FROST & SULLIVAN

ossia

2018 North American Wireless Power Charging Technology Innovation Award

2018 BEST PRACTICES AWARDS

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Background and Company Performance

Industry Challenges

Wireless charging technology for mobile phones, wearables, tablets, and other electronic devices is advancing rapidly, driven by end-user demand for efficiency and simplicity. Product developers have built strong transmitters and receivers to convert radio frequency (RF) signals into usable electricity for wireless devices, similar to Wi-Fi for Internet delivery. RF-based wireless charging is among the most reliable.

Many available wireless charging platforms, however, have several shortcomings. They include:

- **Operational efficiency**. The electronic device has to be in close proximity to the charger. Current technologies tend to be less efficient, charging lower-frequency devices slowly and generating more resistive heat when compared with traditional wired chargers.

- **Cost.** Devices that charge with RF power often must possess a costly wireless receiver device or chip that converts the power into electricity. As electronic devices become smaller, incorporating a receiver is a greater challenge.

- **Compatibility.** Traditional wireless charging technologies are not universal. A technology that can charge devices of multiple brands and types is an unmet need.

Technology Attributes and Future Business Value

Visionary Innovation

Ossia Inc. is a pioneer in RF-based wireless charging. With the Cota® platform, the US-based company envisioned eliminating the limitations of requiring an electronic device to be in close proximity to a charger. Instead, Ossia's technology automatically charges a device when its receiver is in range of the transmitter—delivering up to 1 watt of power at 10 meters. The small transmitter device is designed to be minimally intrusive and easily jell with any smart environment. The company is now focused on delivering RF power with a transmitter that can fit within a building wall or ceiling.

The wireless transmitter delivers RF power by replicating the working principle of a traditional Wi-Fi transmitter. A smart antenna is built within the wireless power transmitter. When the receiver chip installed in an electronic device transmits a beacon signal, the Cota® power transmitter receives it and transmits wireless power along the beacon's path. The technology's transmission range for one transmitter is up to 10 meters (15 meters for two); competing platforms require either the receiver to be less than 1 meter from a transmitter or the device to be placed on a charging mat.

Ossia's goal is to provide long-range transmission of RF power to multiple devices, which will help malls, coffee shops, and retailers increase footfalls.

Frost & Sullivan believes that Ossia's Cota® technology is truly visionary and has the potential to be an integral component of smart homes and smart cities.

Technology Impact

Ossia's patented, award-winning Cota technology is available for license. Manufacturers can build the Cota® transmitter into virtually any shape, including right into building materials, vehicle components, or household objects, for 360-degree power dispersion.

At CES 2017 (the Consumer Technology Association's annual technology showcase in Las Vegas), Ossia unveiled one application of the transmitter technology, Cota Tile, which is a drop-ceiling tile fitted with wireless charging capability to power Cota-enabled devices in a standard-sized room. These tiles can be linked to expand its transmission radius; for example, two linked tiles deliver power across a radius of 15 meters. At CES 2018, Ossia introduced Cota Tile Next-Gen, which increased power efficiency and performance.

The Cota® receiver technology is a cost-effective silicon microchip that can be embedded into a variety of electronic devices, including AA batteries, to retrofit current devices, such as security systems, door locks, thermostats, remote controls, leak detectors, and other Internet of Things-connected devices. It can also be directly integrated into smartphones, wearables, automotive sensors, medical devices, electronic shelf labels and other small devices.

Cota technology has wireless power receiving and data capabilities, which Frost & Sullivan sees as a potential disruptor to the wireless charging and battery industry by giving consumers an alternative to traditional products that can pose an environmental hazard upon disposal. The "Forever" battery demonstration received significant interest at CES 2018.

Industry Impact

The Cota® over-the-air charging platform can charge dozens of enabled devices simultaneously. Consumers can use a cloud-based monitoring facility to oversee charge transmission and power capacity and to control power delivery permissions and security.

Frost & Sullivan, in its industry research, noticed Ossia's potential to disrupt the entire wireless charging ecosystem. In January 2018, in a joint venture, Ossia partnered with Motherson Innovations, a subsidiary of SMRPBV, which develops new technologies and creates platforms for new ideas to be launched. The joint venture focuses on the global integration of Cota wireless power technology into a wide range of non-military passenger, commercial, and public transportation vehicles.

In April 2018, the company also partnered with Molex to collaborate on a joint antenna development project to advance wireless power. Molex brings expertise in materials, manufacturing, and product development.

This collaboration will help further innovations to Cota antennas and give manufacturers

another antenna choice, in addition to licensing the Cota technology.

Application Diversity

Frost & Sullivan recognized the Cota® technology's potential in a variety of applications, including:

- **Consumer electronics,** to power smartphones, laptops, tablets, and wearables, and devices that use traditional batteries, such as clocks, digital cameras, cordless phones, security cameras, home monitoring sensors, and flashlights.

- **Manufacturing,** to support the Industrial Internet of Things, which incorporates billions of sensors and electronic tools that need constant power from batteries or wiring, including home and business needs and automotive sensors. Ossia's technology could allay plant operators' concerns about vibrations and runtime fluctuations, which could damage wires and disrupt operations.

- **Retail,** to help brick-and-mortar stores provide a complete digital experience for consumers and employees by wirelessly powering mobile devices, digital shelves, handheld scanners, smart shopping carts, security cameras, digital displays, self-checkouts, electronic shelf labels, and smoke detectors. The Cota® tile technology could help business owners reduce wiring, installation, and battery replacement costs.

- **Healthcare,** to eliminate invasive battery-replacement procedures for implants, skin patches, and heart monitors; and to transform physical environments by reducing the number of machines tethered to a power source.

Ossia licenses its technology to original equipment manufacturers and product developers and collaborates with them on product designs. It generates additional revenue from royalties. Its team's expertise has resulted in dozens of patents.

The annual CES showcase has helped Ossia demonstrate and spread the word about its technology and its latest innovations.

Conclusion

Frost & Sullivan has concluded that Ossia's Cota® power technology is best positioned to transform the wireless charging industry by addressing consumers' demands for simplicity and compatibility with multiple devices, and by helping customers in the healthcare, manufacturing, automotive, and retail spaces improve efficiency, streamline operations, and generate more business.

With its impressive overall performance, Ossia Inc. has earned Frost & Sullivan's 2018 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. That 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

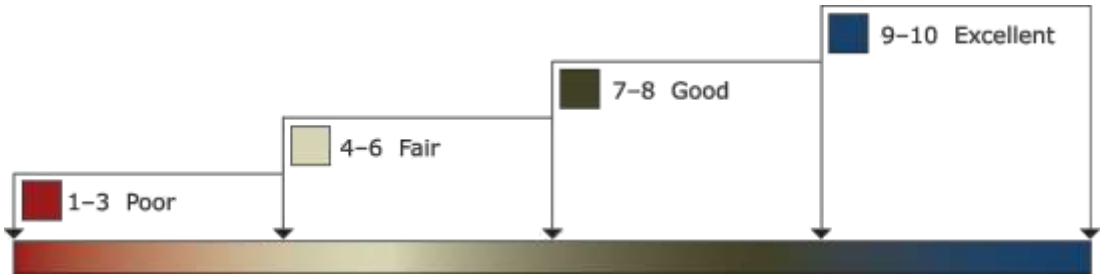
Criterion 1: Financial Performance
Criterion 2: Customer Acquisition
Criterion 3: Technology Licensing
Criterion 4: Brand Loyalty
Criterion 5: Human Capital

Best Practices Award Analysis for Ossia Inc.

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 consulting 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 Technology Attributes and Future Business Value (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, we have chosen to refer to the other key participants as Competitor2 and Competitor3.

Measurement of 1–10 (1 = poor; 10 = excellent)			
Technology Innovation	Technology Attributes	Future Business Value	**Average Rating**
Ossia	**10**	**10**	**10.0**
Competitor2	7	7	7.0
Competitor3	7	6	6.5

Technology Attributes

Criterion 1: Industry Impact

Requirement: Technology enables the pursuit of groundbreaking ideas, contributing to the betterment of the entire industry.

Criterion 2: Product Impact

Requirement: Specific technology helps enhance features and functionalities of the entire product line for the company.

Criterion 3: Scalability

Requirement: Technology is scalable, enabling new generations of products over time, with increasing levels of quality and functionality.

Criterion 4: Visionary Innovation

Requirement: Specific new technology represents true innovation based on a deep understanding of future needs and applications.

Criterion 5: Application Diversity

Requirement: New technology serves multiple products, multiple applications, and multiple user environments.

Future Business Value

Criterion 1: Financial Performance

Requirement: Potential is high for strong financial performance in terms of revenues, operating margins, and other relevant financial metrics.

Criterion 2: Customer Acquisition

Requirement: Specific technology enables acquisition of new customers, even as it enhances value to current customers.

Criterion 3: Technology Licensing

Requirement: New technology displays great potential to be licensed across many sectors and applications, thereby driving incremental revenue streams.

Criterion 4: Brand Loyalty

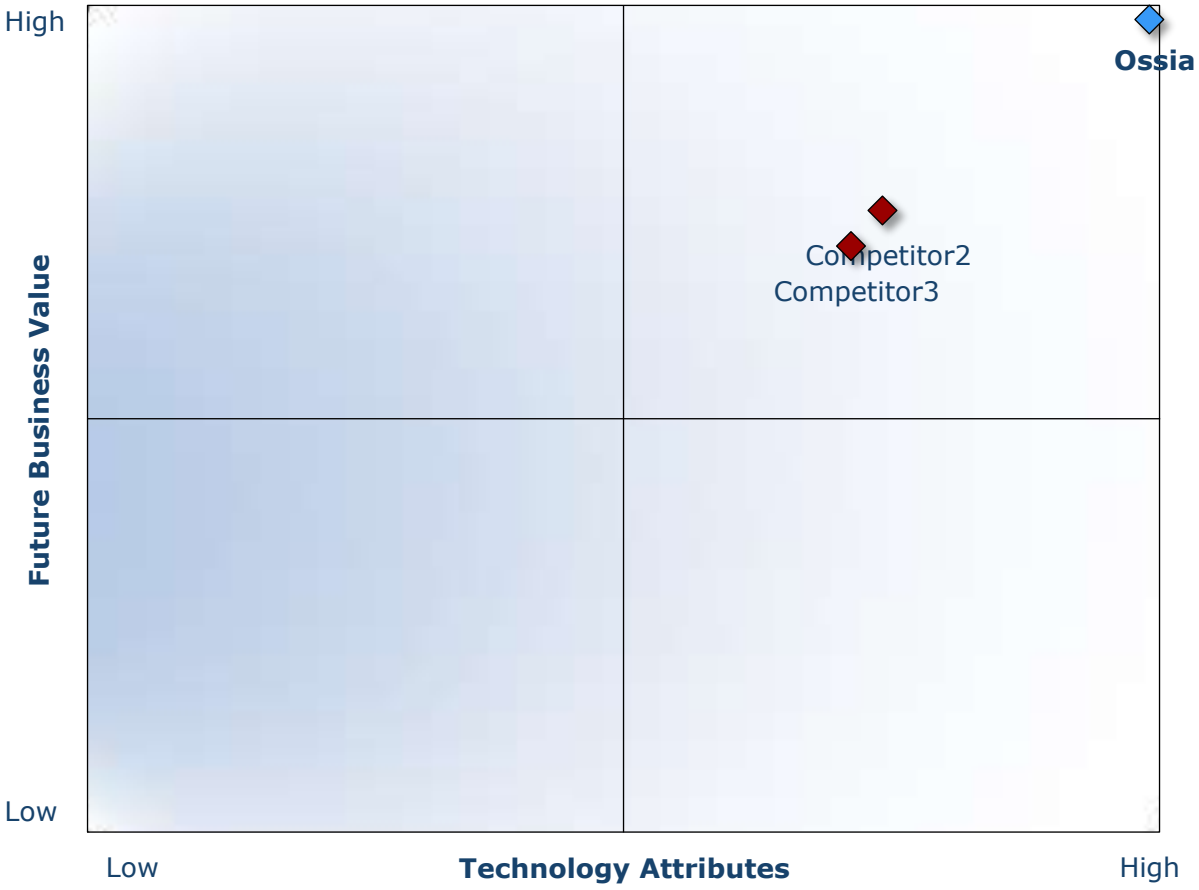
Requirement: New technology enhances the company's brand, creating and/or nurturing brand loyalty.

Criterion 5: Human Capital

Requirement: Customer impact is enhanced through the leverage of specific technology, translating into positive impact on employee morale and retention.

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	**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
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.