

A Cost-Effective Approach to Implementing Scalable Drilling Analytics Solutions

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ABSTRACT

The value of drilling analytics is well known. Efficiency gains are realized using rig sensor data and key performance indicators, which rely on the successful deployment of tools and methods that enable them. It is not sufficient to identify the process to help improve the associated data if the solution is too costly to execute and difficult to deploy. This paper discusses a new approach to applying analytics based on experiences from a variety of implementations that presented solutions showing quick results and the ability to evolve and adapt. A common implementation approach identifies operations that need improvement, collects data, and determines parameters to change to obtain operational gain. Identifying and analyzing data is often blurred by the difficulties in deploying the solution's technology stack. Overstated focuses on technology and data collection usually derail analytics implementations. Delinking the technology and data focus from the analytics' insights has enabled the authors to deploy solutions with quick returns and the ability to evolve. This methodology involves describing the optimization process, providing diagnostics, predicting outcomes, and providing prescriptive guidelines. These steps, coupled with agile development methods, drive the implementation. Results show that this approach provides quick gains and the ability to replace the technology stack being used while the solution matures. Data dashboards are quickly built to provide a descriptive insight into the operation. From these dashboards, planned and unforeseen insights into the well construction process have provided new well designs and drilling strategies. Predicting such operations using data and engineering models build the knowledge base, which provides prescriptive guidance and, ultimately, the optimization desired. Because these steps are not technology bound, the goal of optimization remains constant throughout the implementation even though different tools were used during the evolution of the solution. This methodology along with agile techniques and decoupling of technology and data provides a new way to deploy analytics. The task of building infrastructure, collecting data, and changing the mindset of stakeholders occurs almost organically. Results happen quickly and the solution adapts to more complex situations while analytics solutions mature.