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### Who is Sword?

Dan Clarke is a Data Specialist and Business Development Manager for Sword, based in Aberdeen. With over 15 years of technical experience in oil & gas, Daniel works with Sword's customers to build practical solutions to common industry data challenges.

As the North Sea's largest provider of data and digital services, Sword focuses on solving the industry's most critical business technology challenges by enabling our clients to capture, manage, and utilise data to make informed decisions. This is supported by technology adoption and people engagement, together with modern ways of working to give confidence that the right decision is made every time.

Dan Clarke

By Dan Clarke, Data Specialist & Business Development Manager, Sword

# DATA QUALITY AND GOVERNANCE:
## The Key to Digital Transformation

Machine learning and other data science techniques all require the same thing – access to good quality data in a leverageable format, and the energy industry needs to accelerate digital transformation to reduce costs, increase efficiencies and remain competitive.

**Having produced hydrocarbons since the 1970s, the UK Continental Shelf (UKCS) has accumulated a wealth of information that the industry now needs to make use of if it is to achieve maximum economic recovery.**

The North Sea Transition Authority (NSTA) is responsible for the body of knowledge held within the UK's National Data Repository (NDR) and, with data at the heart of their strategy across the entire energy lifecycle, they understand how critical it is to maximise the value of the data and information which is available to us all.

As our industry moves towards a more balanced and sustainable portfolio, the demand for quality data and competent resources with digital skills is increasing. Sword is investing heavily in its people and digital solutions to ensure we can advise, support and collaborate with the industry on its data-driven journey.

It is widely accepted that governance harmonises people, processes, and technology. This enables operators to use their data as a trusted asset.

Governance should be the foundational component of a company's data management strategy and analytics should be used to improve the performance and efficiency of an organisation's governance efforts. Companies aim to gain insight from raw data so they can improve their decision-making and have confidence in the outcomes. Analytics is increasingly becoming a key enabler in this process with governance playing an important role in helping organisations maximise the value of their key asset - data.

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There is an industry-wide requirement for a data-centric effort to condition and standardise subsurface data. This enables data science techniques to derive value which was demonstrated in the missed pay project, where previously unidentified hydrocarbon accumulations were identified using modern technology.

**It can be easy to underestimate the time it takes to prepare raw data ready for interpretation. Data quality has been at the heart of Sword's services delivered to the energy industry for the last 30 years. Through the QIP (Quality Improvement Process) methodology, developed to cleanse data so it is interpretation ready, we have cleansed over 20,000 wells worth of data for use by the scientific community and we use governance to ensure the data we deliver is consistent and can be trusted by the end-user.**

Since 2020, Sword has worked with the Net Zero Technology Centre (NZTC) to deliver cutting edge projects proving the use of 'big data' technology to condition raw data so that data analytics and machine learning techniques can be applied.

One such project, which responded directly to the NSTA's strategy of Maximising the Economic Recovery of hydrocarbons in the UKCS, involved a 7TB data set from the UK NDR which contained over 100,000 individual data files for 9,000 wellbores. The data set contained a mixture of vintages of data with little or no standardisation in the naming or the file format, requiring a significant amount of conditioning before it could be read by a machine. To manually condition the data would have taken a team of data managers months to complete and the result would not have been as accurate or as comprehensive.

Without the cleanse and consolidation exercise, our analytics partners would have been unable to run their simulations and test their model. Since the development of new technologies, we have been able to apply workflows, techniques and learnings to other use cases opening up many previously unexplored capabilities.

The application of domain knowledge with technological capabilities to areas outside exploration and development such as; decommissioning, CCUS, geothermal and nuclear waste disposal, highlights that the requirement for access to the right data at the right time is as important as ever.

It is widely reported and accepted that an interpreter will spend up to 70% of their time looking for and conditioning data before undertaking value-add activities such as interpretation and modelling. It is 11 years since CDA (a subsidiary of OGUK that previously operated the UK's NDR on behalf of the NSTA) released "The business value case for data management" study where the findings highlighted that data management and integration were critical to data analysis.

The energy industry still faces the same challenges today as it did when this study was first published, despite the development of technology and the drive by the regulatory body and industry to increase efficiency through the improved availability and accessibility of the data.

The Sword QIP service, underpinned by our data analytics capabilities, is key to providing high quality, interpretation ready data for the Geoscience community. Technology is only part of the answer to digital transformation and data quality, and a solid governance framework is the first step that should be taken in this journey.

For more information, visit www.sword-group.com

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