



Digital transformation: A mandate for the future

Digital transformation, data analytics and machine learning. What do these latest trends have to do with oil and gas? Everything. As the oil and gas industry begins to recover from the deepest downturn in the last three decades, it now has the opportunity to embrace a new way of working—through digital transformation.

However, the transformation of an entire industry will not be achieved through incremental changes, but rather by challenging the current business and operational industry models.

That said, now is the time to move away from an incremental gains mindset and embrace an ambition, to not only make existing work more efficient, but to transform work, itself. Digital transformation, driven by domain expertise and experience, creates opportunities to improve operational efficiency; improve asset reliability; and boost throughput and optimize field recovery—improvements that benefit all industry stakeholders.

From silos to digital sharing. The oil and gas industry is yet to materialize the full potential of available data and technology, to make a quantum leap in efficiency. We still have thousands of individuals and teams working in various levels of isolation. In practice, digital enablement may not completely break down the silos of domain expertise that exist within organizations; however, barriers in planning and execution caused by these silos can be eliminated.

The level of integration and productivity that digital enablement provides requires a new approach toward knowledge sharing and trust. Understanding operational workflows, and building greater connections between technical domains, can increase efficiency and minimize risks, while amplifying the application of expertise throughout planning and operational phases.

Companies that enable their employees to share the knowledge embedded in the data to its full potential will realize the

greatest advantage from that data. This will require *putting the right information, in the right hands, at the right time*. This is only possible, if backed by deep domain expertise and extensive experience in complex E&P operational workflows.

Digital technology needs to be mainstream. A major hurdle to maximizing data is the slow pace at which the industry is adopting digital technology—the confluence of data, hardware, software and people. Digital technology has developed exponentially over the past few years, and it has matured to be an integral part of industry workflows. However, in the *McKinsey Quarterly* (February 2017), authors state that, according to their latest research, “the forces of digital have yet to become fully mainstream. On average, industries are less than 40% digitized.” This is true for the oil and gas industry, as well.

Individually and collectively, we are our own worst enemies and the biggest barrier to reinventing the industry in an over-connected world. Transformation can only happen in tandem with a new mindset to evolve existing working paradigms. At the enterprise level, this means a more collaborative mindset, and redesigned end-to-end business models. For the workforce, this means finding new ways of engaging, based on roles, user experience and collaboration.

Applying digital technology to operations. By adopting a new mindset and applying digital technologies, the oil and gas industry can advance automation in planning and operations, increase efficiency, and minimize risk, while aiming to overcome complex challenges. To do this, a new user-centric approach will be required, which integrates digital technologies without compromising enterprise security and operational safety.

One area where Schlumberger has been applying this approach, and continues to make a critical investment, is in scientific high-performance computing. Today, we operate thousands of CPU and GPU nodes—the largest computer clus-

ter of its kind in the oil and gas industry. We are working with Google to leverage the strengths offered by cloud computation stacks to take our data processing to the next level. The Google Cloud Platform enables high-performance computing, remote visualization and development velocity. By scaling data processing workflows and using advanced algorithms, we can innovate faster than ever.

Drilling operations is another area in which the early application of this approach is tangible. A seamless integrated system for creating a drilling plan, with multi-domain inputs consolidated in a single model, enables the automation and design of digital drill plans in a collaborative way.

The next big step is to connect the digital drill plan to the operational plan and drilling execution. The capability to monitor deviations and capture patterns today, enables digital operations in the future. Domain-driven digital workflows, which facilitate intelligent execution of processes, will help design new standards.

The digital future. Unparalleled opportunities for additional value creation are on our doorstep. Across the globe, people have adopted digital technologies in their personal lives, and this has changed the way that they connect and interact with others. Many individuals have a large digital quotient in their personal lives—this does not necessarily translate to their work life.

In conclusion, what do we see on the horizon? We see a great opportunity for proven, reliable digital technology to be deployed and democratized in the oil and gas industry, changing the way we work. We see a higher level of efficiency, integration and accuracy, and new ways of using information. We see integrated systems based on digital infrastructure and a breakdown of domain silos through digital enablement. We envisage this digital transformation as a mandate for our future. **WVO**

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