Harry Lind, Sword's Subsurface Data Optimisation Services Lead, has a background in petroleum geology and has clocked up 5 years' experience in data management since joining the company. As well as overseeing the technical delivery of our UK Data Optimisation services, Harry actively contributes to a long-standing service improving the well data quality of one of Sword's supermajor clients, ensuring subsurface teams always have trustworthy data at their fingertips.

Harry Lind

TRANSFORMING SUBSURFACE DATA INTO A RELIABLE, DECISION-READY DIGITAL ASSET

Unpredictable data quality introduces uncertainty

Data of an unknown provenance, without verification, hinders the subsurface interpretation workflow and impacts the ability to extract actionable insight in multi-disciplinary teams. In a mature basin such as the North Sea, where wells can be up to 60 years old and assets can change hands several times, the uncertainty of well data provenance is a challenge faced by most operators.

The legacy data which are digitally available to subsurface teams working in mature basins is often a mix of raw original data, interpreted and edited data, all stored together with inadequate labelling to differentiate between it all. Teams of geoscientists are faced with the unappealing challenge of producing a clear view of the subsurface from a dataset which is decades old shrouded in uncertainty.

When looking for original, raw, unedited information, the answer often lies in the many hundreds of boxes of hardcopy reports and logs which companies have piled high in storage facilities, largely unscanned and inaccessible to the subsurface community. Even if a complete library of these hardcopy documents exist, and has previously been scanned and made digitally available, all too often teams will find that files are now dispersed throughout a company's digital environment.
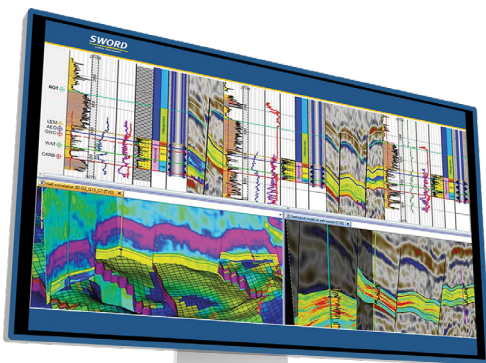
Rather than driving value from their data and applications, experienced subsurface professionals are forced to choose between spending their limited time managing scattered, incomplete, duplicate, and conflicting datasets, or basing their decision-making on data which are not up to the job. Subsurface communities need access to a single source of the truth to make informed technical and commercial decisions.

Gain an advantage from comprehensive data transformation

Creating a suite of joined petrophysical curves which have been carefully verified against original well file material and capturing key well data from reports and logs in a structured and efficient way are essential components in the management of any E&P organisation's digital assets. Assuring the spatial integrity of this data through rigorous governance is a crucial foundation to ensuring a quality controlled, consolidated dataset. In turn, a consolidated dataset when formatted, becomes interpretation-ready, and set for consumption into applications and data environments to enable subsurface professionals to make informed decisions

Ensuring this level of quality relies on applying a trusted and repeatable methodology, something our experts have developed through 20 years of supporting operators and regulators alike. We identify and gather all relevant well data to allow for gap analysis to be carried out. Highlighting and, where possible, filling data gaps using original well documents, which also act as verification sources to identify what is raw information created during the drilling of the well versus data which has previously been edited. Following verification, our experienced consultants use their knowledge to process those data to predetermined standards, and quality controlled to ensure the final dataset is accurate and complete. The outcome of this process is a consolidated, formatted output of trusted well data upon which key decisions can be made with confidence.

Although a structured methodology, our approach is adaptable and responds easily to an operator's well stock, exploration, development or acquisition/merger demand across multiple geographies.
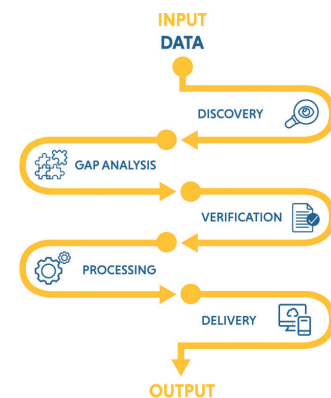
Delivering reliability with a proven methodology and robust quality control

Having a complete, accurate and structured dataset which can be relied upon to give a true reflection of the subsurface environment greatly reduces technical and commercial risk associated to assumption-making and poor-quality data. It frees up subsurface experts to spend more time focusing on value-add, interpretation and engaging with their business to drive collaborative decision-making.

With corporate knowledge retained in a structured, accurate and complete well data asset, organisations choosing to optimise their data and leverage modern techniques and technology can greatly improve their regulatory compliance and gain a competitive edge over those who remain hamstrung by suboptimal datasets and practices.

In an increasingly digital world, it is more important than ever to have a clear data strategy prioritising verified data from trusted sources and making it readily available to end users. Doing so will allow the industry to maximise the potential of its subsurface data and drive better outcomes in a leaner environment. ◣