

FROST & SULLIVAN

SPIERS NEW TECHNOLOGIES

2022
MARKET
LEADER

NORTH AMERICAN
ELECTRIC VEHICLE BATTERY
4R SERVICES INDUSTRY

Best Practices Criteria for World-Class Performance

Frost & Sullivan applies a rigorous analytical process to evaluate multiple nominees for each award category before determining the final award recipient. The process involves a detailed evaluation of best practices criteria across two dimensions for each nominated company. Spiers New Technologies excels in many of the criteria in the electric vehicle battery 4R services space.

AWARD CRITERIA	
Growth Strategy Excellence	Technology Leverage
Implementation Excellence	Price/Performance Value
Brand Strength	Customer Purchase Experience
Product Quality	Customer Ownership Experience
Product Differentiation	Customer Service Experience

Growth as a Challenge

Sales of electric vehicles (EVs) and plug-in hybrid EVs (PHEVs) continue to grow exponentially year over year globally. Although new light-duty vehicle sales declined sharply in 2020 in the United States,

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Best Practices Research Analyst**

primarily due to supply chain shortages associated with the COVID-19 pandemic, EV sales continued to increase from the previous year. However, although EV sales are a small percentage of overall new light-duty vehicle sales, they rose from 1.4% (of all sales) in 2019 to 1.7% in 2020¹. From January to June 2021, EVs represented 2.4% of all new-vehicle registrations. That is a small amount but still represents 117.4% growth year over year.²

¹ FOTW #1200, August 23, 2021: Sales of New Electric Vehicles in the U.S. Were Up for 2020 While Conventional New Light-Duty Vehicle Sales Were Down

² Source: Experian Automotive new registrations from January through June of each year from 2019-2021.

In the EV space, original equipment manufacturers (OEM) initiated lifecycle management and reusing batteries that are no longer viable for efficient vehicle use. Frost & Sullivan monitors how 4R services (which stands for remanufacture, refurbish, repurpose, and repair) are essential for preserving the investment value into battery manufacturing technology. In this atmosphere of growth and by working closely with significant OEMs, Spiers New Technologies (SNT) positioned itself idyllically as a foremost provider of 4R services. The company occupies the junction where some of the most sophisticated vehicle technology ever developed meets real world wear and tear of daily use. Not only does SNT understand how vehicle batteries degrade over time and use, but more importantly SNT understands how those same batteries can be refurbished and repurposed to a second life use. Frost & Sullivan lauds SNT for its high level of experience and expertise in the 4R multiple OEM battery packs market.

Leadership in a Complex Market

The SNT's 4R market functions include everything from picking up battery packs to delivering refurbished batteries and storing battery packs for OEMs. The company has evolved into the one-stop shop for all services related to the lifecycle management of EV and PHEV batteries, and the champion of

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this fantastic evolution is Alfred, SNT's proprietary dealer and data management system. Alfred is a unique PHP/MySQL web application³ that collects, manages, and processes battery and battery-related information. The application receives input data from various sources, including SNT test equipment, SNT proprietary battery research equipment, production operators, OEMs, engineers, stakeholders, dealerships, logistics companies, and major shipping entities. Alfred never sleeps, constantly studying and processing the information in its databases. In a typical 24-hour period, Alfred manages the production of refurbished battery packs in five facilities divided across two continents, coordinates forward and reverse logistics

to support thousands of dealerships, sends hundreds of emails, and provides on-demand data analysis and report generation to hundreds of users. The solution is at the center of SNT's value proposition to OEMs, storing information on battery durability and tracking the entire journey of battery packs, from their origin to where they are dispatched along with data on capacity and internal resistance. Alfred's differentiating feature is that it provides OEMs with a great understanding of thermal management systems, as battery pack data matches zip codes and climates. The application stores all part specifications, including serial and part numbers, and compares them with the vehicle identification number. In addition, Alfred enables an audit trail of batteries, stores information on battery durability. According to Frost & Sullivan analysis, SNT is the only market participant that caters to almost all OEMs

³ PHP is a fast and feature-rich open-source scripting language used to develop Web Applications or Internet / Intranet Applications. MySQL is a powerful open-source database server built on a relational database management system (RDBMS) and can handle a significant concurrent database connection.

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Penultimate in 4R

Frost & Sullivan points out that an EV and PHEV battery's unused capacity retained for a typical battery is less than its full power capacity upon removal. Although the remaining capacity cannot power a vehicle, it has alternate use opportunities, such as charging stations and solar energy applications. EV batteries contain multiple modules; the faultiness of one or a few modules does not render the entire battery unusable. Faulty modules are replaceable, and existing modules are utilized for many other purposes. In this scenario, SNT extends the economic life of the battery pack and, in doing so, is even more valuable to its customers.

Grow and Grow Some More

SNT has indicated that Alfred will continue to be crucial to future growth. The company has facilities in Oklahoma and the Netherlands and plans to expand its operations further in Europe. A recent announcement that Cox Automotive, which has more than 40,000 auto dealer clients on five continents worldwide, will add SNT to its portfolio of auto-related brands accelerates this expansion. In addition to hastening SNT's growth, the company will also expand its technology and distribution centers, having recently taken possession of the keys to its future Detroit location, and plans to expand to the west coast next year. SNT keeps adding space, customers, and employees. Mr. Dirk Spiers, SNT's president, founder, and chief executive officer, said, "These are exciting times. I think what SNT offers are economies of scale that no one else can get close to and economies of knowledge. With Alfred, we have terabytes of data to help us grow." This growth does not occur without challenges to overcome, however. COVID-19 supply chain challenges have impacted practically every business. However, with the growing universe of EV-related jobs, there is an increasing shortage of talent, e.g., engineers. Growth is not a bad challenge to have and can be overcome, as the company's history has shown.

Conclusion

As the growth rate for electric vehicles (EV) and plug-in hybrid EVs (PHEV) increases, the demand for batteries will increase, and Spiers New Technologies' (SNT) solutions will experience an increase in demand. These developments have the company investing in new facilities in North America and abroad to address this expected growth. Along with creating clear value in the aftermarket, SNT properly supports original equipment manufacturers in their strategies. The data capabilities of the company's platform, Alfred, improve the battery's thermal management systems and decode the external environment's effect on the battery. Alfred positions the company ahead of the competition in the North American EV and PHEV 4R battery services industry.

Given its strategic central location in the United States, SNT is expected to be a major transit hub for EV and PHEV batteries in the next few years and edge out its competition. In addition, the company's new tech centers will further widen its presence. Frost & Sullivan commends SNT for innovative advances and solutions in this space. With its strong overall performance, SNT earns the 2022 North America Frost & Sullivan Market Leadership Award in the electric vehicle battery 4R services industry.

What You Need to Know about the Market Leadership Recognition

Frost & Sullivan's Market Leadership Award recognizes the company that achieved the greatest market share resulting from outstanding performance, products, and services.

Best Practices Award Analysis

For the Market Leadership Award, Frost & Sullivan analysts independently evaluated the criteria listed below.

Growth Strategy Excellence: Company demonstrates an ability to consistently identify, prioritize, and pursue emerging growth opportunities

Implementation Excellence: Company processes support efficient and consistent implementation of tactics designed to support the strategy

Brand Strength: Company is respected, recognized, and remembered

Product Quality: Products or services receive high marks for performance, functionality, and reliability at every stage of the life cycle

Product Differentiation: Products or services carve out a market niche based on price, quality, or uniqueness (or some combination of the three) that other companies cannot easily replicate

Technology Leverage: Company is committed to incorporating leading-edge technologies into product offerings to enhance product performance and value

Price/Performance Value: Products or services provide the best value for the price compared to similar market offerings

Customer Purchase Experience: Quality of the purchase experience assures customers that they are buying the optimal solution for addressing their unique needs and constraints

Customer Ownership Experience: Customers are proud to own the company's product or service, and have a positive experience throughout the life of the product or service

Customer Service Experience: Customer service is accessible, fast, stress-free, and of high quality

About Frost & Sullivan

Frost & Sullivan is the Growth Pipeline Company™. We power our clients to a future shaped by growth. Our Growth Pipeline as a Service™ provides the CEO and the CEO's growth team with a continuous and rigorous platform of growth opportunities, ensuring long-term success. To achieve positive outcomes, our team leverages over 60 years of experience, coaching organizations of all types and sizes across 6 continents with our proven best practices. To power your Growth Pipeline future, visit Frost & Sullivan at <http://www.frost.com>.

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Frost & Sullivan's proprietary model to systematically create ongoing growth opportunities and strategies for our clients is fuelled by the Innovation Generator™.

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Key Impacts:

- **Growth Pipeline:** Continuous Flow of Growth Opportunities
- **Growth Strategies:** Proven Best Practices
- **Innovation Culture:** Optimized Customer Experience
- **ROI & Margin:** Implementation Excellence
- **Transformational Growth:** Industry Leadership



The Innovation Generator™

Our 6 analytical perspectives are crucial in capturing the broadest range of innovative growth opportunities, most of which occur at the points of these perspectives.

Analytical Perspectives:

- **Mega Trend (MT)**
- **Business Model (BM)**
- **Technology (TE)**
- **Industries (IN)**
- **Customer (CU)**
- **Geographies (GE)**

