

4 Indicators Digital Transformation is Reshaping the Oil and Gas Industry

(and who's leading the charge)

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Recent News

As part of the oil giant's efforts to digitize its oil fields, Chevron has entered into a new [seven-year partnership](#) with Microsoft. Chevron's digitization initiative aims to leverage Microsoft's powerful cloud computing and analytics to drive efficiency and streamline production operations. Back in August, another significant strategic partnership formed between Halliburton Co. and Microsoft. Together they plan to ["digitally transform the oil and gas industry."](#)

With the powerful combination of Microsoft's expertise as a global leader in cloud and digital transformation and the prowess in oil and gas services of companies like Chevron and Halliburton, what does this tell us about the future of technology in the oil and gas industry?

Leader or laggard?

The oil and gas industry is known for using advanced data, tools, and machinery at the core of its business processes. However, the industry has fallen behind in terms of digital transformation and leveraging the real-time data and insight gathered by connected technologies. According to MIT Sloan Management Review and Deloitte, the oil and gas sector's "digital maturity" is at [4.68 out of 10](#), meaning that despite the industry's advanced technology, they have insufficiently embraced digital and connected technologies. Digital transformation requires embedding technology in the core of the organization and its business practices.

Oil and gas companies can collect data from a wide array of sources, such as sensors embedded in wells or machine-to-machine data. With today's data coming from multiple sources, digitally mature companies have the potential to glean key insights and analytics that can be used to gain a competitive advantage. However, according to Ashok Belani, Schlumberger Ltd.'s technology chief, the average wellsite has [less than 10gb of data associated with it](#).

Digital transformation is beginning to sweep the oil and gas industry, with oil companies now realizing the potential for impactful and long-lasting results, such as increased revenues, reduced costs and the improved safety and reliability of operations. Here are four indicators that suggest the digital transformation of oil & gas is picking up momentum:

An increasing number of oil and gas producers are realizing the value of analytics and big data, helping them become more efficient and productive.

1. Affordable Technology is Enabling Companies to Gain a Competitive Advantage



Necessity breeds innovation, and in the oil and gas landscape, the major driving force behind the search for new and innovative technologies is the economic downturn that shell shocked many companies starting in 2014/2015 . Oil and gas companies are looking to integrate [solutions and technologies that will give them a competitive advantage](#), provide critical insight into core business practices and operations, and above all, reduce costs.

Due to the drastic downturn, companies in the oil and gas industry have become more receptive to cost saving and efficiency driving technology than ever before. Fortunately, innovative technology is becoming increasingly affordable, and we will see more and more oil and gas companies have access to digital technologies such as real-time data streams, mobile technology and embedded sensors, keeping them constantly updated on their operations.

Through its partnership with Microsoft, Chevron expects to enable the implementation of more advanced technologies that will help give the company a competitive advantage. Two other major companies in the oil and gas sector, Schlumberger and Baker Hughes, [have already implemented significant digitization](#) into their practices, and many others will begin to follow their lead, in hopes of reducing costs in the midst of the recession.

2. Big Data is Contributing to Lower Production Costs

Cost reduction is of the utmost importance for companies in the oil and gas industry, especially during the current economic climate. One of the many challenges facing the oil and gas industry is rising production costs, and companies are becoming increasingly reliant on big data and analytics to assist in optimizing profits.



Adopting digital technologies has been transformative for many companies, and its importance can't be overstated when both reducing operating costs and increasing productivity. Using a digital platform to manage, measure, and track all of the data coming from all departments and all operations all over the oilfield, oil and gas companies can gain valuable insight and maximize their quality and output, while minimizing waste throughout the process. The impact of reduced production costs is critical in today's competitive oil and gas landscape.

According to research firm [Kimberlite](#), [an average financial cost of \\$49 million is experienced by oil and gas companies due to unplanned downtime.](#) With data flowing around the oilfield, digitization enables oil and gas companies to reduce costs associated with unplanned downtime and employee injury or illness, while simultaneously reducing risks. The effective use of digital technologies to generate a predictive approach based on data analysis can help cut unplanned downtime by 36% and upstream operating costs by 3-5%, according to a [report by consulting firm McKinsey.](#)

An increasing number of oil and gas producers are realizing the value of analytics and big data, helping them become more efficient and productive. Interactive data visualization tools such as Power BI, paired with powerful data capture tools can have a powerful impact on operational efficiency. Some analysts believe that the digitization of oilfields could [increase the value of oil and gas assets by 25%](#), while increasing production output and minimizing downtime.

Effective use of digital technologies can help a company become more productive, efficient, and reduce financial costs where it matters.

3. Real-Time Data is Boosting Agility



Oil and gas companies are constantly examining the increasing role that digital technologies play in becoming agile, faster, and better equipped to adapt to challenges and market conditions. Despite the current economic downturn, these companies are [funneling a massive amount of money](#) into funding innovative technology that will help them work smarter by optimizing production and minimizing costs.

Effective use of digital technologies can help a company become more productive, efficient, and agile, with the meaningful real-time data and insight to make precise business decisions and reduce financial costs where it matters. With the components in place to constantly update and communicate real-time data on the conditions of equipment, pipelines, and mechanical systems, the digitization of oil and gas companies creates new wellsprings of information. This data can help boost operational efficiency, and assist in determining the root causes of machinery failures, malfunctions, and defects in near-real time.

The number of partnerships between tech giants like Microsoft and oil companies is rising, and digitization is beginning to sweep the oil and gas landscape, with the implementation of digital devices, sensors, and databases to help improve production efficiency. Data collection and analysis provide a strong platform for making critical business decisions, and in the current economic climate, organizations cannot afford to miss opportunities that have the potential to streamline workflows, provide insight into more efficient operations, and provide a competitive advantage.

4. Cross-Industry Collaboration creating new opportunities



The oil and gas industry is entering a new era of digital transformation and smart technology during a time when reducing costs is essential to survival. As in any other industry, oil and gas companies need to stay on top of current technology in order to stay competitive. The economic downturn has not only forced the industry to look for cheaper and more efficient ways of producing oil and gas, it has also inspired companies like [Halliburton](#) and [Chevron](#) to develop partnerships with tech giants like Microsoft.

Once dominated by large generalist companies, the oil and gas industry is shifting towards favoring smaller companies which are specialists in specific areas of the oil and gas environment. Partnerships will allow companies to focus on their core competencies, while outsourcing things like cloud-based solutions and cybersecurity to companies with technological expertise like Microsoft and [GE](#), in order to save on time, money, and risk.

Through collaboration with Chevron, Microsoft has been able to gain valuable insight into the oil and gas industry and tailor its infrastructure and solutions to suit the needs of oil companies. As one of the world's leading integrated energy companies, Chevron will benefit greatly from Microsoft Azure's large global infrastructure. The powerful analytics capabilities of Microsoft's platform will allow Chevron to harness and convert the constant stream of real-time oilfield data into valuable performance-driving insight.

Halliburton's DecisionSpace365, a platform enabling the real-time streaming of data from IoT devices, will benefit from Microsoft's data and cloud computing expertise. Pairing Halliburton's existing platform DecisionSpace with Microsoft's cloud-computing platform will allow Halliburton a much more comprehensive system to handle the velocity and complexity of data streams from a variety of sources, and will allow the company to expand its connectivity. Another example is [GE's recent acquisition of Baker Hughes](#) to create a business focused on more efficient operations, using automation and data analysis.

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Digital Transformation: Securing the Future of Oil and Gas

Oil and gas companies have to continuously evolve and address the changing business landscape, and there is no doubt that digital transformation is beginning to sweep the industry, and the result in terms of increased efficiency and added value are significant. Organizations are seeing that digital transformation is no longer just an option, and are beginning to change both their technology and culture to incorporate digital technologies.

Digital transformation cannot work without a transformation at the core of the business, from the people to the processes and technology. While there are challenges to digital transformation in the oil and gas industry, partnerships with tech specialists such as Microsoft will have a significant long term impact on the oil and gas industry, helping companies digitally transform and implement connected technology into all facets of the organization. These technologies help organizations become agile, adaptable, and cost-efficient enough to survive in the current economy, and continue to thrive long into the future.

*We're excited to be participating in one of the rapid growth aspects of this transformation, and we see **Safety and Compliance** as a starting point for much more complex data gathering and connected systems. The health and safety impact of digital and connected technologies cannot be overstated, and with the right tools in place to streamline the process of capturing and analyzing safety data, companies will become more efficient and proactive in managing their safety and compliance processes.*

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Effective use of digital technologies can help a company become more productive, efficient, and reduce financial costs where it matters.

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