

Case study

Global Oil and Gas Company Optimizes Management of 55,000+ Wells and 110,000+ Well Logs for Faster, Smarter Decisions



Overview

A global oil and gas company based in the United States (US), operating across upstream, downstream, chemical, and low-carbon segments, faced significant challenges in managing large volumes of subsurface data across geographies. Geoscientists spent a considerable portion of their time on data gathering and management in exploration, reservoir characterization, and reserves estimation. To address this, Tech Mahindra implemented a centralized Subsurface Data Management (SSDM) program as a 24x5 support function. The program enabled standardized handling of well logs, seismic, and subsurface datasets, improving data quality, integration, and readiness, and allowing geoscientists to spend more time on analysis and interpretation.

We partnered with the client to establish a centralized 24x5 SSDM center, providing continuous support.

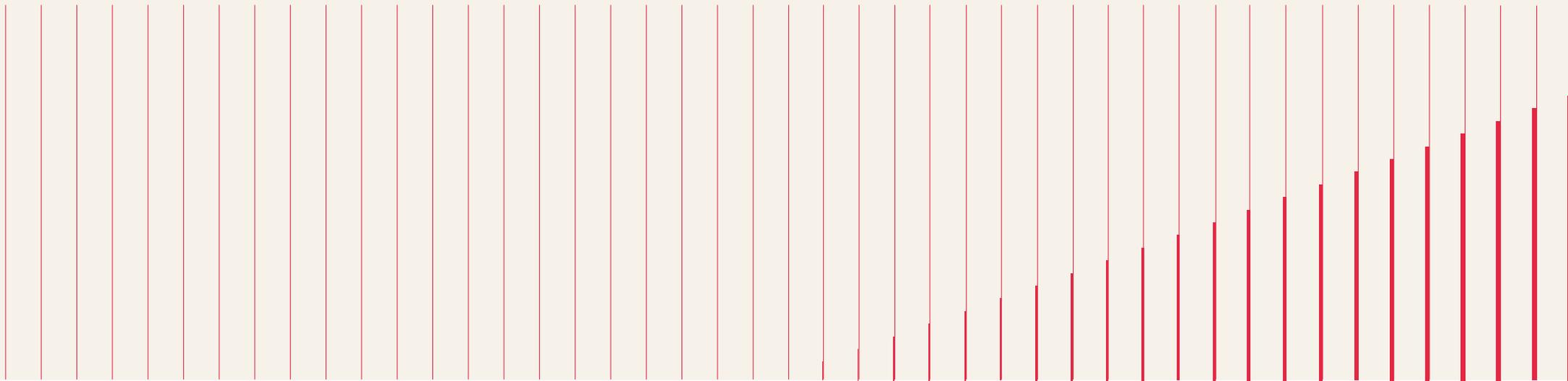




Client Background and Challenges

A global oil and gas company headquartered in the US delivers upstream exploration and production, refining, petrochemicals, lubricants, and low-carbon energy solutions. It operates across the downstream, chemical, and energy segments and employs over 60,000 people worldwide. The core activities for hydrocarbon molecules extraction of exploration, reservoir characterization, and reserves estimation are executed through data-intensive subsurface processes. Given the scale and geographic areas of operations, the client faced significant challenges, including:

- Integrating multiple subsurface databases across global teams.
- Standardizing business rules for data conditioning and quality management.
- Addressing gaps in mandatory input parameters and metadata.
- Establishing a standardized project file nomenclature for business users across the organization.
- Managing variability in data quality across the enterprise.



Our Approach and Solution

We partnered with the client to establish a centralized 24x5 Subsurface Data Management (SSDM) center, providing continuous support to upstream teams handling well logs, seismic data, and other subsurface datasets. The approach included:

- **Data Standardization and Management:**
Uploaded well log information in a standardized format for timely subsurface evaluations and advanced engineering analyses.
- **Database Integration and Synchronization:**
Ensured seamless synchronization across multiple subsurface databases, improving data consistency and interoperability.
- **Technology Enablement:**
Leveraged industry-standard data interpretation tools, geoscience platforms, geological modeling software, subsurface data management systems, and visualization solutions for efficient data handling.

- **Expert DQM Services**
Deployed a dedicated team of highly skilled Oil & Gas petrotechnical consultants to deliver professional Data Quality Management (DQM) services, including validation, conditioning, and metadata enrichment.



Business and Community Impact

The SSDM program delivered significant results in both data quality and operational efficiency:

- **Improved Data Quality & Standardization:**
Standardized and validated datasets to ensure reliable decisions and reduced errors.
- **High Volume Data Management:**
Handled over 13,000 2D seismic lines, 14,500 3D seismic cubes, 170 Geosets/Nav datasets, 55,000 wells, 110,000 well logs, and digitized ~1 million feet of well logs.
- **24x5 Subsurface Data Support:**
Delivered ongoing support via a specialized team comprising field experts, petro-technical specialists, and IT professionals with deep expertise in upstream disciplines.
- **Faster Data Accessibility:**
Reduced data accessibility time for all levels of business users, enabling quick decision-making and faster project execution.

- **Focused Analysis:**
Increased geoscientists' focus on analysis by reducing time spent fixing and collecting data, improving critical interpretation time through minimized data preparation.
- **Enhanced Visualization and Productivity:**
Improved data visualization and analytics, boosting overall geoscientist productivity.



About **Tech Mahindra**

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