



INTELLIGENT DRILLING AND WELL MONITORING PLATFORM TRANSFORMS ASSETS

REAL-TIME DATA CONSOLES ENHANCE WELL CONSTRUCTION AND COMPLETION OPERATIONS

Abstract

An oil and gas company with drilling and oil well completion operations engaged a drilling data aggregation product vendor to develop a customized drilling and well monitoring solution. The company sought to transform oil well construction, enhance drilling performance, and improve the safety, reliability and efficiency of operations. The solution included tools for real-time data aggregation, visualization, monitoring, and analysis as well as display consoles for critical well construction and completion processes such as drilling, casing and cementing.

The oil and gas company selected Infosys as its extended enterprise for business consulting, systems integration, independent validation, and application management services. We were responsible for deploying the solution and managing the multi-phase, multi-year transformation program.



Holistic program

The Infosys team identified program deliverables and established project processes after analyzing workflows and guidelines. We collaborated with the product company and other vendors to meet the objectives of the program. The scope of our engagement included:

- Identify business opportunities in existing drilling and oil well completion processes, in consultation with subject matter experts
- Develop the solution architecture to integrate product components within the enterprise applications landscape
- Define the deployment architecture to implement the solution across the offshore drilling network and regional data centers
- Design solution components for reporting, document management and advanced analysis
- Perform end-to-end testing, validate the solution against functional and non-functional requirements, and certify the product for deployment and operational use
- Plan solution implementation at drilling rigs, manage hardware and software deployment, and coordinate implementation activities with in-house teams and external vendors
- Propose and implement a model for global application support, and provide transition support services after solution deployment

Infosys undertook a comprehensive assessment – status, structure, strengths,

and areas of improvement – to provide recommendations for superior service. We structured the program along seven work streams to integrate the well monitoring solution with the organization:

Program management

We developed project-specific processes for each work stream and the integration workflow for program tracks and vendors. In addition, we helped the company develop the configuration management process, release management strategy, and communication strategy for the program.

Business requirements analysis

Infosys led the business analysis track and collaborated with stakeholders, the product vendor, and third parties for requirements elicitation and management. We analyzed source data requirements of service providers to define console interface functionality. Our team ensured accurate business analysis and requirements across critical functions such as fluid gains and loss management, formation correlation, drilling state detection, and well bore stability.

Solution architecture

Our team created the deployment reference architecture and supported the product vendor to ensure the solution integrated with the IT landscape.

Product development

Our configuration-based development approach helped the product vendor minimize the time and cost of development. We developed a drilling risk catalog to monitor real-time drilling activities. We created customized reporting solutions and integrated them with the drilling and well monitoring solution using Wellsite Information Transfer Standard Markup Language (WITSML).

Testing and quality assurance

Our testing frameworks and QA strategy ensured comprehensive testing of the program, including system testing, functional and Non-functional Requirements (NFR) testing, user acceptance testing, and oil rig-based field trials. Our best practices in testing delivered cost savings of US\$408,000.

Deployment

Infosys created rig site and data center deployment blueprints for the solution. We led deployment and go-live activities for three regions as well as three product console interfaces. We provided integration services to regional stakeholders and service providers.

Support

We developed a global support services strategy for the product, and provided transition and bubble support. We established a business support service line for proactive data feed monitoring and configuration activities. Significantly, our strategy ensured a smooth transition to steady state operations.

New benchmarks

The drilling and well monitoring solution helps the company improve the safety and reliability of oil well operations across regions. It provides rig-based personnel and onshore experts with real-time visibility into well construction and completion operations. The solution helps the company undertake oil well barrier pressure tests and generate reports to comply with regulations.

Our solution helps experts analyze events and take informed decisions at Real-time Operations Centers (RTOC) and oil rigs. Real-time data from rigs and safety equipment helps address operational issues, while

online processing of data and console interfaces function as early warning systems for intelligent drilling. The solution helps the company minimize non-productive time associated with stuck-pipe-in-casing operations at 30 oil rigs.

Infosys orchestrated the business transformation program to accelerate delivery and reduce costs. As the primary consulting and systems integration partner, we are helping the oil and gas company acquire advanced capabilities in real-time data analysis, global application support and rig-based deployment.

Maintaining oil well integrity

The drilling and well monitoring solution helps onshore personnel monitor and troubleshoot blowout preventers.

For more information, contact askus@infosys.com



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