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FROST & SULLIVAN BEST PRACTICES AWARD

EV CHARGING MANAGEMENT - EUROPEAN

New Product Innovation 2019

driivz

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2019 | BEST PRACTICES AWARD

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Background and Company Performance

Industry Challenges

Electrification of vehicles is changing the world, with many electric vehicles (EVs) already on the road and increasing rapidly. To keep pace with this growth, the EV charging infrastructure is increasing as well. According to the European Automobile Manufacturers Association (ACEA), the European Union (EU) has approximately 150,000 public charging stations, and according to the European Commission, 2.8 million public charging points will be needed by 2030. EVs are being charged everywhere, including homes, apartments, commercial buildings, office spaces, and gas stations, which means a signficant amount of energy is being used. In Europe, public charging stations use about 50 kilowatts (kW), and charging capacities are increasing, with some as high as 350 kW; therefore, the future requirements of EV drivers must be upgraded to meet this need for high power.

An increasing problem with EVs is the lack of interoperability with EV charging providers, wherein EV owners cannot charge at public charging stations of different providers with which they do not have an account. In future scenarios, a large number of different charger models will likely be introduced, and a future-proof EV charging management platform is needed to cater to these needs. Moreoever, integrating services can be complex, such as multiple payment models and pricing plans and the ability to resolve issues in terms of customer relationship management (CRM).

Another issue faced by EV drivers is an unsatisfactory charging environment. For example, chargers at charging stations often do not work, and this major problem must be addressed to ensure driver satisfaction. In addition, the rapid growth of EVs has created the need for a reliable and user-friendly EV charging management platform that can meet future needs.

New Product Attributes and Customer Impact

Match to Needs

Founded in 2013, Israel-based Driivz Ltd has developed an operating system for global EV charging to help EV charging service providers manage different resources and assets and provide EV services, such as billing and energy management. The company's future-proofed, intuitive platform comprises a software that manages the EV charging network. The operating system ensures seamless driver experience, delivers high reliability and reduces costs for customers while providing advanced energy management tools, billing operations to general additional profits and EV operations management, all of which are unmatched by other market competitors.

Currently, Driivz manages over 10,000 EV chargers, used by over 300,000 drivers worldwide. With Driivz's management platform, EV owners can charge their vehicles anywhere an EV charger is available, irrespective of the service provider. With this open platform, EV manufacturers can easily integrate compatible hardware. Furthermore, being open charge point protocol (OCPP) compliant, Driivz is compatible with over 120 charger types and can integrate with any third-party system, which is a capability its nearest competitors do not offer. For example, Driivz's competitors in the EV space are EV service providers that offer charging management software as a separate service, in addition to

supplying EV chargers. On the other hand, Driivz is a software-as-a-service firm with a sole focus on providing EV charging management capabilities through its software platform that delivers more functionalities and a better customer experience, thus providing the company with a competitive edge. Moreover, according to Driivz, most of its customers migrated from existing solutions in the market to Driivz because of its better capabilities.

Reliability

Issue Management

Fast chargers have several components that could malfunction during operation. Driivz's EV management platform has a proprietary automated self-healing algorithm that remotely resolves 80% of operational problems related to an EV charger. By preventing problems (e.g., user errors), solving connectivity issues, and providing firmware updates across charging stations, Driivz's management platform prevents any service interruption. The solution's algorithm identifies an issue, arrives at the right solution to resolve the issue, and then sends commands to chargers until the problem is fixed. This process reduces the maintenance and downtime of EV charging stations. Frost & Sullivan believes that Driivz's charging platform is unique in the industry because of its degree of automation, compared to competing solutions.

Scalability

The architecture of Driivz's EV charging management platform makes it easily scalable. For example, Driivz manages a large network of EV chargers and collects a significant amount of data and learns from it, thus helping with scalability and improving data accuracy. Moreover, as part of the Orchestrating Smart Charging in Mass Deployment (OSCD) project, Driivz has partnered with Austrian Institute of Technology, Delft University of Technology, and EBG compleo GmbH to develop and use a tool for testing its platform on a large scale. The project started in March 2018 and will continue for 30 months. In addition, this initiative will contribute to Europe's goal of transitioning toward low-carbon emission vehicles.

Advanced Energy Management

Driivz's EV charging management platform has superior energy management algorithms that provide effective demand response. The platform monitors and manages the energy flow between the grid and each EV charging station to ensure grid balance and enable vehicle-to-grid transactions, allowing drivers to become suppliers, receive compensation and reduce energy consumption. In addition, the platform enables smart charging by controlling the power of chargers remotely to ensure as many EVs as possible can be charged simultaneously.

Frost & Sullivan believes that self-healing algorithms enhance the reliability of Driivz's platform and contribute toward reducing revenue losses for EV owners by resolving operational issues.

Customer Purchase Experience and Design

Driivz has a Web-based portal with user-friendly navigation, and front-end dashboards are customizable, thus allowing EV owners to view and manage the charging environment. In addition, the portal enables prompt alerts and quick problem resolution, thus providing a positive customer experience. All information about the driver, such as charging activity, CRM tickets, and contracts, can be viewed by EV owners on this Web portal. Moreover, having centralized control over different elements of the network allows for the easy extraction of any information so that EV owners can monitor their charging activity.

Furthermore, Driivz's EV charging management platform allows EV owners to view and manage their charging needs on mobile devices through an iOS or Android app. While most competing solutions only provide information about the location and navigation instructions, Driivz's app provides more information, such as online, up-to-date tariffs; possibilities for reservation; profile information; past billing information; and the current charging plan.

Driivz's nearest competitor has a separate module for ticketing and operational systems, thus creating the need to log in separately to both platforms. In contrast, Driivz provides an integrated platform with one view that result in a faster response time for customers.

Positioning

Two of Driivz's nearest competitors in the United States do not have the same energy management capability, operational excellence, and extensive billing features as Driivz. These competitors offer charger solutions and operate as service providers, in addition to offering the charging management software. In contrast, Driivz is a complete software provider, thus ensuring its software solution stays ahead of industry needs. In addition, unlike these US competitors, Driivz has a global presence and offers its EV charging management platform in 15 countries worldwide. Moreover, Driivz's European competitors do not offer the same extensive range of functionalities or features with regard to billing management and energy management.

Recently, Inven Capital joined a funding round totaling $12 million, led by UK-based international energy and services company Centrica plc. Driivz received the funding after extensive due diligence on its unique and innovative technology. According to Michal Mravec, Investment Manager at Inven Capital, "INVEN continually seeks investment opportunities in companies positioned to lead the energy revolution such as Driivz, which offers a comprehensive and innovative platform providing the most advanced energy management capabilities."

Based on Frost & Sullivan analysis, Driivz's global presence and funding support from big energy participants provide the company with a competitive edge in the European EV charging management industry.

Brand Equity

Free Electrons, a consortium of 11 energy utilities worldwide, is working toward nurturing promising energy start-ups, and it selected Driivz as one of 12 start-ups to participate in its accelerator program in 2017. Being selected by a group of prominent utilities from 450

selected applications across 51 countries provides Driivz with a significant brand name in the global market.

Furthermore, in 2018, Driivz's partnered with ElaadNL, a knowledge and innovation center in smart charging infrastructure, to help the EV industry promote global EV charging standards. As part of this ongoing partnership, ElaadNL has deployed an on-site EV management platform based on Driivz's technology. Driivz's platform is fully compliant with OCPP 2.0, which enables flexible charging based on algorithms that balance demand-supply, and the company is the first to comply with ISO 15118, which an international standard that enables the bidirectional charging of EVs, or vehicle-to-grid (V2G) technology.

Conclusion

The lack of interoperability of EVs at EV charging stations of different service providers is a key issue hindering wide-scale adoption. Moreover, a user-friendly charging management platform is needed that can ensure EV driver satisfaction.

Israel-based Driivz offers an operating system for global EV charging that is compatible with over 120 EV charger types. By resolving 80% of operational problems remotely, this charging management platform reduces the downtime and maintenance of charging stations. The company's customizable Web-based portal and mobile app provide customers with an array of functionalities to achieve a superior customer experience. In addition, with a sizable funding from a prominent energy company, Driivz is well positioned to expand its already established global presence. Driivz's platform is future proofed by complying with the ISO 15118 standard for V2G technology.

With its strong overall performance, Driivz has earned Frost & Sullivan's 2019 New Product Innovation Award in the European EV charging management industry.

Significance of New Product Innovation

Ultimately, growth in any organization depends on 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 2 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 Driivz

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 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

9–10 Excellent
7–8 Good
4–6 Fair
1–3 Poor
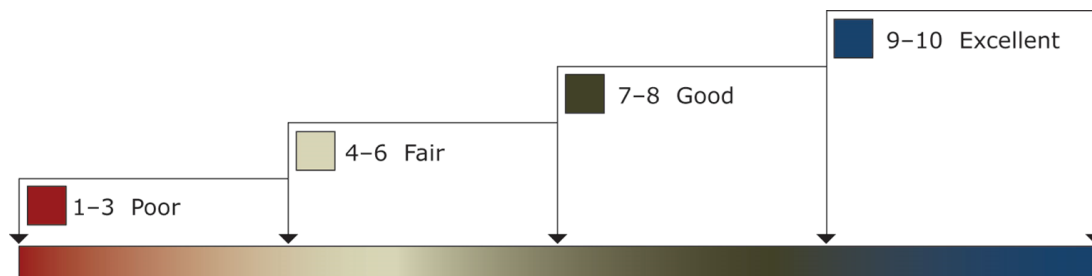
The Decision Support Scorecard considers New Product Attributes and Customer Impact (i.e., the overarching categories for all 10 benchmarking criteria; the definitions for each criterion are provided beneath the scorecard). The research team confirms the veracity of this weighted scorecard through sensitivity 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 has chosen to refer to the other key participants as Competitor 1 and Competitor 2.

Measurement of 1–10 (1 = poor; 10 = excellent)			
New Product Innovation	New Product Attributes	Customer Impact	**Average Rating**
Driivz	**9.5**	**9**	**9.25**
Competitor 1	8	8.5	8.25
Competitor 2	7	7	7

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 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.
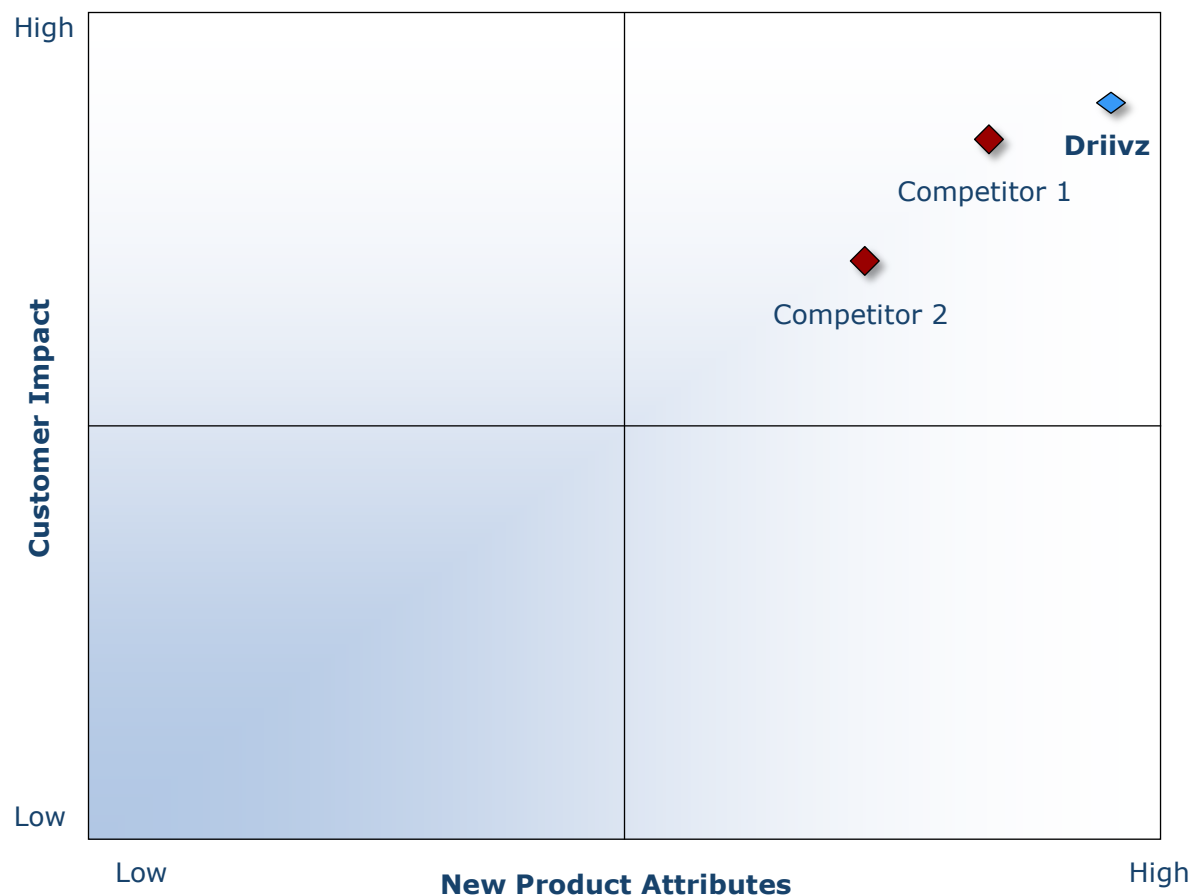
Best Practices Recognition: 10 Steps to Researching, Identifying, and Recognizing Best Practices

Frost & Sullivan analysts follow a 10-step process to evaluate award candidates and assess their fit with select best 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	• 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	• 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	• 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	• 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	• 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 practices award recipient	• 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 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 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.