How FutureOn’s Digital Twin Technology Benefits the Offshore Oil and Gas Industry

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A primary goal of the Abu Dhabi International Petroleum Exhibition and Conference (ADIPEC) is to help the oil and gas industry understand how digitalisation can transform asset performance.

According to ADIPEC, almost 70 percent of oil and gas companies believe digitalisation will benefit their field development and drilling activities while 60 percent of companies think digitalisation will have the most benefit for its asset integrity and maintenance programs.

Companies believe in the value of digitalisation, so what technology could have the most beneficial impact? One answer is digital twin technology.

The oil and gas industry is no stranger to digital twin technology. The industry has created digital twins for fields, vessels and platforms, as well as for all the individual pieces of equipment necessary to manage the many aspects of hydrocarbon production.

FutureOn’s digital twin technology called FieldTwin™ is greater than the sum of its parts by addressing the digital needs of the entire life of the field. No longer contained to one aspect of a field, FieldTwin™ creates an exact digital copy of an oil and gas company’s physical assets, which enables producers to manage asset performance and value from the planning stages of a field to the end of the field’s decommissioning.

FieldTwin™ addresses the problems oil and gas companies face in accessing data, converting data across expert systems and visualising data. Embedded as an interactive object within any web-based operational dashboard, FieldTwin™ allows user access globally via any device. User- and context-sensitive dashboards can be easily configured and can connect any aspect of the virtual field to workflows to speed and improve operational decision making.

Early reports show FieldTwin™ reduces pre-front-end engineering design field planning time and investment by 60 percent. Operators and engineering procurement and construction companies need a unified field planning and management platform that makes managing projects from one phase of development to another seamless - all in a matter of weeks, as opposed to months or longer because teams are working from the same single data platform. Companies see quantitative improvements that improve risk management, enhance worker efficiency, speed up project completions and support innovative ways to exploit this data such as smarter drilling, greater field automation and enhanced safety.

FieldTwin™ makes it possible for engineers to receive, manage and interpret the vast data flow created by Internet of Things (IoT) sensors.

Technology applications include asset integrity alerts, production tracking via links to real-time operational flow data and predictive analytics when linked to machine learning algorithms.

Make better sense of data

Historically, upstream personnel – both in the office and in the field – struggled to efficiently garner offshore data and effectively analyse it to make better business decisions. One internal audit conducted by an oil and gas company found its upstream employees spent up to 80 percent of their time merely searching for the data they need to drive those decisions.

Connecting those previously unmanageable data streams with FieldTwin™ offers a visual representation of equipment data and provides warnings or notifications when set parameters are exceeded. Users can create safer and more responsive operating conditions, lower risk, and better preserve the longevity and integrity of field equipment.

Offshore asset inspection, maintenance and repair programs become more effective as access to more robust, real-time data informs priorities, timing and the expertise needed in planned maintenance.

The digital field twin stores historical information about each piece of equipment in a digital data lake associated with that piece of equipment, so engineers at any stage of the project can review all documentation and equipment specifications. Access to the data in a single source increases operational certainty, improves maintenance and reduces costs.

FutureOn’s digital twin technology transforms the way project managers design, develop, staff and manage risks throughout the field’s life-cycle. FieldTwin™ empowers operators to make data-driven decisions in less time, increase efficiency and boost performance because assets are digitally embedded with actionable metadata that can be viewed from the desktop.

FutureOn is the creator and supporter of digital oilfield solutions for operators, suppliers, mid-size independent firms, and engineering consulting firms. We provide the first real, global collaborative tool for energy companies advancing their businesses into the future.

Unlike most digitalization, cloud-based software tools requiring expensive training and support, FutureOn digital oilfield software tools are ergonomic and intuitive. Our technologists see more productive ways of working and make more of them available to your teams.

FutureOn digital oilfield solutions can be customized to provide exactly the specifications expected. It is the perfect solution for decision makers wanting to secure a meaningful competitive edge.

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