Statoil Seeks Standardization to Optimize Offshore Operations

by Karen Boman | Senior Editor, Rigzone | Monday, July 25, 2016

Statoil's recent agreement with AspenTech illustrates the overall industry trend towards optimizing operations through standardization.

Oil and gas companies have long sought to solve the challenges of high-cost, high-risk offshore production. These ongoing challenges, combined with the more recent obstacles of drastically lower oil prices and increasing regulatory and safety requirements, has prompted oil and gas companies to explore all avenues of enhancing operational productivity, efficiency and safety.

This includes new technologies made possible by web-based interfaces, high-computer power and cutting edge data science that allow operators to put data-driven optimization in place. Companies are exploring Big Data analytics, integration of sensors of Internet of Things (IoT) technologies, and advancements in machine learning to enhance operational efficiency, allowing for quick problem-solving as field issues arise. The recent downturn also has prompted companies to examine their operational standards to enhance productivity and efficiency.

Production optimization through data management has been the goal behind Statoil ASA's partnership with Bedford, Mass.-based AspenTech Technology Inc. Statoil has used AspenTech's data management solutions for more than 10 years in its oil refineries and a number of offshore platforms, said Robert Golightly, senior product marketing manager for AspenTech, in a statement to Rigzone. AspenTech provides software that optimizes process manufacturing for industries such as energy, chemical, engineering and construction, and industries that manufacture and create products from a chemical process. This allows process manufacturers to implement best practices for optimizing their operations.

Recently, Statoil selected AspenTech's aspenONE Manufacturing Execution Systems (MES) as its Information Manufacturing Systems (IMS) technology standard. In the past, oil and gas companies had often relied on different site and installation teams to use their own systems to optimize production. Like other companies, Statoil had used different IMSs to collect, store and display process data at different work sites, said Golightly. The result was multiple tools in use throughout companies, said Golightly. In the case of Statoil, the multiple tools it used to gather, store and display process data, hindered its visibility objective in monitoring and understanding its operations. Since most providers of data historian platforms feature its own proprietary viewer that does not necessarily work with other systems, accessibility and full insight into operations was limited, Golightly stated.

"A good overview of historical process measuring data is essential for good operation of the plants," Statoil spokesperson Ola Anders Skauby told Rigzone. "Each plant has thousands of measuring points that are read continuously. The measuring

points form the basis for key decisions to understand and analyze what has happened, and to optimize and improve plant operations. By introducing one standard solution for storing and presenting process data, Statoil will achieve considerable cost savings and simplification."

In April, Statoil reported a surprise profit for first quarter 2016 due to the success of its cost-cutting measures offsetting the lowest crude prices in nearly 12 years. Statoil Chief Executive Officer Eldar Saetre attributed the results to strong operational performance across all business areas, high production efficiency and results in line with expectations from liquids trading and refining.

Software has changed production optimization by allowing users to quickly aggregate data from multiple sources, including competitors' historians - or software programs that record and retrieve production and process data by time – and data distributed over a wide geographic area, into graphics, trends and dashboards, said Golightly.

"Users are able to aggregate and analyze large quantities of data on demand and accommodate data requests from a large number of users within a reasonable amount of time," Golightly explained. By standardizing on aspenONE MES products, owner-operators can apply data-driven optimization to a costly and risky part of the business, Golightly said, adding that this optimization will allow Statoil to achieve significant savings and simplify its operations.

The combined pressures have made a technology approach based on a system of success very attractive, Golightly explained. Integrated, advanced software ensures all areas of sustainability – environment, health and safety and profitability – are simultaneously addressed to drive efficiencies and performance improvements into the business, said Golightly.

"Having a comprehensive overview of historical measurement data from the process is important for the effective operation of the plants," Golightly explained. "The measuring points are the basis of understanding and analyzing what has happened, so that important decisions can be made to optimize and improve plant operations."

The trend toward the use of mobile devices such as cell phones and tablets to track operations – coupled with bringing younger oil and gas engineers up to speed and capturing knowledge from retiring older workers – has prompted the needs for technology solutions such as web-based functionality and performance, which require no installation and offer quick and easy access to advanced reports, trend curves and process graphics on mobile devices. This allows users to gain access to vital information and can keep up to date with operational challenges anytime and anywhere, Golightly explained.

Additionally, tools that allow for "Google-like" searches across all processes and plant data throughout a company's global facilities also are needed as oil and gas companies look to enhance their visibility across operations, Golightly stated. The capability will impact day-to-day operations by making things more efficient.

AspenTech has worked with a number of major global companies in the upstream and downstream sectors. One global chemicals producer utilized AspenTech's visualization solution, aspenONE Process Explorer, to reduce the time, cost and complexity of installation and upgrades typical of deploying software with desktop components. The solution also offers reduced cybersecurity vulnerability, along with lower deployment and maintenance costs. Golightly noted that, in larger organizations, the savings can be over a million dollars per deployment.

All production environments today require operational excellence, which comes from the ability to optimize all production assets, Golightly noted. In their efforts to cope with low oil prices, U.S. exploration and production players have sought to optimize operations by reducing their production costs significantly, especially since 2015, according to a 2016 Deloitte Center for Energy Solutions report, The Crude Downturn for Exploration & Production Companies: One Situation, Diverse Responses. By mapping productivity, production, and costs together, it appears high well productivity was the dominant driver in reducing industry costs per barrel of oil equivalent in the second half in 2014, following by switching from marginal to core fields in late 2014 and early 2015.

The new normal of lower oil prices has not only laid bare the inefficiencies of oil and gas companies, but will push even the efficient ones to find ways to preserve their top and bottom lines, according to a 2015 Deloitte University Press report, Connected Barrels: Transforming Oil and Gas Strategies with the Internet of Things. But technologies such as the Internet of Things, which integrates sensing, communications, and analytics capabilities, offers the promise not only of helping oil and gas companies directly manage their existing assets, supply chains or customer relationship. IoT technology also creates an entirely new asset: information about these elements of their businesses.

Deloitte sees three business objectives relevant to IoT deployments in the oil and gas industry: improving reliability, optimizing operations, and creating new value.

"Upstream companies focused on optimization can gain new operational insights by analyzing diverse sets of physics, non-physics, and cross-disciplinary data," Deloitte noted.

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For more information on data visualization and analytics, visit the **AspenTech Resource Center**.