual acuity.

Additionally, the Percepto Solution's use quells clients' safety concerns for inspection personnel by significantly reducing the risk related to climbing high infrastructure. Moreover, due to labor hour costs, many organizations employ a minimal amount of security guards at any given time, which is particularly dangerous for overnight guards when they are one of a few people or the only person on-site. However, the Sparrow allows security guards to monitor a facility or multiple facilities remotely through Percepto's dashboard without leaving the security center or ever being on-site. Moreover, security personnel can call for reinforcements—e.g., security guards or first responders—to mitigate an incident. Such benefits and features allow customers to increase safety and security for employees, properties, and assets while decreasing operational expenditures and operational downtime.

Percepto's drone platform integrates with third-party technologies, offering operators superior situational awareness and a comprehensive view of their organization's overall security

posture. For example, Percepto Solution's integration with a third-party security and operating system allows the solution to launch drones, if necessary—assuming clients grant the third-party system access to the Sparrow's controls.

Moreover, in 2019, Percepto added high-resolution two-dimensional mapping capabilities and three-dimensional modeling to meet customer and market demands. The company's customer base and revenues continue to grow as potential clients and existing customers recognize Percepto's unique drone offering and price/performance value. As clients order more Percepto Solutions for their operations and new clients implement the drones for their preventive maintenance, inventory management, inspection, security, and other practices, Percepto has seen a high demand for its game-changing technology.

### *Conclusion*

Frost & Sullivan predicts an expansion of the autonomous drone industry, as demonstrated by the increased implementation and positive impact of unmanned aerial vehicles (UAV) by businesses and governments. Recent innovations in commercial drone technology, such as real-time monitoring, surveillance, and environmental management, facilitate strong operations across numerous business verticals. Furthermore, following the COVID-19 pandemic, businesses are rethinking their business continuity strategies and response to emergencies, with autonomous solutions emerging as a new best practice.

Previously recognized by Frost & Sullivan as the 2018 Global Enabling Technology Leader, Percepto continues to impress with its autonomous drone-in-a-box solution which significantly increases safety and security. The company designed the Percepto Solution to complete a breadth of tasks—e.g., inspections, measurements, and surveillance—by arming it with proprietary advanced analytics, artificial intelligence, computer vision, and machine learning. The solution operates in harsh weather conditions and integrates seamlessly with third-party technologies, increasing its value to users. Furthermore, Percepto complements its technology value with stellar customer support and an unwavering commitment to meet business-specific needs for clients.

For its continuing innovation, customer-centric strategies, and strong overall performance, Percepto is recognized with Frost & Sullivan's 2020 Global Enabling Technology Leadership Award in the autonomous drones industry.

## Significance of Enabling Technology Leadership

Ultimately, growth in any organization depends on customers purchasing from a company and then making the decision to return time and again. In a sense, then, everything is truly about the customer. Making customers happy is the cornerstone of any successful, long-term growth strategy. To achieve these goals through enabling technology leadership, an organization must be best in class in three key areas: understanding demand, nurturing the brand, and differentiating from the competition.



## Understanding Enabling Technology Leadership

Product quality (driven by innovative technology) is the foundation of delivering customer value. When complemented by an equally rigorous focus on the customer, companies can begin to differentiate themselves from the competition. From awareness, to consideration, to purchase, to follow-up support, organizations that demonstrate best practices deliver a unique and enjoyable experience that gives customers confidence in the company, its products, and its integrity.

## *Key Benchmarking Criteria*

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

### *Technology Leverage*

#### **Criterion 1: Commitment to Innovation**

Requirement: Conscious, ongoing adoption of emerging technologies that enables new product development and enhances product performance

#### **Criterion 2: Commitment to Creativity**

Requirement: Technology leveraged to push the limits of form and function in the pursuit of "white space" innovation

#### **Criterion 3: Stage Gate Efficiency**

Requirement: Adoption of technology to enhance the stage gate process for launching new products and solutions

#### **Criterion 4: Commercialization Success**

Requirement: A proven track record of taking new technologies to market with a high rate of success

#### **Criterion 5: Application Diversity**

Requirement: The development and/or integration of technologies that serve multiple applications and can be embraced in multiple environments

### *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 most 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

## 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 <b>Monitor, target, and screen</b>	Identify Award recipient candidates from around the globe	<ul style="list-style-type: none"> <li>Conduct in-depth industry research</li> <li>Identify emerging sectors</li> <li>Scan multiple geographies</li> </ul>	Pipeline of candidates who potentially meet all best-practice criteria
2 <b>Perform 360-degree research</b>	Perform comprehensive, 360-degree research on all candidates in the pipeline	<ul style="list-style-type: none"> <li>Interview thought leaders and industry practitioners</li> <li>Assess candidates' fit with best-practice criteria</li> <li>Rank all candidates</li> </ul>	Matrix positioning of all candidates' performance relative to one another
3 <b>Invite thought leadership in best practices</b>	Perform in-depth examination of all candidates	<ul style="list-style-type: none"> <li>Confirm best-practice criteria</li> <li>Examine eligibility of all candidates</li> <li>Identify any information gaps</li> </ul>	Detailed profiles of all ranked candidates
4 <b>Initiate research director review</b>	Conduct an unbiased evaluation of all candidate profiles	<ul style="list-style-type: none"> <li>Brainstorm ranking options</li> <li>Invite multiple perspectives on candidates' performance</li> <li>Update candidate profiles</li> </ul>	Final prioritization of all eligible candidates and companion best-practice positioning paper
5 <b>Assemble panel of industry experts</b>	Present findings to an expert panel of industry thought leaders	<ul style="list-style-type: none"> <li>Share findings</li> <li>Strengthen cases for candidate eligibility</li> <li>Prioritize candidates</li> </ul>	Refined list of prioritized Award candidates
6 <b>Conduct global industry review</b>	Build consensus on Award candidates' eligibility	<ul style="list-style-type: none"> <li>Hold global team meeting to review all candidates</li> <li>Pressure-test fit with criteria</li> <li>Confirm inclusion of all eligible candidates</li> </ul>	Final list of eligible Award candidates, representing success stories worldwide
7 <b>Perform quality check</b>	Develop official Award consideration materials	<ul style="list-style-type: none"> <li>Perform final performance benchmarking activities</li> <li>Write nominations</li> <li>Perform quality review</li> </ul>	High-quality, accurate, and creative presentation of nominees' successes
8 <b>Reconnect with panel of industry experts</b>	Finalize the selection of the best-practice Award recipient	<ul style="list-style-type: none"> <li>Review analysis with panel</li> <li>Build consensus</li> <li>Select recipient</li> </ul>	Decision on which company performs best against all best-practice criteria
9 <b>Communicate recognition</b>	Inform Award recipient of Award recognition	<ul style="list-style-type: none"> <li>Present Award to the CEO</li> <li>Inspire the organization for continued success</li> <li>Celebrate the recipient's performance</li> </ul>	Announcement of Award and plan for how recipient can use the Award to enhance the brand
10 <b>Take strategic action</b>	Upon licensing, company is able to share Award news with stakeholders and customers	<ul style="list-style-type: none"> <li>Coordinate media outreach</li> <li>Design a marketing plan</li> <li>Assess Award's role in future strategic planning</li> </ul>	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>.