



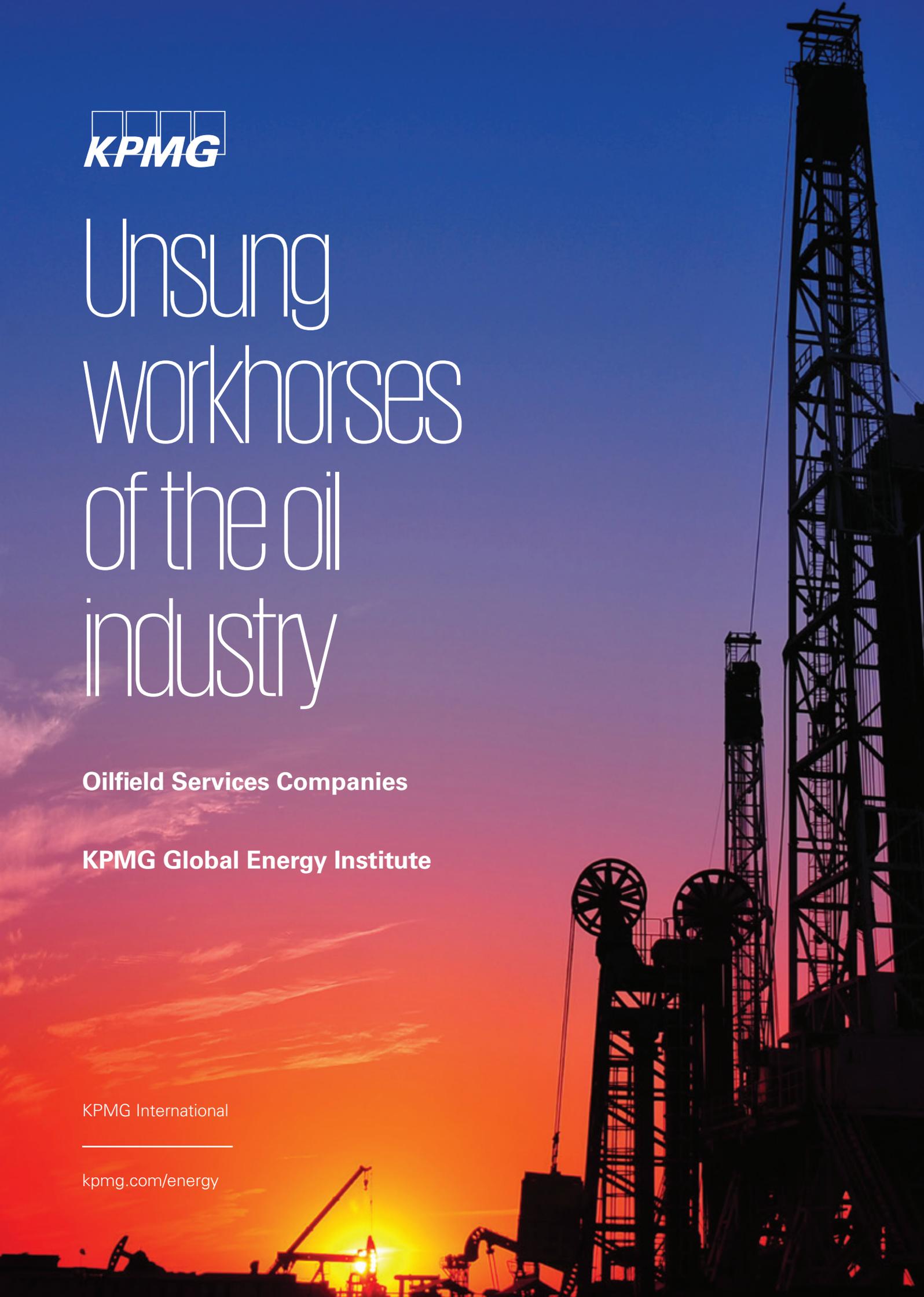
Unsung workhorses of the oil industry

Oilfield Services Companies

KPMG Global Energy Institute

KPMG International

kpmg.com/energy



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Executive summary

Over time, oil companies have increasingly become asset portfolio owners, more at arm's length from the execution of operations and support services needed to perform these.

Oilfield services companies have established themselves as the heavy lifters of the oil and gas industry (or, as the Economist put it, "Unsung workhorses" or "Masters" of the oil industry — depending on your point of view — by leading both the delivery of operations and the innovation space.

The critical support they offer to operations and their handle on technological solutions have enabled national oil companies and independents to manage much more complex projects than they would have otherwise, and the IOCs over time have also become more dependent on oilfield services companies and increasingly followed an outsourcing model.

As oilfield services companies grow into this space, they typically handle more risk. The distinction between the two sides of the industry remains, although there are a few examples of hybrid operating models.

The whole industry is facing significant challenges resulting from the low oil price environment. E&P companies have been pushing the supply chain to aggressively lower costs which in turn is impacting margins. This is hitting the service sector by reducing capacity utilization and lowering rates, to which

service companies are responding by downsizing.

However, if oil companies just see oilfield services companies as a commodity and keep a vendor at arm's length, they will not be getting an oilfield services company's most thoughtful application of its knowledge to a specific project. We believe that the operators will become more dependent on services companies, as they did in the 1990s during the oil price slump, for technologies solutions to extract oil more cheaply. The key technical challenge will be to optimize technology integration to reduce costs.

Out of mutual necessity, the current low oil price environment may accelerate the trend to new operating models, leading oil services companies and oilfield companies into new partnerships through which risk can be shared and project delivery optimised on a longer term life-of-field basis.

The trend within the sector towards more integrated services to operators will lead to service sector consolidation, as the larger and more dynamic services companies continue to build capabilities and competencies over a wider range of activities. This in turn will make them better placed to support new partnerships and new operating models with IOCs, NOC and E&P independents that can address cost issues in the industry.

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Introduction

Historically, the world's biggest oil producers closely guarded their role as operator of their own fields — convinced they alone could deliver the engineering necessary to extract their oil on time and on budget. Increasingly, however, over recent decades those producers have been ceding that role — opting in many cases to manage their assets at arm's length, and allowing the world's increasingly sophisticated oilfield services companies to deliver cost-efficient production and, crucially, the oil-field innovation that Big Oil has long assumed it alone could deliver. The speed and manner in which this has occurred varies somewhat by geographic market.

The critical support service companies offer to operations and their handle on technological solutions have enabled national oil companies, integrated majors and independents to manage much more complex operations than they would have otherwise. Despite today's sharp retrenchment and consolidation among the world's service companies — driven by the stubbornly

low oil price — these companies, from US giants Schlumberger, Halliburton, Weatherford and Transocean to major international players such as Technip, Wood, Aker and Petrofac, continue to offer technological solutions for operations.

As oilfield services companies grow into this space, they handle more risk. The current low oil price environment may accelerate that trend, leading them and oil company operators into new partnerships through which risk can be shared and project delivery optimized.

This thought leadership piece has also carried out unique research of the service company sector in various regions, to uncover the level of technical sophistication of the indigenous service companies and the potential for local value-added-content — an issue of great importance to governments hopeful of developing a high-tech service industry in their country. The results of this regional analysis appear in the back of this report.

The critical role of the oilfield services providers

Oilfield services companies provide the products and services necessary to construct, complete and produce oil and gas wells. Companies range from giant Schlumberger, whose divisions provide nine out of 10 products and services needed to explore, develop and produce an oil and gas basin, to a single, service company like Geolog, specializing in surface data logging for international and offshore drilling projects.

What makes this diverse group a unique actor in the petroleum sector is its relationship to oil company operators. A manager from a leading French oilfield services company explained that oilfield services companies are in the first row of a project's pyramid of services and their function is to select and integrate technologies into the project delivery.

The growth of the oilfield services sector is very much a story of innovation and finding solutions to technological and cost challenges faced by operators. "It is a solutions-driven industry," explains Alan Kennedy of KPMG. Companies grow by developing proprietary technologies and know-how that can be applied across particular

projects which then become an accepted industry service and way of operating. Their specialization and repeat use of services allow them to achieve economies of scale on technology development — something oil companies cannot do to the same degree.

Integration

The industrial evolution of the service sector is also characterized by integration of services. Companies strive to offer more services across the value chain. Schlumberger has the widest provision of services along the whole value chain, but competitors have similar strategies and this is, for example, a driver of the BakerHughes-Halliburton tie up.

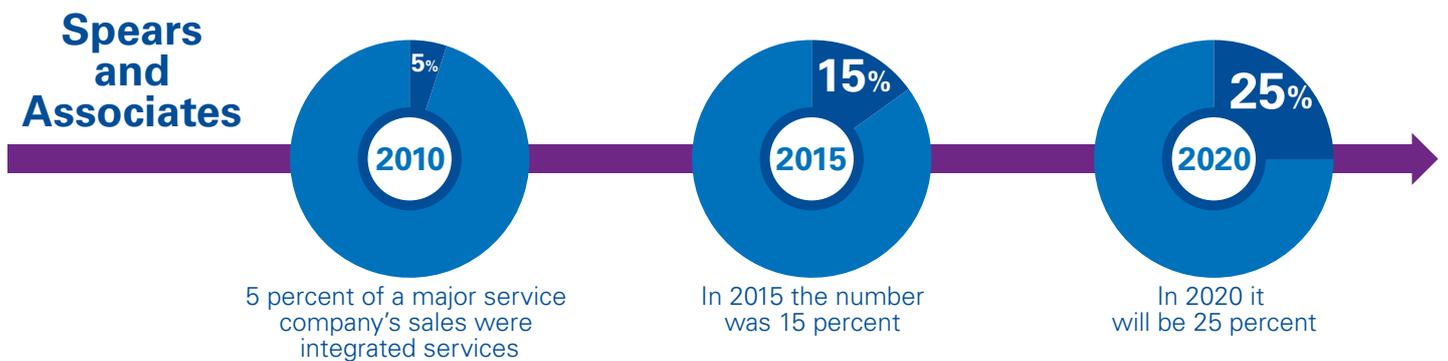
In the NOC market, it has been driven by the customer's preference for 'single company' and 'single contact' solutions. These drivers are well explained by Waleed Al Hashash, a former Deputy Managing Director at KPC, Chairman of Aref Energy and CEO of Rubban Logistics Kuwait: "Most NOCs would love to see these (big service company) guys more because they do everything in one contract. And



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Waleed Al Hashash

Former Deputy Managing Director at KPC, Chairman of Aref Energy and CEO of Rubban Logistics Kuwait



this is something good for somebody who is tied up with a long chain of local government tender procedures. So you talk to someone like Schlumberger and they can bring you your breakfast to the derrick, as well as huge equipment under contract. The Schlumberger philosophy is propagating while small companies push to be able to offer more services."

Integration has also been driven by downturns in the industry and the need to reduce costs through economies of scale. In the current low oil price environment, integration is being pushed through mergers and acquisitions. Schlumberger, for instance, acquired Cameron International last August, bringing with it more products and services that are required through the whole life of the field. Cameron's expertise lies in surface equipment, rig equipment and subsea equipment. Much as the oil majors integrated into the downstream to offset lower profits in the upstream when crude prices fell, oilfield services companies look to be present in different activities in the field life cycle.

According to Spears and Associates, in 2010, 5 percent of a major service company's sales were integrated services. In 2015 the number was 15 percent and in 2020 it will be

25 percent. The industry is moving toward integrated project management handled by service companies and this model favours the major service companies.

US onshore may be less likely to follow this path to integration because the US supply chain is a well-oiled machine, according to Richard Spears. Shale wells in Turkey, for example, may cost US\$20 million, while the same well in the Eagle Ford costs US\$6 million thanks to the available and competitive supply chain. This difference illustrates the potential downside to the industry from integration, as it threatens to reduce the very competition that lowers costs and stimulates innovation and research.

Outsourcing: A driver for the service industry

Until the 1960s, the oil majors handled the multiple facets of operations in-house and they conducted in-depth research into drilling, completion and production technologies. In the 1980s, these were then licensed to the oilfield services companies. Functions such as drilling yielded low margins and diverted the attention of operators and they increasingly outsourced them to specialized companies with



There has been a big shift in the philosophy of how to operate in the last 2 to 3 decades. ”

a greater ability to drive efficiency. They encouraged the establishment of companies to handle these services, such as drilling, reservoir engineering, procurement, construction, laying down pipes, supporting ongoing production and maintenance. Since that era, however, oil companies have not maintained the same level of in-house expertise in technology research and development.

National oil companies, such as Kuwait Oil Company (KOC) and Saudi Aramco, also outsourced these functions and have focused their resources on overseeing operations. Waleed Al Hashash explained, “They have guys on the ground just making sure the drilling companies are doing their job. Coordinating. Giving the orders. But the real operations on the ground are done by private (service) companies. There has been a big shift in the philosophy of how to operate in the last two to three decades.” The NOCs are focusing on the interpretative work, which involves deciding where to drill and how. They are supported in these decisions by international service companies but the final decision rests with the NOCs. As Al Hashash puts it, “They would not say, ‘Ok here is a lump sum and a piece of land. Operate it and give us 50,000 barrels a day.’ The final say, the full picture, is still in the mind of KOC. KOC calls the shots.”

While the final decision on drilling rests with the operator, it is clear that the transfer of much of the execution responsibilities to service companies has meant some operators have less of a granular knowledge of their geology. They are more dependent on external capabilities and experts, particularly when tackling new geological challenges.

The consequence of outsourcing technology development

Services that were initially low value grew more sophisticated as oil prices fell in the early 1990s and operators required technological innovations to develop oil more cheaply and access new geology. In this cost-cutting era, oil companies decreased their R&D expenditure, while service companies ramped up investment. This led to breakthroughs in 3D seismology and directional drilling.

Today, some oilfield services companies spend more on R&D than oil companies as a share of total revenues. The service companies have incentives to do so: they can effectively sell their technology to multiple customers. Innovation has segmented the industry between service companies focused on developing technology and carrying out execution and oil companies integrating multiple technologies and managing overall risk.

Risk management

Oil companies take on financial risk and are ultimately responsible for the outcome of projects. They manage relations with the host government and communities. And in addition to political and above-ground risks, oil company operators decide where and how to explore (based on geophysical data provided by an oilfield services company and sometimes upon their advice). In this sense, the oil companies’ technological skills are largely interpretative.

A challenge for operators today lies in the depletion of conventional, low-cost reserves. They face significantly increased risks when



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confronting frontier oil and gas or development choices during tertiary recovery. This is because there are only very imperfect analogues on which to base decisions in frontier petroleum activities — and with uncertainty the risk is greater.¹ A manager from a French oilfield services company explained that major oil companies need ever greater technical capabilities, as projects grow more complex and costly. They are responsible for selecting and integrating technologies. “And their challenge is to optimize and operate the project in its entirety. In order to manage the project integrity they must put in place qualification and validation procedures for all services and vendors.”

Pete Nolan, previously with BP and now an adviser to a private exploration company, explained how oilfield services companies and oil companies approach and take responsibility for risk differently. “The primary difference is the scale of risk and how that risk is underwritten. A private oil company competes when risks (uncertainty and capital exposed to this uncertainty) are very high and it shows its willingness to put very large amounts of its shareholder capital at risk to achieve greater value. The service company competes by promising greater value to the oil company through its investment in technical research and acceptance of performance incentives (and penalties). The service company does not accept huge uncertainties or expose its shareholders' capital to these uncertainties.”

But there are hybrid cases emerging, such as Petrofac's Integrated Energy

Services division, which offers petroleum risk service contracts. Petrofac estimated some 2,400 small and medium-sized fields could be suitable targets for risk service contracts. In this model, oil service companies take up-front capital risks in exchange for a financial upside linked to project performance, but do not book reserves or production. This is an interesting model because it builds in the incentives for performance and lessens the burden on the national oil company or host government regulator to carefully monitor performance. In the current low-price environment, which brings particular pressures on mid-size independent E&P companies, we may see some large service companies move towards using their balance sheet and taking on some production risk from less well financed customers.

Partnerships for managing risk

The complexity of projects and the ability of companies active in the oil sector vary widely. Naturally, the best marriage is between an operator capable of managing risk, with a strong process focus and technical ability on the one hand, and a service company that is equally capable on the other. But in an industry where small independent companies have proliferated and national oil companies have secured the majority of proved reserves, the operators of projects are not always sufficiently experienced to handle all technological decisions during operations. In practice, oil companies have been able to rely increasingly on

¹ Peter Nolan & Mark Thurber, in Victor, Hulst and Thurber (2012), *Oil and Governance, State-owned Enterprises and the World Energy Supply*, Cambridge.

oil field service companies to share some of the burden of technological decisions and risk management.

A good match in skills and abilities between the operator and the service company is key to the successful outcome of the project. A manager from a leading French oilfield services company commented that a company the size of Tullow does not have the same in-house resources as ExxonMobil. These companies work differently and their relationship with service companies is also quite different. “Tullow will give the oil service companies a greater level of responsibility in the project.” It will not be as involved in detailed technical decisions or oversee as closely their work. “But that said, their project will be less complex than ExxonMobil’s and they will have made sure that they selected the right service companies.” Jean-Matthieu Castellani, former head of the Total account for Schlumberger, warned of a risk because some oilfield services companies wanting to respond to the needs of customers “may step in to do things that they are not accustomed to do or particularly expert at. It is important to differentiate between service companies who have real capabilities to deliver integrated services and those who do not.”

Positive outcomes are increasingly a function of the competence of the service provider and yet, in a partnership without shared accountability, incentives for the service company to perform are limited to preserving the firm’s reputation. In the assessment of responsibility for the Macondo disaster, BP bore

the lion’s share of liabilities as the operator. Transocean, which owned and operated the Deepwater Horizon rig, and Halliburton, which supplied the cement intended to secure the well and prevent leaks, argued with BP over the extent of their responsibility. A deal reached in May 2015 saw BP give up its claims against Transocean and Halliburton for their role in the disaster and the service companies drop their counter suits. Both service companies said they hoped the settlement would strengthen their working relationships with BP, an important issue for them at a time when their revenues have been under pressure from low oil prices.² The broader fallout for the industry is a greater awareness of operator vulnerabilities related to accidents and environmental disasters, but no clearly discernible move (as of yet at least) to share responsibilities between operator and service provider.

In countries where policies are put in place to secure a role for the indigenous service sector, there is a risk that NOC operators are not working with companies that complement their abilities. Zeyad Al-Oudah, from the Kuwaiti oil service company AREF Energy, felt many of the local service companies had “very low exposure to international standards — especially in risk assessment and risk management.” However, the risk is mitigated because these companies largely operate in joint ventures with global oilfield services companies. In Iran, the local service companies have been required to operate solo with limited access to international equipment and exposure

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Jean-Matthieu Castellani,
Vice President
Development and
Communication at SBC

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Very low exposure to international standards — especially in risk assessment and risk management.”

Zeyad Al-Oudah,
AREF Energy, Kuwait

² Financial Times, 21 May 2015.



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If you ask them how they plan to approach and measure the risk related to foreign corrupt practices in a country where they are set to operate, they do not have a standardized way of assessing and mitigating that risk that they can apply to that case.”

Zoe Thompson
US Oilfield Services Leader

to international best practices, and so through necessity have built greater local expertise than is available in other non-Western oilfields.

For independent oil companies over reliance on smaller service companies presents risks. Processes are required to minimize the risk of adverse events and these may not be the forte of oil service companies. As Zoe Thompson, KPMG in the US explained, “Chevron, BP and other majors have a process for decision-making — who approves what and when.” The largest service companies do too. But many of the mid-size oilfield services companies, especially the smaller ones, do not share this process focus. “If you ask them how they plan to approach and measure the risk related to foreign corrupt practices in a country where they are set to operate, for instance, they do not have a standardized way of assessing and mitigating that risk that they can apply to that case. They reinvent the method each time.” On the flip side, these smaller companies

are “nimble and entrepreneurial.” And some will say that innovation requires an entrepreneurial and unstructured search for solutions to technological challenges... and perhaps a willingness to be less conventional and assume more risk. The burden is then on the oil company operator to work more diligently to manage risk throughout the chain of services.

Risks in certain locations may be increasing as: operations are handled by small independents and national operators less expert at managing risks; international oil companies rely on service companies to deliver services for increasingly complex projects; and operations increasingly go into deeper waters where the environmental consequences of an accident are dire.

There is a huge potential to explore new types of partnerships between service companies and operators, which can be designed to lower costs, improve project delivery and



reduce operational or other risks. They may range from greater information exchange, improved coordination or distributed liability to sharing of financial risks and rewards. Partnership terms must be designed to offset any competence gaps of each partner, taking into account, for example, the lower ability of some operators to assess and manage risks.

Addressing industry cost challenges

The service sector is facing significant challenges resulting from the low oil price environment. When comparing capital investments plans for the following two years in Q4 2014 and Q4 2015, Wood Mackenzie saw a decline of 28 percent, amounting to a US\$286 billion investment hole.

Wood Mackenzie estimates that US\$1.5 trillion of investment does not break even at US\$50/bbl.³ E&P companies have been pushing the supply chain to reduce margins and lower costs. This impacts the service sector through reduced capacity utilization and lower rates, especially in the US where the investment pullback is most pronounced. Spears and Associates estimated the market to be US\$454 billion in 2014, but in 2015 it fell to US\$332 billion and is estimated to fall further to US\$294 billion in 2016.

But the operators will come back to the service companies, as they did in the 1990s during the oil price slump, for technology solutions to extract oil more cheaply. The key technical challenge will be to optimize technology integration to reduce costs.



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³ Insight, Cost deflation outlook: upstream sector responds to low oil prices, 8 September 2015.

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Sharing financial risks and rewards would solidify this partnership and ensure the service provider mobilizes its best resources for the project, works to mitigate risks...”

The ability of the service industry to respond will depend on its continued investment in research and development and, very importantly, its people. Slack demand for services has led to layoffs, which raises the challenge of a talent gap when demand rises again. Investments in research follow the same pattern. But some companies will stand out by investing through the downturn in their workforce and by maintaining a focus on technology — either in-house or by acquiring weaker companies with strong technology potential.

Another key factor in the ability of service companies to meet expectations of technology optimization and cost control will be the willingness of operators to forge a new business model based on cooperation. As long as oil companies see oilfield services companies as a commodity and keep vendors at arm's length, they will not be getting the service company's most thoughtful application of its knowledge to a specific project.

Oil companies can share more information with oilfield services companies and involve them more in the pre-planning process. Currently, the operator would plan independently and then select the appropriate service

company for execution. A more cooperative relationship would lead operators and service companies to work together to optimize the planning process. Operators could share their aspirations for specific fields, schedules and timelines, and reservoir information. KPMG believes that on a typical onshore, unconventional project the complexities associated with a non-integrated supply chain drive up costs much higher than necessary.

Oil companies can share risks and rewards with service companies. By changing partnership terms to engage the service provider as a partner holding equity in a project, operators will create new incentives for service companies to apply their knowledge to the benefit of the project and to mitigate risks. Such new partnership models are a natural evolution for well-established operator NOCs and service companies, which are already acting within a more collaborative framework, sharing vital information about projects. Sharing financial risks and rewards would solidify this partnership and ensure the service mobilizes its best resources for the project, works to mitigate risks and fills any gaps left by the NOC operator.

Regional markets focus

In many petroleum-producing countries, an indigenous service sector has grown over the years, expanding services offered. This development is important for the countries involved because, as the North Sea and American methods demonstrate, industrial clusters around the upstream oil and gas projects create jobs and drive innovation. It is also important to understand the level of sophistication and ability of these indigenous service providers because, as we saw, operators are increasingly relying on the oilfield services companies sector to carry out operations.

Our report reviews the oilfield services companies sector developing in various parts of the world. We focus first on

the US, by far the largest in terms of market size and number of companies. Small, medium and large OSCs drove key innovations in unconventional gas and oil extraction. Second, we examine China, where investments in R&D are very high. A unique feature in China is that these service companies are subsidiaries of NOCs, which gives these companies a different set of incentives. In Russia, the market is relatively diversified, with a number of NOCs and vertically integrated companies, which have some in house services and employ global and local oilfield services companies. Next, we look at Africa, where NOCs are largely non-operators with relatively low capability. They depend largely on foreign oil companies





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to explore for reserves and to operate their fields and these companies hire and manage the international service companies. After producing oil and gas for almost 60 years, one would expect local independent producers and service companies to be well established. But only since the 2010 local content legislation, discussed below, have there been major changes in this area.

We then turn to the Middle East, which is the most important market for the international OSCs. The reserves there are large and low cost, and this has enabled local oilfield services companies to grow their business. But the NOC operators are facing increasing technical challenges. Mexico is similar to the Middle East in that the NOC has been the customer of the OSCs, but with the particularity that the country is opening up to foreign investment. In the Caribbean, Trinidad and Tobago is an interesting example of a developing country that has worked to develop its domestic supply chains in order to maximize in-country value-added content. And finally, in the North Sea, a sophisticated and well-established service sector has nurtured the growth of some of the world’s largest oilfield services companies.

US market

In the case of the US oilfield services companies, there is a segment of activity that is US-focused or indeed state-focused, as well as another class of players that has an international scope. In this section we will examine more carefully the former.

The United States, long a net importer of crude, saw energy independence

on the horizon amid the explosive rise of what some in the industry called “Cowboyistan” — Texas’ Permian and Eagle Ford basins and the Bakken in North Dakota. These three plays drove half of the global production growth since 2008 and combined were the seventh-largest liquids producer in the world. With oil hovering at US\$100/bbl and 1,931 active rigs⁴, the future for US oil and gas production looked promising — and the industry responded with a proliferation of smaller, specialized oilfield services companies to meet strong demand.⁵

A little more than a year later, crude is less than US\$40/bbl and the rig count has dropped by over 60 percent to a five-year low of 709.⁶ The oil price change and corresponding drop in drilling activity has had a particular impact on these domestic-focused oilfield services companies. Less diversified geographically or with the services they provide, they have fewer response alternatives than their larger peers. Despite cutting costs and laying off personnel, contracting demand for services has inevitably impacted financial returns for the oilfield services companies sector.⁷ While the bigger companies cut prices to maintain or improve market share, the smaller players simply cannot compete. Many have been forced into bankruptcy; the lucky ones have become targets for larger companies with stronger balance sheets.

The industry has seen that well-capitalized companies are looking for acquisitions to fill gaps identified in their product or service offerings. As is common in cyclical downturns,



Many have been forced into bankruptcy; the lucky ones have become targets for larger companies with stronger balance sheets. ”

⁴ <http://marketrealist.com/2015/07/highest-us-rig-count-rise-year-whats-impact/>

⁵ <http://newsok.com/article/5397907>

⁶ <http://phx.corporate-ir.net/phoenix.zhtml?c=79687&p=irol-rigcountsoverview>

⁷ Standard & Poor “Negative Outlooks Prevail For US Oilfield Services Companies Amid The Commodity Price Slump”, June 8, 2015

the first rounds of M&A focused on diversification, as a means of helping to endure the difficult industry environment. Geographic diversification may be out of reach for some of these smaller players, but Duff & Phelps Securities sees companies assessing diversification outside of their current oilfield services companies market activities. "Certain oilfield services companies equipment manufacturing and fabrication business are targeting acquisitions that would provide them access to the general industrial and downstream petrochemical industries. Market diversification often seeks to apply the company's core competencies, such as metallurgy and engineering, in industries that may be countercyclical to their OFS business activities."⁸ Small to mid-size oilfield services companies are also showing interest in stock merger transactions, which draw less on their liquidity. The question for many is when the timing will be right to take advantage of the vulnerabilities of the weaker companies. Will crude prices and rig counts continue to slide, therefore providing even better bargains?

China

The Chinese service sector is among the most developed. The market is still centrally planned to a large degree, with high barriers to international company participation. Indigenous company growth has been driven by this protected market and strong ties to the Chinese NOCs. Indeed many of the service companies are subsidiaries of the NOCs.

These companies spend a lot on R&D: PetroChina stands out as the top spender in absolute terms on R&D among all oil and gas companies. However, Richard Spears, a long-time industry observer, has commented that the Chinese NOC model does not incentivize innovation because as subsidiaries of the NOCs they are not spurred by competition to outperform their peers.

A degree of opening in the services sector could be required to significantly move the trajectory of unconventional gas development in China. Some Chinese firms are already venturing abroad to gain access to new technology solutions. The wellhead systems expert Plexus Holdings, for instance, entered into a partnership with China Oilfield Services, majority owned by the NOC CNOOC, and will work with Red Sea Technologies and Yantai Jereh Oilfield Services to explore commercial opportunities for shallow water subsea and crossover wellhead production systems in China.

South East Asia

Specialist service providers exist in Southeast Asia within an ecosystem of domestic service providers. They provide field labor, supply chain and logistics services for remote locations, warehousing and distribution services. The domestic agenda is very much in favor of protecting and nurturing local service providers. This is done through contractual stipulations for local content.

Over the years, this approach has diluted the impact of the large international



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Russian oil companies have also demonstrated an interest in establishing joint ventures with foreign players in order to get access to foreign technologies. ”

⁸ Oil and Gas Financial Journal, 8 June 2015; available at: <http://www.ogfj.com/articles/print/volume-12/issue-6/features/what-lies-ahead-in-ofs-sector.html>



Whilst oil prices were high, the ecosystem, enabled by local content rules, flourished in supporting field service activity but the questions remain as to whether they will be able to survive the continuously low prices. ”

service companies and restricted their contribution to specific services which might not be available in the domestic scene. Conversely, the maturity of the domestic service provider has evolved with the provision of more complex services and equipment.

However, the evolution of domestic service companies in South East Asia has not equipped local players with the depth or ability to innovate in the way that their integrated international counterparts have done over the years. R&D largely remains the purview of the NOC. This is particularly notable when considering secondary and tertiary recovery techniques that help extend the economic life of aging reservoirs in the South East Asia region at a time when exploration activity has been curtailed.

Finally, the domestic OFS companies are fundamentally built to serve an existing master and therefore their fate is tied to a set of relationships. They are not particularly well equipped to compete for the work that does remain. Whilst oil prices were high, the ecosystem, enabled by local content rules, flourished in supporting field service activity but the questions remain as to whether they will be able to survive the continuously low prices. The international OFS companies survive through major restructuring of their prime cost base.

Russia

The Russian oilfield services market has grown rapidly over the last decade. Drilling remains the leading oilfield service, comprising around 65 percent of all oilfield services. But Russian companies have extended their scope of work to include advanced well stimulation and enhanced oil recovery techniques.

This growth was triggered by a general activity boom resulting from new projects. Major Russian oil and gas companies disposed of their oilfield services divisions as non-core assets which were not as competitive as the independent Russian service companies. The Russian market diversified, with indigenous and foreign oilfield services companies of various sizes offering services. Sanctions are changing the picture by limiting the access of large foreign oilfield services companies to the Russian market. Local oilfield services companies have an open field to provide a full scope of services, if they prove capable of meeting the requirements of operators. For now, there is a gap left by the large foreign players and Russian oil majors have begun to revive their previously outsourced service divisions. Russian oil companies have also demonstrated an interest in establishing joint ventures with foreign players, in order to get access to foreign technologies, offering in exchange a share of local market and projects.

Africa

Africa had been a high, growth area for international oilfield services companies, but low oil prices may hit the sector hard there. This is particularly true for companies servicing the frontier developments, ultra-deep offshore, and other high-cost reserves, where operators are cutting back spending and cancelling or delaying projects.

The domestic or regional oilfield services sector is limited but has been growing in some countries like Nigeria, supported by the 2010 Nigeria local content act which requires international companies to partner with Nigerian companies for services. AOS Orwell, for instance, is a Nigerian company with more than 200 man-years of field experience in wireline pipe recovery. Ladol and Jagal are other local companies offering a free zone and integrated oil and gas services in Nigeria — including rig repairs and dry dock facilities where 100 percent of the work is carried out in Nigeria. New Nigerian companies are also providing marine support vessels of many different sizes, and more and more pipe coating services are available in-country, with the Chinese and others investing in new pipe plants.

The term “Nigerian Content” however is still in flux in the oilfield services companies space, with some

foreign firms doing as much financial engineering as possible to meet the criteria, but not investing as much on people and infrastructure on the ground. They continue to apply a fly-in/fly-out methodology that worked for them over the 50-plus years of production in Nigeria.

In East Africa, the prospects of large oil and gas developments in Uganda, Kenya, Tanzania and Mozambique elevate the issues of local content. Governments are contemplating legislation that could impose far higher local content requirements than the present low commodity price environment can support. These issues remain outstanding.

Middle East

Producers in the G.C.C. and Iraq are a key market for the largest oilfield services companies, especially as those NOCs have come to depend increasingly on service companies for operations over the past two to three decades. New entrants from China, Korea and Canada are gaining market share in a region historically dominated by the established international players.

However, some trends are emerging which point to a greater involvement of indigenous companies. First, local private oilfield services companies are increasingly active in the Gulf. While



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Governments are contemplating legislation that could impose far higher local content requirements than the present low commodity price environment can support. ”



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such companies had traditionally been simple agents, offering foreign companies the label of 'local content' in exchange for an equity stake, new companies are being created in Oman, Kuwait and Saudi Arabia, with a view to taking an active role in the business. Waleed Al Hashash, who has worked in this sector and for the Kuwait national oil company, explained these local private companies now put up equity to form joint ventures with foreign OFS companies. "You get respect in the Gulf because you're local and you're putting in the money, learning the know how and chasing tenders like anybody else. You're not sitting there like an agent, just a messenger, going back and forth."

Some of these companies are listed and operate throughout the region.

This trend will no doubt be helped by Saudi Aramco's decision in December 2015 to increase the share of local service companies in projects. The In-Kingdom Total Value Add (IKTVA) programme seeks to double the percentage of locally manufactured energy-related goods and services to 70 percent by 2021 and to raise the export of Saudi-made energy goods and services to 30 percent over the same time frame.

In Iran, the local oilfield services companies sector has prospered since the mid-2000s as US and then

international sanctions prevented many international oilfield services companies from entering the market. There are hundreds of Iranian companies active in the energy sector.

Aliakbar Vahidi AleAgha estimates that most of these are in the chemical, engineering and manufacturing sectors, four to five companies are “small oil companies, carrying out a number of functions,” and “20 to 30 are service companies with very particular upstream oil expertise,” including offshore and onshore drilling, logging, wireline and cementing. But the big service companies are needed. Cementing services, for instance, are limited by restrictions on imports of chemicals which only a few big names produce. Safety standards are lower too and much of the equipment used is out of date and corroded by time. “When sanctions end, international service companies will return. But they will not monopolize the market.”

Mexico

Before the 2013 sweeping reforms of the energy sector, Pemex relied heavily on foreign service companies. Even at equal capacity, Pemex is said to have favoured foreign companies — one supplier of drill bits based in Mexico said that Pemex “had never bought one.” National preference is unlikely to increase at Pemex, where the focus since the energy reform is increasingly on performance and the bottom line. In the low oil price environment, Mexican companies are taking a beating, like their counterparts north of the Gulf of Mexico,

and Pemex has required vendors to cut costs by up to 25 percent. But Alexander Braune from KPMG in Mexico sees upside for domestic companies. They will need to adapt their business models and corporate cultures in order to compete and position themselves under a new value proposition framework. “They have the advantage of local knowledge and connections” and that makes them attractive partners, especially for the shallow, on-shore and EOR areas.

So far, round one has awarded shallow and on-shore acreage. Two of the consortia which were awarded exploration and production blocks included private Mexican oil companies. Alexander Braune anticipates similar consortia to emerge in the oilfield services companies sector between large foreign and local companies. While specialist upstream services have yet to emerge in Mexico, the country’s sophisticated industrial base will enable it to grow in the EPC (engineering, procurement and construction) sector.

Caribbean

Trinidad and Tobago has a 105-year-old petroleum history and its service sector is more sophisticated than many of its peers in the developing world. Especially since 2003, Trinidad and Tobago has sought to maximize value added domestically and analyzed its upstream value chain to identify activities offering the best potential to add value and move the country to an innovation economy. Its domestic service companies largely focus on niche markets where they can compete



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with larger foreign companies. Tucker Energy Services, for instance, began by offering cementing and cased hole wireline services in 1939, slickline services in 1967, coiled tubing services in 1978 and hydraulic fracturing in 2012. It now offers its services outside Trinidad. Owing to its small size, it could not compete with larger players on R&D expenditure for product development. Instead, it has opted for importing and adapting existing technology, and reserving their R&D for those areas in which pre-existing technology to match their service needs does not exist.⁹ The company cited the need to overcome the perception of being “third world” in the highly competitive energy services industry as a key driver for innovation.

North Sea

The North Sea market, both in the UK and Norway, is one of the most developed in the world, with particular expertise in deep water and hostile offshore environments. It is home to many local indigenous service companies. Many of these, such as Wood Group, Aker, Technip and Petrofac, have evolved over the past few decades from local bases to become major international players. Much of the technical capability and know how

built up in the North Sea has been exported to other regions. For example, a significant proportion of global subsea developments are run and managed from this region.

Norway in particular has a strong tradition of technological innovation, which has helped the industry tackle more challenging subsea formations, water depth and climates, and which has made local technology companies attractive acquisition targets for larger groups with the international reach and distribution networks to exploit the sales opportunities from these technologies.

The region is however a relatively high-cost province, which in the current oil price environment presents additional challenges for operators and service companies, as discoveries become smaller and field economics more marginal. The industry is trying to react through more collaboration, industry standardization and more technological innovation. This may provide a blueprint for wider industry cost initiatives and business models in other territories. For example, with the maturing of the basin, managing end-of-life fields and decommissioning are now becoming a real source of activity

⁹ Kieron Swift, Council for Competitiveness and Innovation, « *Four Innovation Companies in Trinidad and Tobago* », 2014.

within the region, which as experience in this area grows, may lead to service companies in this region becoming global decommissioning leaders as skills learned in the North Sea are again exported to other regions.

What the service sector means to these regional markets

The service sector is an important mechanism through which oil and gas producing countries can add value domestically to the extraction of finite resources. As smaller companies, the indigenous firms tend to seek out smaller niches that may not meet the investment threshold of the large, integrated OSCs. An advantage they have is that their initial capital needs are relatively modest. International companies need large, expensive developments (like offshore pre-salt) to justify investment.

Governments sometimes support this domestic industry through subsidies. For instance, domestic companies stand to gain from government investments in R&D, as was the case in Norway where the government nurtured domestic innovation. This pattern may be replicated in China now, where large

R&D investments by the NOCs benefit their service company subsidiaries.

Government can also create an enabling environment through policy. The US model illustrates the value of this approach to doing business and creating businesses — its openness to various scales of service companies was instrumental in the development of its complex value chain. In Nigeria, local content rules dating from 2010 were instrumental in creating opportunities for both local oil companies and service companies. The Nigerian Content Development and Monitoring Board (NCDMB), which oversees and measures the growth of Nigerian content in all oil and gas projects, operations and transactions, estimates that US\$5 billion of new investments have been made by Nigerian service companies in the last four years and that tens of thousands of jobs have been created. The Ministry of Petroleum Resources announced that local content had grown generally from 3 to 5 percent to a significant 12 to 18 percent in 2014.¹⁰

In Norway, local content preferences did a great deal to facilitate the development of a strong services sector. But the successful outcome



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The service sector is an important mechanism through which oil and gas producing countries can add value. ”

¹⁰. See: <http://www.energylegalblog.com/archives/2015/02/10/6046#sthash.ZY0Ds7XH.dpuf>



Ambitious local content rules have an important effect on the development of a local services sector, but they are not without risks. ”

there was also attributable to the high national levels of education, engineering and technical competence and alignment between government, state oil companies and the service sector. Similarly, a reason that sophisticated services proliferated in Iran and not in places like Iraq and Libya (also under sanctions) is the high calibre of Iranian universities. Aliakbar Vahidi AleAgha was a manager at the NIOC subsidiary PEDC and involved in upstream negotiations for Iran. He is now the managing director of Toseh Fan Avarihaye Hamyar Mohandesi, which has developed what is believed to be the first reservoir modeling software ever produced in the developing world by assembling a group

of smart young graduates to work on the project.

From our survey of various producing regions, it appears that ambitious local content rules have an important effect on the development of a local services sector, but they are not without risks. Where the domestic supply chain is immature, local content requirements can lead to the proliferation of passive agents or “5 percent companies” that free ride and increase costs for international vendors. Where local companies do carry out the work there is also the real risk that a lower focus on process and risk management lead to accidents and corruption.

Biographies



Dr. Valérie Marcel is an associate fellow at Chatham House, and leads the New Petroleum Producers Discussion Group. She is an expert on national oil companies and petroleum-sector governance, and has carried out extensive fieldwork in order to gain an understanding of the perspectives of producer countries. She is the author (with John V. Mitchell) of *Oil Titans: National Oil Companies in the Middle East* (Chatham House/Brookings, 2006). Her current research focuses on governance issues in emerging producers in sub-Saharan Africa, as well as in other regions. She is a member of KPMG’s advisory team for energy-sector governance. She also provides thought leadership for the Global Agenda Council on the Future of Oil and Gas at the World Economic Forum. Dr Marcel previously led energy research at Chatham House, and taught international relations at the Institut d’études politiques (Sciences Po), Paris, and at Cairo University.



Alan Kennedy is one of KPMG’s most experienced transaction services professionals, and since 2013 has been UK Lead Partner for Oilfield Services. He has responsibility for KPMG in the UK’s relationships with many of the major companies in the sector and many independent and private equity backed businesses. He has worked on over 100 oilfield transactions in several jurisdictions, including the UK, Norway, US, Middle East, Australia and Singapore.



Zoe Thompson is an upstream value chain specialist with more than 20 years experience in a broad range of organizational performance and change management areas including workforce improvement, corporate culture and competency assurance. She has formerly served as the E&P segment account lead for two IOCs. In that role she partnered with upstream client leadership to solve their strategic business problems through all aspects of consulting services, from management consulting to outsourcing, managing teams of over 100 people.

Interviews with Dr. Valerie Marcel

Richard Spears, Managing Partner, Spears & Associates

Aliakbar Vahidi AleAgha, General Managing Director at the Iranian service company Toseh Fan Avarihaie Hamyar Mohandesi and previously a senior executive at the National Iranian Oil Company, Iran

Waleed Al Hashash, Independent advisor, former Deputy Managing Director at KPC, Chairman of Aref Energy and CEO of Rubban Logistics, Kuwait

A manager from a leading French oil services company

Pierre Bismuth, Senior Adviser, Schlumberger Business Consulting

Zeyad Al-Oudah, AREF Energy, Kuwait (by email)

Jean-Matthieu Castellani, former head of the Total account for Schlumberger

Pete Nolan, Adviser to a private exploration company (previously with BP and Stanford PESD) (Interview with Mark Thurber, Associate Director of the Program on Energy and Sustainable Development (PESD) at Stanford University)

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Designed by Evalueserve.

Publication name: *Unsung workhorses of the oil industry*

Publication number: 133140-G

Publication date: February 2016