Delivering High Performance to Upstream Operators

Accenture services for the upstream energy industry
Upstream operators face unique challenges

The growth outlook for the upstream oil industry continues to be positive with high oil prices driving record levels of expenditure in the oil and gas industry. However, rising costs coupled with the general economic downturn are fueling ongoing volatility and keeping long-term outlooks in flux. Acute vision is essential. As well as focusing on the day-to-day complications of running oil and gas assets safely and efficiently, operators must be equipped to continuously monitor and adapt strategy and execution to account for future uncertainties.
These challenges coincide with deep structural change throughout the upstream oil industry. Complex regulation is a fact of life in the upstream, with increasing levels of environmental legislation and ever-changing policies around taxation and safety. In addition to increasing regulatory changes evident in the industry generally, oil companies are taking on additional regulatory costs and processes following the Macondo incident in the Gulf of Mexico in 2010. International oil companies (IOCs) are also facing complex project challenges. Project management has become a high-risk and complicated business, demanding extensive stakeholder engagement and technical know-how, alongside the insight needed to anticipate and mitigate multiple operational risks.

For operators in a number of regions around the world, there are particular concerns. Some regions are mature operating environments that are showing signs of decline. Here, the challenge is to balance strategies for mature assets with those for growth. Companies are trying to balance overhead cost reduction, optimize production and extend field life with the agility needed to capitalize on new discoveries and seize merger and acquisition opportunities. Some of these regions are also undertaking decommissioning programs, which require appropriate resources and regulatory understanding. Other regions are dealing with a different set of challenges associated with rapid growth. High-growth areas are seeing operators undertake very complex projects, which require excellence in capital project management at a time when costs are rising, technical challenges are increasing and a skilled workforce is increasingly difficult to secure.

Against this backdrop, we believe that today’s upstream oil industry operators face three categories of challenges:

**Strategic challenges**

The upstream strategic landscape is constantly changing. With new entrants like national oil companies (NOCs) moving into different regions of the world, access to reserves is becoming more challenging and the upstream environment more competitive. In turn, IOCs must demonstrate operational and technical excellence across wider aspects of their business to be attractive partners for NOCs and governments in locations where new opportunities exist. More broadly, the whole industry is facing intensifying challenges arising from the maturing oil and gas asset base, a restricted talent pool and increasingly stringent regulations around health, safety, security and environment (HSSE). There are also unique challenges in high-growth upstream regions associated with competition for resources, increasingly complex supply chains and cost pressures.

**Operational challenges**

Traditional ways of doing business are under strain. Pressures arising from the globalization of industry supply chains and operating models are a major factor. So is aging infrastructure. Investment and renewal are urgently needed, but the past few years of economic downturn and oil price volatility have intensified demands for greater efficiency and more effective utilization of capital—demands that will continue to impact operating models and project delivery even in the industry upturn.

**External challenges**

The energy industry has limited influence over external challenges, but players must still understand and manage the impacts—from severe price volatility, to fiscal and regulatory changes, to mounting environmental concerns, to unprecedented budget deficits. In many regions, geopolitical changes are disrupting growth plans and operations. Finally, the whole question of risk management, with which oil companies are used to dealing, has arguably been raised to another level of complexity. Understanding the impact of such changes in the global upstream environment is essential for the effective management of individual operations.
How Accenture can help

To help our clients in the upstream energy industry deliver high performance in the face of challenges, the Accenture Energy industry group has developed a suite of services, all grounded in our analysis of industry trends and ongoing proprietary research. Designed to help upstream businesses deliver high performance, these services include:

- Operational excellence
- Integrated oilfield solutions
- Offshore decommissioning
- IT services excellence
- Shared services

In addition, Accenture has created Energy hubs in specific global locations (see Figure 1) to better serve our oil and gas clients. The purpose of the hubs is to serve as a network to quickly respond to account team needs, package local thought leadership to highlight emerging trends and test Accenture’s industry assets for client relevance.

Did you know?
Accenture’s Energy industry group works with more than 75 percent of the Fortune Global 500 energy companies.

Figure 1. Accenture Energy hubs.
Operational excellence

Objective: To achieve the operational excellence that will help assets produce more barrels of oil and gas, improve safety, reliability and compliance, and streamline operations while controlling emissions, costs and risk.

Upstream businesses face the constant challenge of assuring the integrity of their assets and safety of people while cutting costs, reducing volatility in production and maximizing output. Many executives believe these seemingly contradictory priorities create real opportunities for outperforming competitors through superior operational performance.

However, in such a complex upstream operating environment, it can be difficult to introduce the improvements that underpin this outperformance. Additional problems arise from the standalone improvement initiatives already launched across the industry, many of which cut across multiple departments and functions and have a tendency to overload and distract managers. To manage this complexity, Accenture believes in implementing process excellence to provide the backbone for operational excellence.

Accenture’s Energy Business Process Management (BPM) Program is at the core of our process excellence services, enabling high performance across all business processes. The program provides a knowledge database for industry leading practice processes, a portfolio of process-related tools, methodologies and packaged services. The knowledge database includes logical operating models, industry process models, leading practices, key performance indicators and application blueprints. Process management tools and methodologies include BPM diagnostic tools and process prioritization and improvement methods. Our global team of upstream operations-experienced practitioners use the BPM database, tools and methods to help our clients accelerate the adoption of new working practices, and identify and close gaps in process performance to deliver lasting process advantage.

Delivering operational excellence

Operational excellence involves crucial tactical and strategic change in process, people and technology. Companies often fail to sustain operational excellence because they only focus on one of these elements.

With an integrated approach embracing processes, people and technology, Accenture helps clients achieve operational excellence with individual assets. Our standardized performance diagnostic helps identify opportunities to reduce lifting costs, maintenance and logistics costs, and we use a proven framework of improvement initiatives to target specific processes (see Figure 2). Accenture helps its clients put in place the right organization and behaviors to help maximize performance and anchor sustainable ways of working.

Figure 2. Operational excellence outcomes.
Exploration and production (E&P) companies face increasingly complex operating conditions. To optimize production requires integrated workflow and technology solutions, tailored to asset operating conditions.

As E&P companies move to optimize and integrate operations, they face challenges, such as:
• Identifying the critical business processes for standardization.
• Defining “must-have” systems and processes and deploying them effectively to implementation.

Matching solutions to strategy
Accenture works with upstream companies to create a vision and strategy for integrated operations programs. By defining scope, objectives and metrics aligned with business strategy, we develop solutions that enable production optimization and support operations excellence efforts, building the high-level business case and identifying potential pilots.

Our suite of integrated upstream solutions (see Figure 3) is based on more than 10 years of digital oilfield experience, and includes technological extensions to our cornerstone offerings (see Figure 4). Our range of solutions are backed by our skills in proven delivery methodology for integrated operations programs; process and technology design, build and implementation; hardware and software selection and procurement; and change management services.

Our integrated oilfield solutions approach delivers:
• shortened design cycles
• rapid deployment
• maximum reuse of current information technology investments

Did you know?
In 2002, Accenture founded the Accenture Global Energy Board, which consists of directors of leading automotive, chemicals, energy and utilities companies; external industry experts; and distinguished academics from around the world. This is a forum for discussing how the future of energy will evolve; the effect that possible changes in energy sources will have on society, politics, the economy and the environment; and the actions that companies need to take in response to these changes.
Using input from the E&P company, industry standards and leading practices, and Accenture’s own experiences, points of view and ongoing initiatives, we will develop an assessment of the company’s capabilities and develop a roadmap and business plan to get them to their goals.

A cornerstone of any integrated oilfield solution is the need to have accurate information and processes across the enterprise for reporting production to partners and regulators. This is complicated by the lack of measured data to ensure the highest accuracy, so high-quality estimation tools must be used. Comprehensive implementations also include loss management, mass balances, and more.

Using data gathered from the asset (subsurface and surface facilities) in real-time, and more static data regarding the asset, we build advanced surveillance capabilities to provide easy insight into the performance characteristics of all asset domains.

Based on the choke model framework, we provide workflows and tools to enable the optimization of each choke (reservoir, well, network, facility, export and commercial) by connecting modeling and integrated simulation tools to optimize performance in a holistic manner.

Based on expert knowledge of oilfield operations, we have developed automated workflows. Our subject matter experts identify likely root causes for an increasing portfolio of production events and provide an advisory service to supplement the surveillance and optimization components.

We use targeted surveillance, performance and reporting capabilities to achieve excellent custodianship of core assets and the people who operate them.

We improve asset integrity by using real-time data linked to simulators to monitor, control and manage asset safety barriers, critical equipment and asset integrity systems.

We bring together all the planning activities in an asset and optimize them in a single integrated plan to ensure efficient utilization of resources, optimal work programs and minimized wait times.

This offering enables E&P companies to treat data as corporate assets providing a full life cycle of access, management and storage to “fit-for-use” data. The offering includes three key components in master data management: subsurface data management, data visualization and real-time monitoring. This service is based on the Accenture data management and architecture framework and leverages the upstream high-performance business process model.

While the cornerstone components described above can be used by individuals in their offices, their effectiveness is enhanced by the application of collaborative processes and capabilities.

Increasingly, our advanced oilfield solutions need to be extended to the field or the plant and not just be used at the desk. This offering extends our advanced solutions to the field and plant using various delivery methods.

Solutions often require a comprehensive understanding of the physical structure of the asset, such as the layout of the well template, the relationships between wells, clusters and pads, or the physical layout of a plant such as a floating production and storage offloading (FPSO) unit. As these solutions are extended to users who may have expertise with certain equipment or processes but not with the asset in question, the ability to navigate and manage the solution from a spatial perspective (e.g., geographical or physical 3D model) becomes more important.

Accenture sees delivery of solutions such as the integrated oilfield offerings as gaining great benefit from a cloud-enabled strategy. This new approach to computing and service delivery will allow for easier integration of third parties, such as partners and specialized service providers, and eliminate some technology headaches faced by operators.
Offshore decommissioning

Objective: To support companies to plan and execute decommissioning upstream projects, by mitigating and managing risks, improving schedules and reducing costs.

As basins such as the Gulf of Mexico and the UK North Sea mature, forecasted production is declining and exploration projects are diminishing. As a result, many of the older legacy fields and assets are becoming eligible for decommissioning. While companies have always understood this critical phase in the life of a field (and dealt with it from an accounting perspective), the imminent onset of decommissioning brings with it a degree of uncertainty and unpredictability. Based on our experience, we believe that good decommissioning practice requires excellence in five critical disciplines:

Program management and governance
Rigorous policies, procedures and governance around program management have significant benefits to any capital program. For decommissioning program management, this means the ability to flex and react as “unknowns” become known, and the adoption of new, innovative decommissioning techniques come to the market. Managing change and its consequences in relation to cost and programs are key. Accenture brings tried and tested tools and process models to help organizations build highly capable program management offices underpinned with robust governing policies.

Supply chain management
As asset owners embark on decommissioning rather than deconstruction, use of the supply chain is very important. Many supply chain companies have vast experience in decommissioning in other markets, such as nuclear, and bring with them tools and methodologies to help accelerate decommissioning of the assets in a safe, cost-effective way. Using Accenture to develop an executable supply chain strategy that captures wider expertise and innovation can drive down decommissioning liability and associated risks.

Data management
Preparing for decommissioning starts during the later stages of the asset’s operating life. Accurately capturing the “as is, as built” data from current operating assets provides the decommissioning teams with a core engineering data set from which to build their decommissioning plans and make applications for decommissioning permits to the relevant regulatory bodies. Accenture’s engineering project and data management solutions, supported by our engineering services teams, provide asset owners with a cost-effective solution for data collection and management. The more “knowns” that are in the plans, the fewer chances of surprise during the actual decommissioning, hence driving cost certainty throughout the program.

Decommissioning talent
Offshore decommissioning expertise is scarce as the demand for the service is getting higher. Although many aspects of the decommissioning program can be managed using talent from the existing organization, the process does need augmenting with specific decommissioning expertise. Collaborative industry solutions are a way of pooling this scarce resource and sharing learning in a specific region. Accenture can map the skills requirements for a project or program of decommissioning against the existing skills within an organization, allowing for tailored recruitment and the use of the supply chain, where appropriate, in an intelligent way.

Risk management
Risk in decommissioning has many forms, from the corporate risk of accurately managing the balance sheet liabilities and possible underwriting, to the physical risk of decommissioning complex assets offshore. Utilizing the core data set mentioned above allows for more accurate cost estimating to help mitigate cost overruns. It can also be used to plan with more certainty the physical decommissioning process and even allow for the creation of training simulations to assist operatives before they move offshore. Accenture’s risk management tools enable a clear risk landscape to be developed and mitigations to be put in place to manage the effects of change on the overall program.

The business of decommissioning
Many companies will be considering their options when it comes to decommissioning. There are many options available from selling assets to a third party to decomposition them, to building a decommissioning business capable of full asset removal. Accenture has a range of tools and methods that can be used to accelerate the preparation of robust business cases, which included scenario planning, corporate risk analysis, market analytics and financial modelling.
Upstream organizations today face the challenges of creating a robust, scalable and flexible IT service that supports business needs and enables agile change. Although many organizations maintain IT resources in-house for day-to-day support, they often need specialized expertise for short- or long-term assignments.

Accenture has a dedicated, high-quality team armed with local industry knowledge and deep experience in delivering IT excellence to the oil and gas community. This enables us to provide tailored, cost-effective solutions and services, addressing global challenges using a mix of IT professionals and subject matter experts well versed in the local marketplace.

**Flexible delivery model**
Our flexible delivery model (see Figure 5) suits a range of client-specific needs and budgets, blending and balancing local and global resourcing as appropriate.

- **IT delivery services**: By combining deep technology expertise with industry-specific insights, we deliver solutions that help clients achieve business outcomes with agility, speed and certainty, and achieve measurable improvements in performance.
- **E&P-focused enterprise resource planning (ERP)**: Accenture’s SAP and Oracle groups are leaders in developing ERP business capabilities and resources for oil and gas clients.
- **E&P applications and data**: Our comprehensive suite of petrotechnical and data management support solutions help clients safeguard data integrity and eliminate data quality costs.

**Network of alliances**
Accenture’s alliance network of more than 150 technology market leaders—including Microsoft, Oracle and SAP—extends our capabilities and fuels solution innovation, while helping clients achieve sustainable IT cost reduction, reduced total cost of ownership and reduced delivery risk.

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### Figure 5. Accenture's energy IT delivery services.

- **Accenture Energy industry group**
  - Energy IT delivery services
  - Global Delivery Network/Energy Center of Excellence

- **IT delivery services**
  - Project management
  - Java and .NET application development
  - Dashboard/SharePoint solutions

- **ERP for E&P center**
  - SAP E&P specialties:
    - Joint venture accounting/remote logistic management
  - Oracle Business Suite
  - Enterprise asset management solutions:
    - Maximo, SAP Plant Maintenance
  - ERP application maintenance

- **E&P applications and data**
  - Surface applications
  - Subsurface applications
  - Petrotechnical data management
Shared services

Objective: To consolidate back-office processing into a corporate shared service center, using common processes and service excellence to drive operational efficiency and lower costs.

The use of shared services has been growing in the private sector for more than 20 years. Today, it is more common for Fortune 500 companies to have some form of shared services—ranging from accounts payable services to full business services across finance, human resources, supply chain, IT and many other functions.

Accenture helps many clients continuously push back the boundaries of what is possible through shared services, by leveraging our deep implementation and operation experience to deliver ongoing innovation.

We understand the business impact of the shared service solutions that we design and deploy, and how it will affect the client’s wider operations. And we apply proven tools within our outsourcing operations to enrich the value delivered at every stage of the shared services life cycle (see Figure 6). Most importantly, because we run our own internal shared services organization at Accenture, we understand the client’s perspective at the receiving end of shared services functions.

Did you know?
accenture has launched an innovation center for Energy and Utilities. The center focuses on accelerating the industry’s pace to high performance by facilitating industry dialogue and developing thought leadership across the topics of capital, customer influence, innovation, policy and sustainability, resources, talent and technology.
Accenture delivers high performance

Experience shows that the gulf between winners and losers in this industry widens during periods of uncertainty. Accenture’s ongoing research program confirms that high-performance businesses use times of change and uncertainty to move ahead of competitors. For upstream operators, Accenture has the experience, skills and tools to help manage the rapidly evolving environment and deliver high performance.
Contact us
To learn more about how Accenture’s Upstream Energy team can help your business on its journey to high performance, please contact:

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About the Accenture Energy industry group
The Accenture Energy industry group serves a wide range of companies in the oil and gas industry, including international oil companies (IOCs), national oil companies (NOCs), and independent and oilfield service companies. We collaborate with our clients to help them meet competitive challenges and shape solutions that advance their journey to high performance. With experience spanning the entire energy value chain, including upstream, downstream, oilfield services and pipelines, our consultants work in over 20 countries serving more than 150 clients. Visit us at accenture.com/energy.

About Accenture
Accenture is a global management consulting, technology services and outsourcing company, with more than 246,000 people serving clients in more than 120 countries. Combining unparalleled experience, comprehensive capabilities across all industries and business functions, and extensive research on the world’s most successful companies, Accenture collaborates with clients to help them become high-performance businesses and governments. The company generated net revenues of US$25.5 billion for the fiscal year ended Aug. 31, 2011. Its home page is www.accenture.com.

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