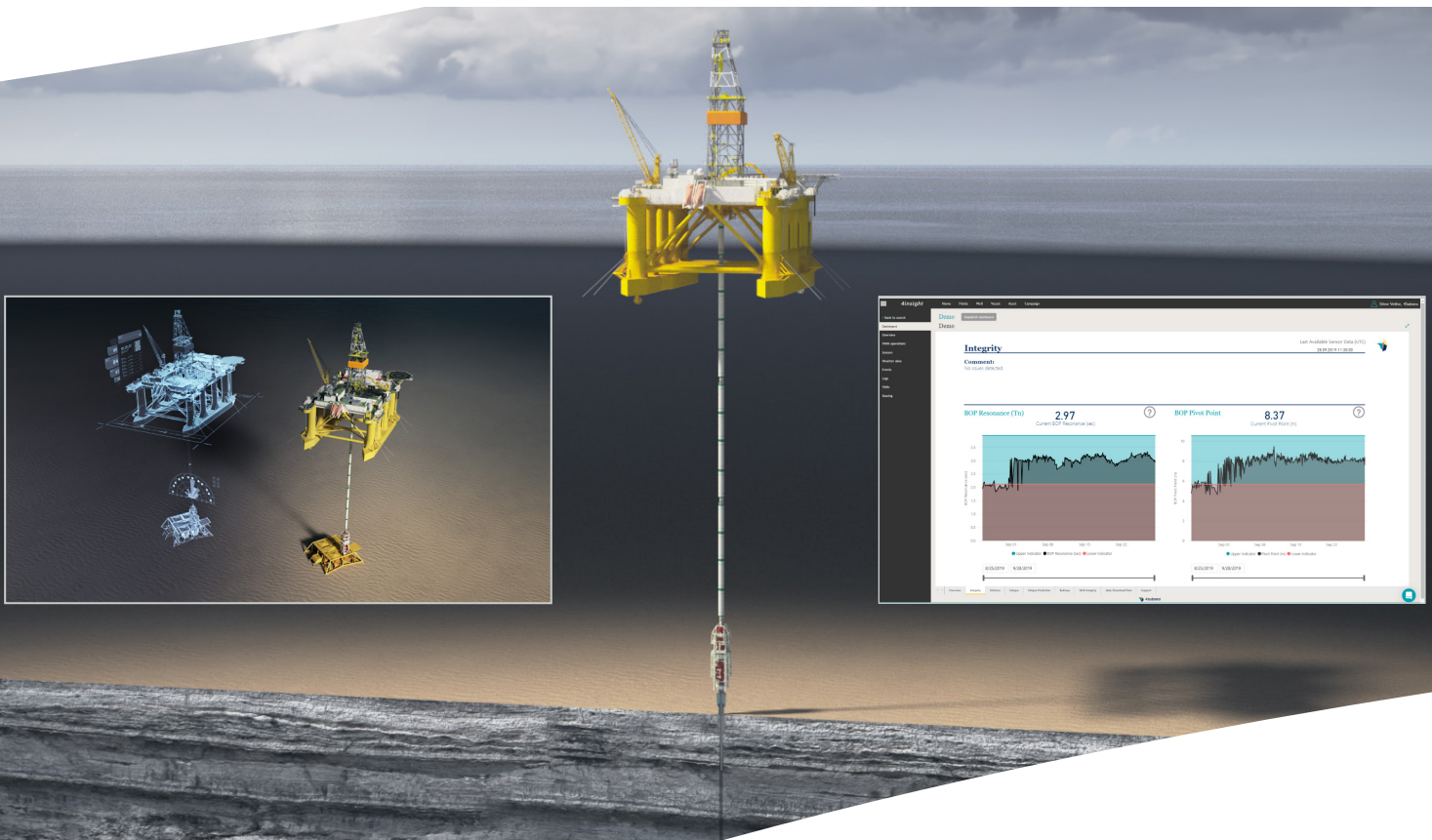


4insight® Drilling

Digital twin for anomaly detection and increased operating envelopes



4insight® Drilling reduces risk and cost of operation while at the same time maximising the service life of subsea wellheads. The solution provides live decision support to drilling operations using a combination of domain expertise, machine learning and AI. Results are early detection of anomalies that allows for mitigating actions to prevent rig downtime.

4insight® is a digital service providing key decision support to energy operators. The service enables domain experts to collect large amounts of data and create new insight based on machine learning and AI. Users can choose from a large selection of readily available applications or tailormake their own apps running on 4insight®. The portfolio includes 4insight® Asset Integrity, 4insight® Drilling, 4insight® Data Analytics, and 4insight® Marine Operations.

KEY BENEFITS

- Increases rig operating envelopes through trained machine learning algorithms
- Reduces risk of drilling and completion operations through early detection of structural failures
- Provides operational advice to manage well stability issues, including shallow gas and shallow water situations
- Continuously tracks development of wellhead fatigue
- Helps avoid abandonment of well due to soil support issues or wash out situations
- Gives feedback on VIV management
- Reduces the level of conservatism by using actual loads in the assessments
- Tunes, calibrates and improves riser analysis models
- Detects anomalies before they develop into operational issues
- Provides operational decision support based on machine learning and AI

Digital Twin as a Service

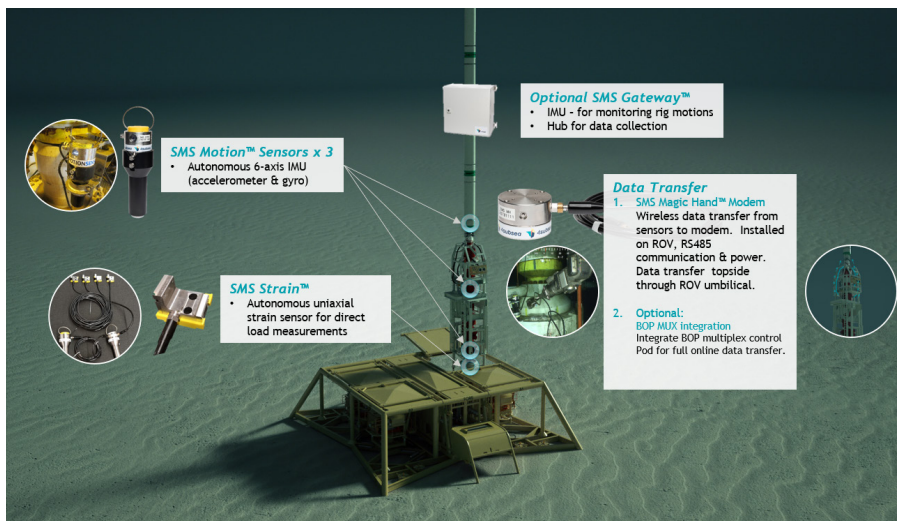
4insight® Drilling focuses on optimising rig operating envelopes and early detection of anomalies allowing time to adjust operations and take mitigating action to prevent stop in operation. The solution provides operators with key decision support delivered simultaneously to onshore and offshore personnel.

A key principle behind the 4insight® service is its open APIs and open accessibility. Operators are free to hook onto any data stream of raw or processed data through open APIs. The operator is also free to give access to the solution and its data to any third-party organisation of choice.

System Architecture

The architecture behind 4insight® is designed to receive and compute large amounts of data, unlocking the true potential of the data to ensure the best possible decision support for operators. The service contains Digital Twins of the assets and helps operators improve data quality and manage the ownership, security, sharing and use of data, while at the same time reducing operational costs and risk. 4insight® is a multi-tenant solution residing on Microsoft Azure.

System Overview



Features

- Monitoring actual global riser loads on wellhead and conductor
- Maximising operating window and avoid disconnecting in harsh weather conditions
- Extending the service life of the well by documenting the actual fatigue life history of the wellhead
- Monitoring accumulated wellhead fatigue damage and structural integrity of wellhead system
- Reducing level of conservatism by using actual loads in assessments
- Monitoring conductor stability in the soil and conductor inclination
- Detecting washout situations and soil support issues or challenges.



4Subsea is a leading provider of technology and services that help operators optimise energy production from subsea oil & gas fields and offshore wind farms. We combine domain expertise with data analytics and digital services to maximise lifetime of assets, reduce operational cost and optimise future projects through data-driven design.

The company was established in 2007 and clients include the major energy operators as well as the large suppliers of subsea equipment. 4Subsea is headquartered in Asker, Norway with additional offices in Bergen, Kristiansand, Stavanger, Rio de Janeiro, and Aberdeen. 4Subsea is a company in the Subsea 7 Group. More info at www.4subsea.com.

4Subsea - Share ideas, move forward

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