

IBM Institute for Business Value

Oil and Gas 2030

*Meeting the growing demands for energy
in the coming decades*



Overview

Despite increasing attention to alternative energy sources, the world can't forget about oil and gas as it struggles to meet ever-rising demand for clean and affordable energy. Technology is the most important force to increase the supply of more challenging oil and gas, and mitigate the environmental impact of energy production and consumption. Globally unaligned government regulations, and uneven distribution of Oil and Gas sources and technological expertise will result in more diversified operations, M&A and deeper complementary partnerships. Looking toward 2030, companies need to develop, deploy and integrate strategic production and information technologies to enable key success factors: performance management, enterprise risk management, operational excellence, people management and adaptive business models.

Energy demand is expected to grow significantly in the next two decades, with increased demand mainly coming from emerging nations with increasing economic power. While governments and companies investigate alternative sources, Oil and Gas companies must continue to find new ways to develop and deploy technology that can improve exploitation of existing fields and at the same time improve exploration of new oil and gas resources.

To better understand how Oil and Gas companies can be successful in the changing future industry landscape, we interviewed more than 100 corporate level executives from different parts of the industry ecosystem, mainly focusing on the upstream segment.

Not surprisingly, respondents readily acknowledged that there are many forces impacting the Oil and Gas industry, from both the supply and demand sides. Respondents described the following trends as vital to plan for: the ability to operate in challenging frontiers, the need for a new skill mix, government impacts that are stricter and more diverse, the ever-growing demand for oil and gas, and increasing environmental concerns, as well as a shifting competitive field where NOCs are becoming more dominant and the IOC role is challenged.



The changing impact of key external forces

When asked to name the five most important external forces impacting their companies today, the top answer was *technology progress* (see Figure 1). While 61 percent consider technology progress to be an important external force today, a full 81 percent expect it to be important in 2030. For the same period, 42 percent of respondents included *energy source availability* as one of the top five external forces. Interestingly, they anticipate it will carry the same importance – no more and certainly no less – in 2030 as it does today.

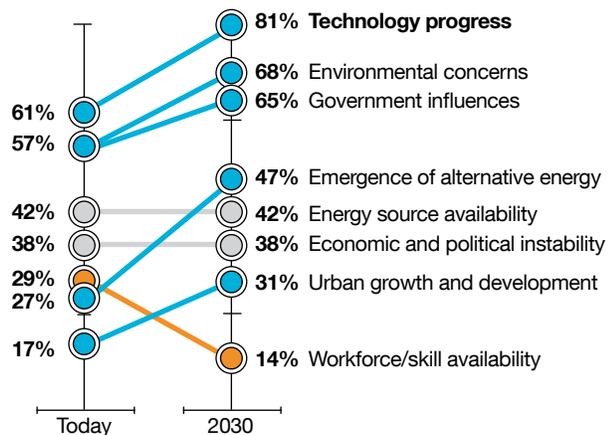


Figure 1: Oil and Gas executives expect shifting impacts from a multitude of external factors over the next two decades.

Technology is seen as crucial to develop, deploy and integrate both production and information technologies to enhance recovery from existing fields, explore new hydrocarbon sources by entering new challenging operational frontiers and reduce environmental footprint.

Despite this awareness of the importance of technology, extensive industry research acknowledges that Oil and Gas companies have fallen short in deploying new technologies at the pace of general technology development. One respondent cited high costs and risk as barriers to commercializing technological solutions – even those available for more than ten years.

Shifting competition among industry participants

Today’s Oil and Gas industry is comprised of a broad mix of participants that are not equally advantaged. Each has different combinations of: access to energy sources, consumer markets, availability of capital and/or special “know-how” and technology.

With limited energy source access, the role of IOCs is challenged, especially if NOCs reduce their demand on IOCs for technology and risk expertise. Forty-eight percent of respondents predict that by 2030,

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IOCs will diversify in related energy products and services. Forty-eight percent also predict that by 2030, IOCs will be complementary technology providers serving NOCs. In the future, we can expect more diversified operations, mergers and acquisitions (M&A), and deeper complementary partnerships resulting from IOCs' focus on niche segments, such as unconventional.

NOCs are likely to expand internationally, also focusing on M&A and complementary partnering to gain access to energy sources and technologies to grow revenues. In particular, the NOCs with both great emerging demand in home markets and limited energy sources are expected to grow on the international stage to secure supply.

Seventy-nine percent of respondents agreed that service providers will keep their current important status as the key complementary service and technology providers to the industry, and that this will particularly be true for NOCs. But for service providers, competition might increase with emerging IOCs diversifying into technology services.

Preparing now for 2030

Based on analysis of our study findings and the wide-ranging changes that are already impacting the industry, how can Oil and Gas companies act now to position themselves for success in 2030?

Arguably, the best Oil and Gas companies in 2030 will not just be the biggest resource holders with the strongest balance sheets. For at least the next two decades, the future of Oil and Gas will be defined foremost by the geology of more challenging oil and gas sources. Those who remain competitive will find themselves developing and deploying strategic production and information technologies that enable five critical success factors: enhanced performance management, prioritized enterprise-wide risk management, focused operational excellence, effective people management and an adaptive business model.

How can IBM help?

- **Improved operations:** Increase visibility, mitigate risks and lower costs across supply chains, improve production output by extending the life of oilfields, and improve refining and manufacturing efficiency.
- **Asset management:** Optimize return on assets, and increase asset availability, flexibility and reliability as a response to market volatility.
- **Prioritize enterprise-wide risk management:** Provide employees at all company levels with information required for proactive identification and prevention of risks.

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