



2018 North American Agriculture Technology  
New Product Innovation Award



2018  
**BEST PRACTICES**  
AWARDS

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## Background and Company Performance

### *Industry Challenges*

Today's farming industry must not only produce enough food to feed 7.5 billion people worldwide, but must anticipate a growing population as well as evolving sustainability, environmental, and food quality regulations. According to the UN Food and Agriculture Organization (FAO), the world will have to produce 70% more food in 2050 than at present to feed the population, which is adding 83 million people year by year. On the ground level, farmers often face challenges such as low productivity and high input costs, which are aggravated by limited access to resources such as technology, good quality inputs, services, and markets to sell produce, which ultimately impacts their productivity and profitability. Also, most farmers face uncertain conditions from season to season that further affects crop quality and yield. In response, farmers globally have been striving to make improvements in crop yield and productivity by various technological means.

Technology companies have been working to provide insights to farmers through multiple data sources including sensors, in-field cameras and aerial imagery gathered by drones and airplanes as well as through satellite imagery data. These imagery data sources require powerful computing resources, massive data storage capabilities, and time to generate insights. Another challenge with these images is that they are highly susceptible to weather interruptions and cloud cover, which adds up to a high level of operational complexity. It requires a combination of multiple data sources to offer more precise monitoring of crop health and reporting. For instance, disruptions in satellite imagery due to cloud cover could be offset by utilizing sensors and in-field cameras as they have the added advantage of being able to operate in all-weather conditions where imagery is collected constantly.

Companies are also integrating multiple data sources with the development of more sophisticated technologies. In particular, artificial intelligence (AI) and big data analytics have become a significant source of assistance for integrating data from multiple sources and reducing some of the unpredictability involved with growing and harvesting crops. Yet the advent of AI and big data has also generated a significant challenge for growers, which is processing and extracting actionable meaning from the huge amount of data generated from various advanced technologies available in the marketplace. Connecting data with the biological properties of crops requires sophisticated calibration of data and agronomic modeling.

### *New Product Attributes and Customer Impact*

Israel-based Prospera Technologies was founded with the goal of relieving farmers from some of their pain points by providing a disruptive computer-vision and AI-based remote agronomy solution. The solution leverages advanced AI capabilities through a convergence of proprietary hardware and software components that offer farmers real-time actionable insights about their crops. Using imagery and proprietary climatic sensors, the solution is capable of collecting real-time crop information that acts as essential input data for analysis or agronomy.

The solution's prime intelligence engine is powered by proprietary techniques based on computer vision, data science, deep learning, and neural networks. The engine is capable of identifying patterns in the agricultural data to detect alarming conditions as well as analyse essential factors such as crop data, nutrition, and water requirements. The solution has been specifically deployed on a cloud-based platform to make it available anywhere across the globe and facilitate true remote agronomical capabilities. Additionally, the solution is designed to make data-driven predictions that can help enhance farming yield. Considering the growing impact of digitization on agricultural industries across the world, Prospera Technologies' solution is expected to have a strong positive impact on customer ROI. The company is leveraging advancements in wireless connectivity, cloud computing, sensor technologies, and AI to power more accurate agronomic analysis and prediction applications for a wider market.

### **Higher Yield through Computer Vision and AI**

Founded in 2014, Prospera Technologies has built an excellent reputation by collecting and analyzing agronomic data using multiple sources of data points which includes multi-sensors, in-field cameras and aerial imagery by utilizing multiple state-of-the-art machine learning algorithms. The company creates solutions to help growers optimize their operations across the full crop cycle. By leveraging its cutting-edge expertise, research, and insight on agriculture technology data, the company outpaces its competitors and upholds its status amongst customers across the world. Prospera Technologies is headquartered in Tel-Aviv, Israel, with offices in Silicon Valley and has established a strong presence in Mexico, Spain, and the United States.

Prospera Technologies' analytics offer early diagnostics that can help farmers contain problems such as pests, parasites, and nutrient deficiencies; the intelligence is able to forecast yields with 92% accuracy. As compared to services provided by other companies, the information transfer rate from Prospera Technologies is much faster when something important is happening in the field. The solution provides farmers a considerable time frame to mitigate risks efficiently. The company achieves optimal results by connecting to range of sensors on different parts of the farm coupled with remote and proximal imagery. The data collected is transferred to the Prospera Technologies cloud where proprietary algorithms calculate the exact amount of agricultural inputs the crops need as well as the optimal timing of irrigation to achieve top results.

Prospera Technologies states that by using its solution for crop protection farmers can increase overall productivity by as much as 30%, depending on what crops they grow, in comparison to following a generic cropping plan. The company also claims to provide its clients up to an average 500% return on their investment through its service, with improvements in data and analytics algorithms.

### **Customer Support Backed by Science**

The main differentiator between Prospera Technologies and its competitors is the fact that it is using agricultural technology that monitors plant health and stress using AI to detect and identify diseases, nutrient deficiencies, and other types of crop stress on farms. The

company understands that farmers are not only looking for detections but also recommendations on what approach to adopt for resolving crop management and irrigation issues. To this end, the company has created an *Artificial Intelligence Roadmap* divided into growth phases. The first phase is acquiring the right data and capturing detections; the second part of the roadmap is making recommendations to farmers followed by the final phase of moving to automation and giving machinery direct instructions to undertake appropriate tasks.

Since all insights are transferred automatically within the app (without the need for user input), Prospera Technologies' customer support team, made up of computer scientists, physicists, and agronomists combined with experienced agri-business leaders in a variety of fields, can focus on continuously providing farmers with reports on how they can increase their yield.

Frost & Sullivan's research has identified companies that measure and monitor crops using drone and satellite imagery do not provide data at the level provided by the camera and sensor hardware system used by Prospera Technologies. Furthermore, the company generates a million daily readings, sends them to its cloud-based servers, and presents actionable information to growers on its analytics section accessible via desktop and mobile app, giving clients anytime-anywhere access to timely insights.

### **Accelerated Brand Growth through Strategic Relationships and Growing Awareness**

Prospera Technologies' commitment to the development of its product offerings and customer service is bolstered by its competent staff and high-quality solutions. These factors allow the company to forge relationships and provide each one a tailored solution. Nonetheless, the company's steady success also hinges on the financial support received from major tech companies such as Qualcomm Ventures, Cisco Investments, and other big investment firms such as ICV and Bessemer Venture Partners.

The company is looking to expand further, has filed for 9 patents on its technology, and actively works to improve the features and functionality of its solutions. To continue building brand equity, Prospera Technologies focuses on strategic communication with partners, investors, and customers through conferences and fairs worldwide. Notably, it has taken part in industry events such as the Thrive Innovation Forum and Goldman Sachs Disruptive Technology event. Frost & Sullivan believes Prospera Technologies' relationship-building efforts are strengthening its global recognition and position in the market while its quality offerings cement its standing as a successful innovator in the agriculture technology market.

In less than 4 years since its founding, a total of over 4,700 fields are being monitored using the company's products, including produce growers for Aldi, Sainsbury's, Tesco, and Walmart, with coverage of \$5 billion in produce annually. Prospera Technologies' sales cycle is radically picking up momentum, and the company expects, based on the current order book, to double their customer base annually.

## Striving towards Expansion Excellence

Despite its out-of-the-gate success, Prospera Technologies is not resting on its laurels. With the affordability of sensors, wireless connectivity, and machine learning processing, competition is expected to intensify, and it is only a matter of time before a competitor offers a similar solution at a competitive price. To stay ahead of the curve, Prospera Technologies decided to enter as many markets as possible instead of focusing on just a few geographical areas to establish dispersed market strongholds, even if there are just a few large orders from each of these markets. Essentially, the company has established contracts with major growers within each market to ensure its foothold, and, today, Prospera Technologies is working to increase the number of clients in each market.

The main markets for crop monitoring in the agritech sector are the United States, Europe, Australia, and Brazil while India, Africa, and China still lag behind at the moment, though Frost & Sullivan predicts that in the medium-to-long term they will become important markets for agriculture technology products and promising targets for Prospera Technologies' expansion roadmap. The company is also expanding into additional geographies that have good opportunities.

## Conclusion

Many farmers in countries across the globe are keenly looking for agriculture technology solutions for the careful monitoring of crop and pest populations. Prospera Technologies is the only agritech company that is offering uniquely accurate remote agronomy solutions that successfully use AI and computer-vision. Its proprietary technology is a cost-effective and scalable solution that enables farmers to understand each plant's individual needs, optimize every aspect of farming, and produce output in a more sustainable way. The company claims that farmers can achieve a 30% increase in yield with 92% accuracy in forecasting crop yield. With its solution's structured approach to crop management combined with the ability to monitor multiple crops and seeds simultaneously, Prospera Technologies is expected to address farmers' most pressing challenges and transform the agriculture industry across the globe.

For its strong overall performance, Prospera Technologies has earned Frost & Sullivan's 2018 New Product Innovation Award.

## Significance of New Product Innovation

Ultimately, growth in any organization depends upon continually introducing new products to the market and successfully commercializing those products. For these dual goals to occur, a company must be best-in-class in three key areas: understanding demand, nurturing the brand, and differentiating from the competition.



## Understanding New Product Innovation

Innovation is about finding a productive outlet for creativity—for consistently translating ideas into high-quality products that have a profound impact on the customer.

## Key Benchmarking Criteria

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

### New Product Attributes

- Criterion 1: Match to Needs
- Criterion 2: Reliability
- Criterion 3: Quality
- Criterion 4: Positioning
- Criterion 5: Design

### Customer Impact

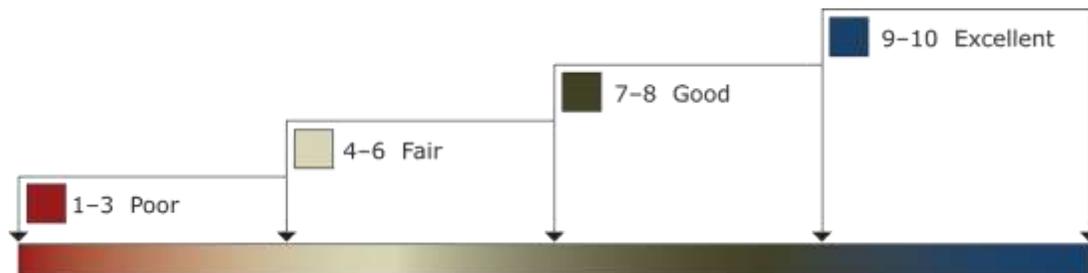
- Criterion 1: Price/Performance Value
- Criterion 2: Customer Purchase Experience
- Criterion 3: Customer Ownership Experience
- Criterion 4: Customer Service Experience
- Criterion 5: Brand Equity

## Best Practices Award Analysis for Prospera Technologies

### 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 design 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 New Product Attributes and Customer Impact (i.e., These are the overarching categories for all 10 benchmarking criteria; the definitions for each criterion 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, Frost & Sullivan chooses to refer to the other key participants as Competitor 2 and Competitor 3.

<i>Measurement of 1-10 (1 = poor; 10 = excellent)</i>			
<b>New Product Innovation</b>	New Product Attributes	Customer Impact	Average Rating
<b>Prospera Technologies</b>	<b>9.5</b>	<b>9</b>	<b>9.25</b>
Competitor 2	8	9	8.5
Competitor 3	8	8	8

### *New Product Attributes*

**Criterion 1: Match to Needs**

Requirement: Customer needs directly influence and inspire the product’s design and positioning.

**Criterion 2: Reliability**

Requirement: The product consistently meets or exceeds customer expectations for consistent performance during its entire life cycle.

**Criterion 3: Quality**

Requirement: Product offers best-in-class quality, with a full complement of features and functionalities.

**Criterion 4: Positioning**

Requirement: The product serves a unique, unmet need that competitors cannot easily replicate.

**Criterion 5: Design**

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

### *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.

*Decision Support Matrix*

Once all companies have been evaluated according to the Decision Support Scorecard, analysts 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.



## 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>• 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>.