

Oil & Gas

Big & Fast Data: The Rise of Insight-Driven Business



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Capgemini view

Though in some ways conservative in its adoption of new technology, the oil & gas sector has long had to deal with high and rapidly growing data volumes and therefore has gained experience of high-performance computing and large storage devices. Digitization, too, has been underway for years (e.g. digital oilfield and smart drilling); big data can be seen as the next step.

In more general terms, the industry is becoming aware of both the value of big data and its potential for disruption. Geoscience, reservoir engineering, and field operations are beginning to realize the value and insights available through big data driven predictive analytics and stochastic modeling.

The industry has been experimenting with big data technologies such as Hadoop. Most current activities focus on awareness and proof of value; so far there are few significant transformational initiatives, although businesses are now starting to treat adoption as a strategic investment.

In the current market conditions, many IT budgets have been slashed due to hydrocarbon commodity fluctuations. The reality is that initiatives that are not driving cost reductions, additional revenue, or operational efficiency may be shelved or delayed until market conditions improve.

Perception of big data as a disruptor

Disruption is a key concern. For example, around 43% of oil & gas respondents had experienced disruption from existing competitors developing new products and services over the past three years, compared with an overall average across industries of 33%, and there were also high levels of disruption from start-ups and new competitors moving into the industry from other industries. There were above-average expectations of disruption over the next three years, too.

Awareness of big data opportunities

Perhaps not surprisingly, given the industry's heritage of dealing with large volumes of data, respondents were keenly aware of the business opportunities. Respondents were much more likely than average to agree strongly with a range of propositions in this area – that decision-makers require data in real time (oil & gas 48% versus average 42%), that big data is enabling new revenue streams (oil & gas 44%, average 27%), and that it provides new business opportunities (oil & gas 46%, average 32%).

In addition, there is strong agreement that big data is a key enabler of effectiveness; 43% (compared with an average of 27%) said that big data is becoming as valuable to their organization as products and/or services.

Implementation approach

Oil & gas is leading the way in implementing some facets of big data; 89% of organizations were already in some phase of implementation compared with 71% average overall. This was the highest percentage for any industry.

Despite current macro-economic pressures on hydrocarbon commodity fluctuations, 67% of oil & gas organizations (versus wider industry average of 56%) expected to increase investment in big data over the next three years. Engineering (68%) and oil & gas (67%) jointly had the highest proportion of companies planning to increase their investment.

Respondents from oil & gas were much more likely than average to say that their organizations had put in place specific big data technology and policies. Oil & gas reported the highest level of activity in implementing privacy measures and in restructuring the organization to exploit data opportunities – and these organizations were also ahead with most other measures.

Although (like their counterparts from other industries) oil & gas respondents were most likely to say that IT is a driver for their big data agenda, business strategy and marketing & sales were mentioned more often than average. This confirms our observation that business is pressing IT to explore solutions that can deliver meaningful insights to make effective decisions, and that there is a push from the leadership to enhance the effectiveness and competitiveness of the organization.

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