4insight® Marine Operations

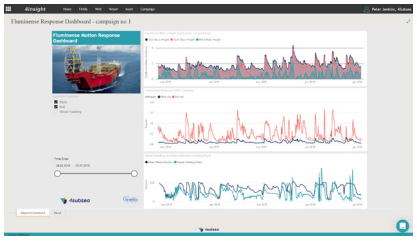
Improving vessel operability while reducing operational risk and cost

4insight® Marine Operations is a solution for optimising vessel operations based on data from onboard systems. Vessel operability is improved using measured vessel response and live weather data, combined with machine learning and AI for prediction. 4insight® Marine Operations can thereby reduce fuel consumption and emissions.

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

- Enables optimisation of vessel operations using live data from onboard systems
- Optimises power generation for actual weather and ongoing operations
- Reduces risk and improves operability of vessels using actual vessel response and recorded weather conditions
- Allows engineers to set-up interactive operating procedures using sensor data as limiting parameters instead of subjective judgements
- Accommodates integrated operations between the onboard crew and onshore support organisation
- Enables safe sharing of data with relevant stakeholders
- Can be used for early anomaly detection in operations and onboard systems, allowing mitigating actions to be taken before a situation escalates to a problem



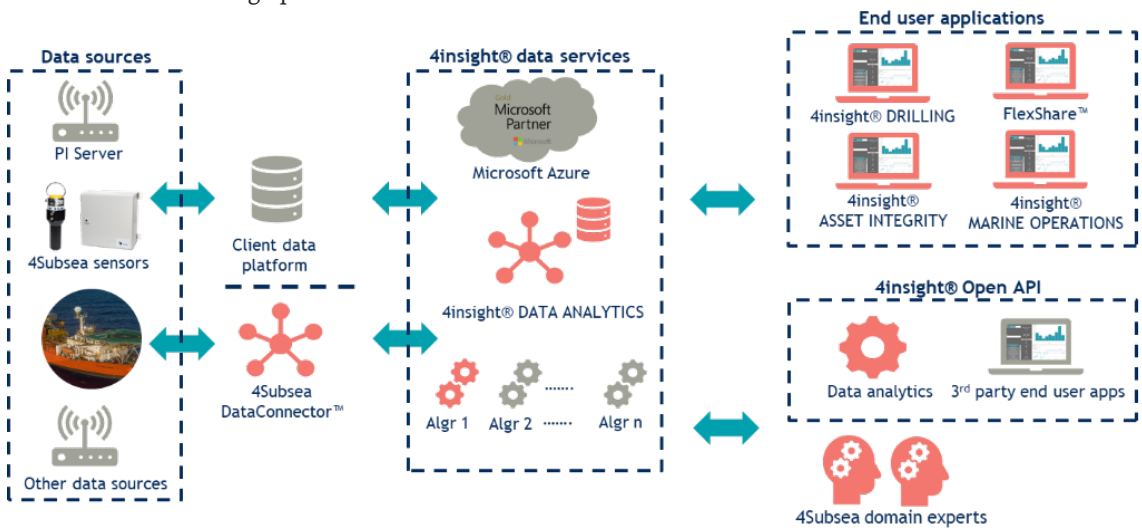
Digital twin to optimise vessel operations

Using live data, 4insight® Marine Operations optimises operations of marine construction vessels. The solution combines data from sensors onboard the vessel with measured weather and wave data in order to improve operability and predictability of marine operations. Interactive operating procedures allow operations to be controlled by actual measurements that are important for the specific ongoing operation, thereby eliminating unnecessary conservatism and improving vessel operability. Machine learning is used to predict vessel behaviour ahead in time, e.g. based on weather forecasts. AI is used to detect anomalies on operations early allowing the crew time to take mitigating actions before situations escalate.

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 able 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.



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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