

DIGITAL TRANSFORMATION

Going digital

Digital transformation of upstream operations can be challenging for the oil and gas sector, but the payoff is worth it, explains Boston Consulting Group (BCG) Managing Director and Partner Sylvain Santamarta.



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In a challenging strategic context, digitalisation is seen by the oil and gas industry as a major opportunity and digital pilots are flourishing across the value chain.

Let's first try to define digital. Four main themes can broadly summarise this topic:

- Digital offers the opportunity to establish a 'single source of the truth' for data, by integrating data across physical assets and disciplines, ie using the cloud.
- Going digital offers oil and gas companies the ability to visualise data effectively and economically to optimise decisions.
- Artificial intelligence (AI) offers cognitive assistance, using algorithms and machine learning to help the user draw insights and remove decision bias, eg revealing non-productive events before they occur.
- Digitalisation can also offer automation of non-value add tasks for productivity gains.

Through these themes, oil and gas companies see major opportunities to improve the competitiveness of their businesses thanks to significant effectiveness and efficiency gains and business model innovation. This potential has led them to mobilise resources and organise themselves to harvest this value. But while this activity is encouraging, many companies struggle to make a tangible impact to their business at scale.

Deployment and change management challenge

Interestingly, the bottleneck is not the technology. The big hurdle for impact at scale is a deployment and change management challenge. According to Boston

Consulting Group (BCG), a few factors can explain the inability of oil and gas companies to make a real difference:

- Companies have initiated too many digital initiatives with an insufficient focus on value.
- Digital tends to be driven by the 'functions' with insufficient ownership from the front line.
- Oil and gas companies have generally taken a product approach, which does not cater well for the necessary change management and IT and data related work.
- Insufficient efforts are going into IT architecture and data governance – an essential piece for replication.

BCG finds that organisations that overcome obstacles to digitalisation follow several imperatives, as set out in its *Going digital* report*. In doing so, organisations can resolve industry-specific challenges, tap the full potential of data-driven technologies, and gain significant competitive advantage. The imperatives can be summarised as follows:

- Create a bold vision led from the top. Describing how digital solutions will enable the company to meet high-level strategic objectives, ie reduced accident rates, faster time to first oil or increased profitability.
- Develop a balanced digital roadmap of distinct use cases or pilots, to focus digital transformation on the biggest buckets of value.
- Use cases should seek to reinvent core processes end-to-end.
- Take a holistic but pragmatic approach to data governance and IT architecture. The volume and diversity of the data are typically huge, require a lot of cleaning, enhancement and contextualisation before it can be exploited. The vast number of legacy systems also makes integration complicated. Data governance is often inadequate or non-existent, with poor digital quality. To overcome these pitfalls, companies are recommended to build bespoke data architecture and develop data governance organically through use cases.

- Digital transformation requires developing a culture that encourages information sharing and collaboration across internal silos, with customers and partners; with delegated decision making, boldness and action rather than cautious planning. A recent BCG study of 40 digital transformations found that companies reporting digital breakthrough and financial success were about five times greater (90%) among those focused on culture than those that neglected it (17%).
- Companies must acquire digital capabilities in data science, advanced analytics, AI and machine learning, so that use cases can be developed. However, graduates with these skills are in high demand.
- Maintain a relentless focus on value creation and strong governance. Introduce KPIs (key performance indicators) to measure the contribution of use cases and communicate those benefits widely to build momentum.

Generally, the oil and gas industry has approached digitalisation on a project basis, rather than taking a more holistic approach and reinventing processes end-to-end. This is probably the main reason that digitalisation hasn't achieved full potential in this sector yet. However, some companies are moving in the right direction.

The data platform must be properly aligned with use cases. Companies should avoid falling into the large IT project trap. The system should be self-contained, serving a purpose and adding value to minimise risk and maximise the value of benefits delivered.

The organisation must have ownership at the top for big transformation in the way people work. Key benefits need to be identified as well as recognition of the need to change the behaviour of the organisation. There should be focus on maximum value add from end-to-end, using digitalisation as an opportunity that can make a difference to the bottom line. ●

**Going digital is hard for oil and gas companies – but the payoff is worth it*, Marie-Hélène Ben Samoun, Håvard Holmås, Sylvain Santamarta, Peter Forbes, JT Clark, Whitney Hughes, BCG, March 2019.