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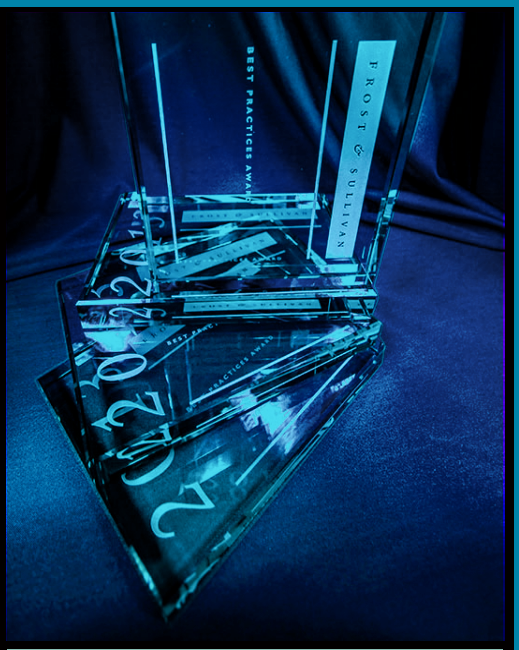
Life Is On | Schneider Electric

2016 Global Artificial Lift Automation New Product Innovation Award



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2016 BEST PRACTICES AWARD

GLOBAL ARTIFICIAL LIFT AUTOMATION
NEW PRODUCT INNOVATION AWARD

2016
BEST PRACTICES
AWARDS

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Background and Company Performance

Industry Challenges

According to the Energy Information Administration, United States (US) oil production increased to 8.7 million barrels per day in 2014[1]. Despite this increase, worldwide oil price fluctuation continues to have a substantial impact on upstream oil and gas projects, but midstream pipeline projects are registering robust growth. The overall impact of lowered crude oil price is estimated to result in a revenue loss of about $300 million in 2016 in the global automation market, causing a rising focus on lowering overall operating costs while simultaneously increasing yield efficiency. Frost & Sullivan research expects the global automation industry to grow at 4.5%, from $53.5 billion in 2015 to $55.9 billion in 2016. In particular, the process automation segment, which increased by 1.6% in 2015, is forecast to grow at 4.2% in 2016, while the discrete automation segment, which rose by 4.5% in 2015, is expected to increase by 5.5%.[2] Frost & Sullivan believes that the managed services model dominates service revenue growth, with a growing role of managed cyber-security services, remote monitoring services, key performance indicator based plant data analytics services, and connectivity and convergence services.

Upstream oil producers face a variety of challenges while trying to maintain production from wells. Oil volumes continuously vary, and it is difficult to optimize production while simultaneously keeping surface equipment operating efficiently to maximize yields. As reservoir pressures drop or production depletes, oil producers choose to run some sort of artificial lift to maintain or improve production levels. Majority of the artificial lift methods are based on a down-hole pump, and these require a prime mover (either induction or permanent magnet motor) to assist with running the pumping unit. Down-hole pumps may require frequent repairing if not operated properly, causing oil producers to lose yields due to maintenance downtime. Additionally, down-hole pumps running at constant speeds consume large amounts of electricity, unnecessarily adding to energy costs. Upstream oil producers need a solution that will enable them to improve production and automatically adjust pump speeds to maximize efficiency and production while minimizing unnecessary wear and tear and eliminate unnecessary electricity consumption.

New Product Attributes and Customer Impact

Headquartered in Rueil-Malmaison, France and founded in 1836, Schneider Electric has extensive expertise in automation, which it leveraged to become a leader in upstream Oil & Gas automation. The company recently released its Realift™ Rod Pump solution that allows oil producers to enhance production and reduce energy costs. The system's advanced flexibility enables producers to upgrade and update the solution throughout the pump's life cycle as well as integrate with third-party solutions, reducing unnecessary purchases and

[1] http://instituteforenergyresearch.org/analysis/2014-record-year-for-u-s-oil-production-largest-increase-in-over-100-years/
[2] Frost & Sullivan Report K-016-10. *2016 Outlook of the Global Automation Industry: Industrial Internet of Things (IIoT) Technologies and Innovative Service Model Will Lead Market Growth*. March, 2016.

overall operating costs.

Schneider Electric's Advanced Automation Capabilities: The Realift™ Solution

With a strong history in automation, Schneider Electric ensures industry-leading automation capabilities. Schneider Electric leveraged this expertise in conjunction with its extensive line of drive systems and remote terminal units (RTU) to create the Realift™ Rod Pump solution as a natural extension of the company's offerings and technological capabilities. It designed the Realift™ solution on top of a powerful automation platform, providing it with significantly advanced automation capabilities than its competitor's offerings. The Realift™ solution enables controllers to autonomously control the pump speed to protect both the surface and wellhead equipment from unnecessary wear and damage. Additionally, the system can detect and adjust the pump's speed and ensure there is enough liquid in the pump, hence avoiding any pump-off scenarios. In addition, the Realift™ solution can automatically detect and mitigate multiple failure scenarios (such as gas lock and floating rod) to protect the pump against unwanted failures. In addition to controlling the pumps through conventional load cells and proximity sensors, the Realift™ solution's automation also enables the system to control the pump on torque feedback, , hence facilitating a streamlined pumping process and reducing requirements on the operator.

Schneider Electric's Commitment to Quality

Traditional systems require load cells and proximity sensors to measure and control the well's performance. The Realift™ Rod Pump solution can run in torque only mode for control purposes, reducing the amount of hardware (and thereby expense) required while simultaneously increasing control precision. Furthermore, oil producers commonly purchase multiple pieces of hardware—including the RTU, variable speed drives, and controller—and integrate equipment and software from multiple vendors to monitor and automate a task on the pumping well head. Schneider Electric's Realift™ Rod Pump solution entails the full line of equipment and software required to complete tasks and provides multiple levels of functionality in addition to merely controlling pumps, reducing the overall footprint on the well head and enabling users to leverage a single RTU automation platform (Realift™ solution) for various tasks. Schneider Electric designed the Realift™ controller for flexibility, ensuring it can remain agile for different artificial lift methods throughout the well's life. As a result, customers do not have to make any hardware changes at the well as and when the artificial lift method changes. This eliminates unnecessary expenditures at various stages of the well production.

Commitment to Providing High Return on Value

Schneider Electric also maintains an extensive line of variable speed drives, offering customers a full-package solution when coupled with the Realift™ Rod Pump solution.. The synergy between the VSD and RTU solution enables customers to achieve a high resolution of control and advanced functionalities. Furthermore, the Realift™ Rod Pump solution can integrate with third-party variable speed drives; ensuring customers do not unnecessarily

spend money replacing drives they already own due to integration gaps.

Commitment to Continuing Innovation

Traditional method for managing rod pumps requires a controller at each well site, , and this requires a high initial investment from oil producers in addition to maintaining multiple hardware.. Schneider Electric's continual innovation with the Realift™ Rod Pump solution highlights its commitment to providing high value; Schneider Electric is planning to release an upgrade to the solution in the first quarter of 2017 that will enable operators to control up to four pumps with a single RTU. This first-of-a-kind offering will save the company's customers upfront equipment costs and enable controllers to manage multiple wells sites from a single location. Furthermore, this controller can run custom programs, automating processes in the field—e.g., tank monitoring or well testing—to facilitate advanced insight into Oil & Gas production.

Easy to Use Interface

The Realift™ Rod Pump solution has a touchscreen human machine interface (HMI), enabling users to easily view and create system settings and parameters. As the HMI is a Schneider Electric solution, the screen graphics and views are easily customizable to meet customers' specific needs. Furthermore, operators set well basic configurations—such as pump and surface parameters, motor size, and downhole depth of the rotor—enabling the company to tailor upgrades or updates to increase the system's ease of use and intuitiveness. Furthermore, the company designed the Realift™ Rod Pump software (embedded as a template in its ClearSCADA software suite) to have similar HMI graphics and views for both the operators in a control room and the field technicians on well sites allowing the users to employ the same technical language and view data in the same way to facilitate easier conversations or setting changes. Finally, Schneider Electric manufacturers over 90% of its products internally, giving the company end-to-end control over its supply chain. This full supply control uniquely allows Schneider Electric to ensure component availability and empowers the company with advanced flexibility to meet any customization requests from its customers.

Easy Installation and Advanced Customer Support

Schneider Electric's Realift™ Rod Pump system is easy to install and comes with a step-by-step installation guide. The company designed the system with the operator's use in mind, leading to advanced intuitive capabilities tied directly with parameters that operators set. As a result, operators can install the software and set system parameters, fully implementing the Realift™ Rod Pump software in only a few hours. Schneider Electric works with all customers to ensure that the solutions purchased will most effectively overcome their needs and enable the client to experience a high return on investment.

The company maintains an extensive customer service department available 24/7 to help answer any questions or help customers with the software installation process. Regardless

of the purchasing source—directly from Schneider Electric or through distribution partners—the company commits to its customers' satisfaction and offers support throughout the lifecycle of its systems. If customers have technical questions that the client service representatives cannot answer, the request escalates to a Schneider Electric technical specialist, who will provide deep support to the client, ensuring the entire solution correctly runs to eliminate production downtime.

Strategic Market Expansion

Schneider Electric has a dual "to market" strategy that leverages both direct and indirect sales methods. The company's direct sales force operates primarily in North America and Europe, where the company conducts the largest portion of its business, but Schneider Electric partners with one of the largest global service providers, enabling the company to offer and support its solutions worldwide. These partnerships also allow Schneider Electric to leverage feedback and track trends globally to identify customer needs and ensure that the company's future innovation fulfills these requirements. Furthermore, Schneider Electric leverages these partnerships and quickly brings new products to market. In addition to these external partnerships, Schneider Electric holds information sessions in local hubs and countries, leveraging its technologies to ensure customers receive education regarding solutions' capabilities and are fully leveraging its capabilities. Furthermore, Schneider Electric holds internal information sessions, i.e., webinars or events, to educate its direct sales team and partners regarding Schneider Electric's automation offerings and technology capabilities.

Conclusion

Due to the recent downturn in oil prices, upstream oil producers must focus on lowering operating costs to sustain long-term survival. Schneider Electric leveraged its history of expertise in artificial lift and wellhead automation to create its advanced Realift™ Rod Pump solution to enable customers to autonomously control rod pumps to protect both the down-hole and surface equipment from unnecessary wear and damage. Schneider Electric's commitment to innovation and customer satisfaction led it to partner with global service distributors, ensuring its customers are fully supported for its products and receiving a high return on investment.

Because of its strong overall performance, Schneider Electric is recognized with Frost & Sullivan's 2016 Global New Product Innovation Award in the artificial lift automation industry.

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

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 players and for identifying those performing at best-in-class levels.

360-DEGREE RESEARCH: SEEING ORDER IN THE CHAOS

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

Frost & Sullivan Awards 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 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 winner	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 may 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

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 over 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.