

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

By Darrell Knight, Senior Vice President for Global Accounts, & Thornton Brewer, Client Relations and Strategic Partnerships at FutureOn®



**VISUALIZE IN
REALTIME 3D**

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 ADPIEC, almost 70 percent of oil and gas companies believe digitization will benefit its 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 digitization, 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 maximize asset performance and value from the planning stages of a field to the end of the field's decommissioning.

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

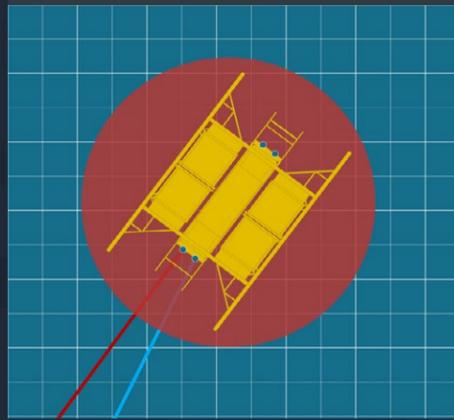
Historically, upstream personnel – both in the office and in the field – struggled to efficiently gather offshore data and effectively analyze it to make better business decisions. One internal audit conducted by an oil and gas company found its upstream employees spent up to 80 percent of their time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

FieldTwin™ addresses the problems oil and gas companies face in accessing data, converting data across expert systems and visualizing 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.

INTEGRATE WITH LIVE IoT DATA STREAMS TOUCH SENSITIVE DEVICES



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 risks, 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.

CONTEXTUAL DIGITAL DASHBOARDS



FutureOn®

FutureOn is the creator and supporter of digital oilfield solutions for operators, servicers, 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 extensive 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.

ACOUSTIC DATA

Wireless Well Technology Founded in 2012 and headquartered in the United Kingdom, Acoustic Data is a

private equity-backed oilfield services technology company recognised as a global leader in wireless downhole monitoring solutions.

The company's proprietary SonicGauge™ System uses next-generation acoustic telemetry to transmit real-time data to surface in order to monitor oil and gas well and reservoir performance across a wide range of applications. The flexible and configurable system can be deployed on tubing or retrofitted through tubing using their patented high expansion gauge hanger via well intervention.



Xodus provides engineering and advisory services to clients in the oil and gas, LNG, renewables and utilities industries worldwide. Our clever and innovative thinking helps clients to overcome challenges and maximise their return on investment.

We deliver successful projects by bringing together experts in engineering, design, environment, safety, risk, integrity, vibration, project management, training, and strategic and commercial advice to work in highly integrated teams, following a clear project execution model. Backed up by specialist tools and training, our capabilities span the numerous disciplines involved in delivering complex projects. Clients benefit from our expertise that is independent and informed by our learning from working on projects around the world.



MySep Pte Ltd develops and licenses process engineering software for the design, evaluation and simulation of separation vessels such as separators and scrubbers.

MySep enables the user to effectively determine vessel sizes, select internals and assess the associated overall performance of each vessel. MySep can also be used to evaluate an existing design and determine its theoretical performance based on actual or simulated operating data.

MySep software is becoming the industry standard for separation and is being used by a continuously growing number of end users, engineering contractors and suppliers to the Oil & Gas and Petrochemicals Industry.



Kranji Solutions was founded in Singapore in 2008, with the aim to offer independent separation expertise to the Oil & Gas Industry. Kranji Solutions provides high level CFD (Computational Fluid Dynamics) studies, specialized in the area of separation. The focus is on troubleshooting, capacity increase, debottlenecking and research and development of separation equipment, ranging from separators, scrubbers, inline- and produced water equipment.

Kranji Solutions has an R&D Lab in the Netherlands, where physical test work is performed to enhance the understanding of a wide range of separation technologies.

Kranji Solutions does not market hardware and therefore provides completely independent and unbiased analyses.

FutureOn®
www.futureon.com