PwC's global oil and gas capabilities
Bringing the right solutions to deliver value to oil and gas companies around the world
About our global oil and gas practice

Oil and gas companies operate in a complex environment, with geopolitical challenges, regulatory requirements, and ever-increasing competition and stakeholder expectations. Additionally, the oil and gas industry is highly cyclical, sometimes unpredictably so, as witnessed in the most recent downturn. Some feel this last downturn has changed the sector permanently. Jobs were lost, companies failed, and replacement reserves declined.

As companies have struggled to cut costs, improve return on capital and plan for the future, they are looking for a more sustainable approach to operating in a lower commodity price environment.

How can technology help companies to improve their efficiency and better manage risks? Which projects should companies invest in to maximize returns and ensure future success? How can companies attract and retain the right talent?

PwC can help energy companies evaluate priorities, assess risks, and build stakeholder confidence. Our global oil and gas practice focuses on delivering professional services to companies of all sizes, across segments of the industry.

We provide industry-specific solutions in the fields of assurance, consulting, deals and tax services to help companies address their commercial and stakeholder issues.

PwC has been adding value by providing professional services to the oil and gas industry for more than 100 years. We help companies address the industry’s most challenging issues by developing effective strategies and helping to implement solutions. With over 5,700 industry-dedicated professionals located in strategic oil and gas centres, we can help companies everywhere they operate.

5,700+
Oil and gas professionals globally
Our core services

Our commitment to delivering high-quality services is at the heart of what we do. We provide comprehensive audit and assurance, consulting, deals and tax services designed to deliver real value. We invite you to explore the many ways that PwC’s professionals can help you.

There are a number of megatrends that are reshaping our world and creating new opportunities for our clients. Urbanisation, changing demographics, rapidly evolving technology, and other global trends are causing companies to rethink their strategy. We have translated these megatrends into eleven business imperatives which we can address for our clients, from strategy through execution. Using our breadth and depth of services, we can help you unleash greater value in your organisation, both today and in the future.
**Assurance services**

**Financial statement audits**

PwC audits oil and gas companies of all sizes throughout the value chain, including national oil companies, international oil companies, and public and private companies and our clients operate in the upstream, midstream, downstream and oilfield services sectors. Our audit market share in the energy sector is larger than any other professional services firm. We currently audit 23% of the oil and gas companies within the Global Fortune 500 and 30% of oil and gas companies with revenues greater than $10 billion.

**Auditor market share of fortune global 500 energy companies - 2016**

![Auditor market share chart]

Oil and gas companies want audit teams to understand their issues and business challenges when analysing their financial performance. Our dedicated energy professionals receive annual training, including regular updates on regulatory and technical issues and how they impact the industry. Our professionals regularly attend both internal and external industry events, which provide more in-depth knowledge of important issues that impact our clients.

The financial statement audit has never been more important to companies than it is today. Investors are scrutinizing corporate governance and reporting and they expect more from us and our clients, including increased transparency around financial statement risks and internal controls and more extensive disclosures on how oversight is being applied. Meeting investor expectations begins with the completeness and accuracy of information contained in a company’s financial statements.

Our stated purpose at PwC is to help build trust in society and solve important problems, and our approach to the financial audit is one of the key ways we can do this. Transparency, evidence of strong management controls and adherence to regulations are all components of the financial statement audit. PwC auditors around the world use a single, global audit methodology, fully compliant with International Auditing Standards and applicable national standards. Our globally consistent approach to the audit means that regardless of location, PwC professionals will understand and evaluate your business using a common methodology. In turn, that gives you a uniform level of quality in our audit process. This consistent methodology also enables us to organize and deploy quickly the multinational audit teams often required by our larger energy clients. PwC’s work takes into account all current (and where appropriate, prospective) auditing, accounting, and reporting regulations and guidance.

Our global audit teams hold annual Audit Planning Workshops with their component teams from around the world, providing the opportunity for a face-to-face meeting to plan and discuss the global audit. It is common for our client CFOs and Controllers to attend these meetings, in order to share their perspectives on business risks, audit implications of business developments, changes in regulatory and reporting requirements, and other matters relevant to the global audit.
PwC wins prestigious International Accounting Bulletin’s ‘Audit Innovation of the Year’ 2016

PwC’s revolutionary data-auditing tool, Halo, has been awarded the prestigious International Accounting Bulletin’s ‘Audit Innovation of the Year’. PwC received the award 6th October 2016 in London at the International Accounting Bulletin Forum & Awards.

The award recognises organisations that, with a new initiative or innovation in audit, have made a major change in improving audit quality, efficiency or added value to clients. Judges consider cutting-edge thinking behind the innovation as well as improvements in efficiency, accuracy and reliability; client satisfaction; contribution to improved audit quality and reliability; and potential to keep the relevance and value of assurance services.

We are very proud to have received this award which recognises our leadership of the profession in providing high-quality services and recruiting the kind of talented and independent-minded people required to deliver these services.

Representative oil and gas audit clients

Atwood Oceanics Inc.
Breitburn Energy Partners LP
Cabot Oil & Gas Corporation
Canadian Natural Resources Ltd.
Cenovus Energy Inc.
Chesapeake Energy Corporation
Chevron Corporation
Crescent Point Energy Corp.
Denbury Resources Inc.
Emirates National Oil Company
Enbridge Inc.
Encana Corporation
Ensign Energy Services Inc.
Exxon Mobil Corporation
Galp Energia SGPS SA
Gunvor Group Ltd.
Hellenic Petroleum SA
Hilcorp Energy Company
Hyundai Oilbank Co., Ltd.
Kin der Morgan Inc.
Koç Holding AS
Korea Gas Corporation
Marathon Oil Corporation
Marathon Petroleum Corporation
Mercuria Energy Group Limited
MPLX LP
MVV Energie AG
Nabors Industries Ltd.
Neste Corporation
Newfield Exploration Company
Noble Corporation PLC
NOVATEK, PAO
OMAN LNG LLC
Oneok, Inc.
Paragon Offshore PLC
Patterson-UTI Energy Inc.
PDC Energy
Plains GP Holdings, L.P.
QEP Resources
Rabigh Refining & Petrochemical Co.
Sasol Ltd.
Saudi Aramco
Schlumberger Limited
Seadrill Ltd.
SINOPEC
SONANGOL
Southwestern Energy Company
Suncor Energy Inc.
Syncrude Canada Ltd.
Tallgrass Energy Partners
TAQA BRATANI LIMITED
Tatneft PJSC
TechnipFMC
TonenGeneral Sekiyu KK
Unit Corporation
World Fuel Services Corp.
IFRS reporting

PwC has a proven track record in helping companies successfully complete the transition to IFRS and publishes industry specific guidance, *Financial Reporting in the Oil and Gas Industry*, with a new edition being published in 2016. This publication considers the major accounting practices adopted by the oil and gas industry under IFRS, based on our worldwide experience in serving oil and gas companies.

Non-financial performance and reporting

Global oil and gas CEOs are increasingly concerned about long-term issues that affect ability to operate. In today’s world, consumers, investors and employees are placing much more scrutiny on companies’ activities - and not just on the everyday business decisions. Stakeholders want to know how companies’ actions impact the environment and the communities in which they operate. Governments are concerned about companies’ sustainable performance as well, bearing in mind their position in the local society and economy. To make sure corporations are practicing sustainable and responsible business operations, governments around the world have enacted wide-reaching and often complicated policies requiring companies to behave in certain ways.

Oil and gas operators have real value at risk from non-technical concerns, most notably the license to operate. PwC understands the challenges that the industry faces in terms of sustainability, and we have created a framework and tools to help oil and gas companies better measure their impact and demonstrate their value. Our “Total Impact Measurement & Management” (TIMM) framework enables management to develop a better understanding of the social, fiscal, environmental and economic impacts of their activities.

TIMM gives management the ability to compare strategies and make business decisions (e.g., investment choices) using quantified data, and to evaluate the total impact of each decision and choice they make. Being able to measure, understand and compare the trade-offs between different options means decisions can be made with more complete knowledge of the overall impact they will have, and a better understanding of which stakeholders will be affected by those decisions.

License to operate issues cause many expensive delays to oil and gas projects

Management of stakeholders, communities, the environment, regulatory and safety issues can cause these delays

Companies can gain advantage by addressing these stakeholders strategically

<table>
<thead>
<tr>
<th>Cause of Delay (73%)</th>
<th>Commercial (63%)</th>
<th>Technical (21%)</th>
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<tbody>
<tr>
<td>(e.g. stakeholder, community, environment, regulatory, safety-related)</td>
<td>(e.g. cost or contract-related)</td>
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Project Delay Classification

Frequency by Delay Type

Source: ERM, 2012, Understanding the business case for sustainable development
Risk assurance

Risk Assurance helps management make well-informed decisions. The insight and independent assurance we bring to the table provide an invaluable safeguard in today’s complex operating environment. We work with clients in both the boardroom and the back office, helping protect and strengthen every aspect of their business, from people to performance, systems to strategy, and business plans to business resilience.

Internal audit services

Internal Audit is more than an enterprise-wide engine of assurance, as critical as that is. Done right, it’s also a catalyst for creating value for your business. A strong, strategic Internal Audit framework integrates compliance, controls and sophisticated risk management with our clients’ mission, vision, and stakeholder expectations. As such, it can help companies shape a new governance and risk paradigm—anticipating issues, increasing effectiveness, eliminating duplication, and identifying areas of potential performance improvement. With our global footprint and powerful capabilities, we offer flexible, scalable, sophisticated solutions to address our clients’ unique needs.

- We have a range of internal audit performance improvement services specifically for oil and gas companies, including technology, risk assessments, training, process and organisational re-engineering, benchmarking and quality assurance reviews.
- For companies with multinational operations, or those with smaller internal audit departments, we offer an array of flexible outsourcing and co-sourcing solutions, from selected co-sourcing of technical, geographic or industry-specific capabilities to full outsourcing of your internal audit function.

We provide Sarbanes-Oxley advisory services, including implementation of Section 404 readiness activities to reduce compliance programme costs, as well as a host of other regulatory and governance-related services.

- By leveraging new analytics-focused tools, techniques and approaches, our internal auditors are able to lead the way in responding to organizational risks and position themselves as accelerators of organizational change.
IT Risk Assurance

Growing complexity and increased regulatory pressures combined with market stressors such as cyber security threats, rapid technological advancements and operational efficiency imperatives are causing organizations and their stakeholders to seek greater assurance, value and reporting over a widening spectrum of activities. Our IT Risk Assurance professionals have deep industry knowledge, regulatory, technology and business process skills. We review, assess, document, test and report on today’s complex landscape of financial, operational, regulatory and information technology controls.

We work closely with oil and gas organizations to provide integrated end-to-end solutions and services. Our aim is to help our clients enhance value by translating strategy into action and focusing on results. These professionals can provide third party assurance and opinion services, Sarbanes-Oxley readiness, process improvement and sustainability services. Our teams work with companies to help them with compliance and other regulatory requirements (e.g., Turnbull, Basel II, King), due diligence on systems and controls, pre- and post-implementation systems reviews, data quality reviews and computer security reviews (including cloud risk management).

Business leaders focus on day-to-day business concerns and are often too busy to realize if they are getting the full benefits from their Enterprise Resource Planning (ERP) system. By focusing on your business — and how your technology supports it — PwC’s Enterprise Systems Solutions ERP practice can help clients leverage their ERP technology investment to create value for their organization as a whole. Whether identifying segregation of duty conflicts, monitoring and securing access, or managing transactions, PwC can help establish the right mix of automation and manual techniques to drive system integrity and trust that clients need to successfully operate.

Third-Party Risk Management

A Third-Party Risk Management (TPRM) program has become an increasingly critical tool. Failure to adequately address business-partner risks can lead to cybersecurity incidents — with the attendant financial penalties, reputational damage and operational impacts, to name a few. But developing and implementing TPRM can be challenging for organizations that lack the right controls, oversight mechanisms and in-house expertise. Complicating the issue are new third-party relationships, including affiliates that perform shared services and revenue-sharing agreements that may not fit traditional vendor profiles. Additionally, more rigorous scrutiny by regulators and international data privacy laws are augmenting compliance risks.

PwC provides a customized approach to developing a holistic TPRM program that helps businesses optimize cybersecurity processes and concentrate on the most likely risks, which may include:

- Damage to business reputation
- Losses related to operational risks
- Credit and financial losses
- Business continuity and resiliency deficiencies
- Country risks
- Physical security concerns
- Subcontractor performance
- Technology failures
- Regulatory compliance
- Concentration risk
Governance, risk and compliance

The regulatory, shareholder and market’s pressure on energy companies to deliver year-on-year performance improvement is becoming even more intense in a fluctuating environment. What worked six months ago may no longer apply to today’s cost containment or risk management issues. We support clients in identifying, understanding and managing risk and help ensure an appropriate balance between risks and opportunities. Also, we assist businesses in designing and implementing governance and compliance programmes to ensure that the company continues to operate within the boundaries of relevant legislation and regulations. This includes building a culture of doing the right thing.

Governance, risk and compliance (GRC) projects vary by nature according to the business issues that they seek to address and the capability within the organization to address them. Business reasons which may lead to the need for a GRC project can be:

- Crisis-driven;
- Efficiency and effectiveness-driven; and
- Strategy-driven.

Taken separately, governance, risk management and compliance are not totally new concepts. In one form or another, dealing with transparency and accountability, mitigating risk and complying with regulations have always been issues with which organisations have had to cope.

However, when these concepts are broadly defined, integrated and linked to an organization’s strategic objectives, its holistic application can add significant value and provide competitive advantage. Our teams can help promote the consolidation, coordination, and reporting of the GRC activities throughout an organization. This includes:

- Combining advanced data analysis with low-cost global delivery and leading technology tools, PwC’s Controls Testing and Monitoring (CTM) service offers a sustainable, high-quality approach to managing compliance and control requirements in today’s environment
- GRC technology system roadmap, selection, implementation, and configuration services
- Risk and compliance activity automation and integration solutions

Regulatory compliance

Oil and gas companies are subject to extensive regulations, which vary from country-to-country. Our oil and gas professionals provide support, advice, and assurance to help you manage regulatory risks. In an ever-changing regulatory environment, we help you identify, manage, and control any existing and future regulatory risks. Our teams consist of experienced regulatory risk specialists, including former regulators who know the rules, and have implemented and assessed multiple company compliance efforts. Our people can help you at the strategic level, identifying ways to minimize the costs and potential disruption to your business that can stem from regulations, while ensuring full compliance. We advocate ensuring that companies meet their governance objectives by requiring that compliance and risk management work together in a coordinated fashion, underpinned by well-documented and understood principles and values.
**Consulting services**

Our consulting services utilize our deep financial, analytical, industry and business process skills to provide oil and gas companies with the advice and assistance to improve stakeholder value, build trust and boost performance. Around the world, organisations engage us to help them capture opportunities, navigate risk and deliver lasting change across business networks.

A company’s strategy drives everything and will define how successful its long term growth will be. In 2014 PwC expanded its capabilities in providing strategic consulting through the merger with the global strategy firm Booz & Company, now called Strategy&. As the name implies, Strategy& is a global team of practical strategists committed to helping clients seize essential advantage. Consultants do that by working alongside clients to solve their toughest problems and helping them capture their greatest opportunities. Strategy& has been created in response to an industry need to connect strategy and execution capabilities and it blends the best of two leading firms to create a management consultancy with a differentiated offering.

The leading platforms that extend our strategy-through-execution capabilities in all industries are:

- Strategy
- Operations
- Finance
- Technology
- Commercial
- People & Organisation
- Deals
- Forensics

We have worked with an array of the world’s leading oil and gas companies in every category of the value chain from upstream, midstream and downstream. Our clients include International Oil Companies (IOCs), National Oil Companies (NOCs), as well as sovereign governments.
Strategy

A company's right to win in any market depends not just on external market positioning and not just on internal capabilities, but on a coherent strategy that aligns these factors at every level.

Three interlocking elements make up a capabilities-driven strategy.

- **Way to Play:** How you choose to face the market and create value for your customers.
- **Capabilities System:** What causes you to choose your way to play and what allows you to deliver on it. This system is made up of three to six distinctive capabilities, the key strengths that set your company apart from its rivals. Each capability is ensured through the right combination of processes, tools, knowledge, skills, and organization, all focused on meeting the desired result.
- **Product and Service Fit:** Based on your chosen way to play and capabilities system, which elements in your portfolio will grow... and which should go?

Only a coherent company — one that pursues a clear strategic direction (way to play), builds a system of differentiating capabilities consistent with that direction, and sells products and services that thrive within that system — can reliably and sustainably outpace competitors.

For international and national oil companies, making investment choices has never been so challenging. In an industry facing increased volatility and intensifying skills shortages, oil and gas companies can no longer win across an ever-broadening spectrum of operating environments. Few companies have the technical, operational, and commercial capabilities required for activities that can range from exploring onshore to ultra-deepwater, all the way through to development and/or production of both conventional and unconventional oil and gas resources.

Therefore, oil and gas companies need to focus on a small number of differentiating capabilities — this is the combination of individual knowledge, skills and behaviours, processes, tools, and systems — that allow them to outcompete their peers. Moreover, they need to reorient their portfolio and investment decisions around these differentiating capabilities.

Although the right combination of capabilities and assets will vary from one company to another, there is a common thread. Critically, the strategy must be flexible enough to adapt to changes in the operating environment. In the past, oil and gas companies had the luxury of investing in attractive, long-term opportunities, and then focusing on execution. This was a linear and inflexible approach akin to how a railway determines where to “lay the rails” and then moves ahead with little scope for adjustment. Today, by contrast, success lies in flexibility.
**Fit for Growth**

Companies need a strategic approach to cost transformation in order to achieve lasting growth. Our Fit for Growth programs have helped the world’s top companies gain a competitive advantage by refocusing their costs on the capabilities that are truly critical for their success and designing supportive organizations and cultures to make the improvements sustainable. By making deliberate, strategy-backed choices about costs and applying rigorous operational improvement, companies emerge from Fit for Growth transformations leaner, stronger, and more ready for growth.

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### Fit for Growth framework

<table>
<thead>
<tr>
<th>Company’s strategy</th>
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<tr>
<td>Clearly articulate the few capabilities that really matter to your strategy and help you win the market</td>
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- **Build differentiating capabilities**
  - Invest in a few differentiated capabilities, funded by improvements in the cost structure

- **Transform cost structure**
  - Develop a clear cost agenda, making deliberate choice with a focus on process improvement

- **Reorganize for growth**
  - Implement an organization model, processes and systems to unlock potential and enable agility for growth

- **Enable change and cultural evolution**
  - Create an environment and culture that embeds change in the company DNA and enables a sustainable future

**Identify higher value-added priorities for investments**
**Operations**

Digging down a little further into the organisation, operations is a key area where companies can find cost savings, improved efficiency, and ways to differentiate their business. By focusing on the entire business continuum, we help clients align their operations strategy to the overall business strategy, resulting in improved performance. Some of the areas where we can help include:

**Supply Chain** - Supply chain strategy and complexity management, Integrated business planning solutions, Supply chain footprint and logistics optimization, Transportation and distribution management, Inventory and working capital optimization, Reverse (post-sales) logistics, Supply chain risk management, Digital supply chain and analytics

**Procurement** - Category strategy and management, Strategic sourcing, Direct material design-to-value and should-cost, Procurement operating model (organization, processes, governance), Digital procurement and source-to-pay solutions, Supplier relationship, risk, and performance management, complex procurement support, Contract management and value realization, Sourcing analytics

**Asset Management** - Capital asset strategy and portfolio management, Asset lifecycle management, Project governance, reporting, risk management, and assurance, Integrated project technology, Enterprise asset management, Integrated asset and work management, Asset reliability and performance improvement, Digital asset management and predictive analytics

**Operational Excellence** - When implementing “lean operation” it is important to establish a good and common understanding of internal stakeholders, such as: facility, operations, maintenance, reservoir, production, logistics, drilling and well operations. By using a business modelling approach we establish a common platform for multiple disciplines to map and explore possible activity networks cross multiple disciplines.

**Finance**

Today’s CFOs are faced with a complex, constantly changing business environment in which their companies’ aggressive growth strategies need to be supported by a flexible finance organization that delivers transparent, efficient, forward-looking insight, while at the same time manages risk and compliance, effectively leverages capital and maximizes liquidity. High performing finance organizations focus on adding insight to the business while continually increasing compliance, control and efficiency.

PwC Finance professionals help companies develop a high performing finance function by streamlining and standardizing processes, focusing on adding insight to the business, and continually increasing control and efficiency while reducing costs. Our services focus on helping CFOs identify, design and implement programmes that transform finance to meet today’s demanding requirements. Our core competencies include:

**Finance strategy** - Aligning finance with the business strategy and putting in place the tools, processes, workforce, and organization structures to support those priorities.

**Finance and accounting operations** - Reducing functional and operational complexity within finance and creating standardized, streamlined processes that deliver efficient, high-quality services to all stakeholders.

**Enterprise Performance Management (EPM)** - Translating strategy into sustainable performance through budgeting, planning, consolidation, reporting and analytical solutions to provide accurate and timely business performance information.
Advancements in digital and technology are reshaping the way we all do business. By combining deep business and industry insight with digital innovation, our diverse teams of creative, industry and technology professionals help accelerate the successful impact digital can have.

**Systems & information technology**
Technology is an important enabler of business transformation. To assist you in getting value from technology investments, we bring together the skills to deliver improvements in processes, as well as the knowledge in IT strategy, IT architecture and design, enterprise applications, sourcing, project management and IT operations management. Our oil and gas IT specialists are experienced in:

- ERP implementations and upgrades for SAP, Oracle and others
- Extending functionality
- Data management/data warehousing
- Technology architecture and infrastructure
- Mobile technologies
- Innovation

We help oil and gas clients with a comprehensive range of end-to-end SAP services. From the strategy, planning and preparation stages that precede an SAP implementation, through to business blueprinting, realization, final preparation, go-live and support, PwC has great experience assisting international exploration, production, midstream, downstream and oilfield services clients along every step of the way. Beyond new implementations, geographical or functional roll-outs of SAP, we also assist clients with existing SAP systems that are looking to realize more business benefits from their investment in SAP.

The oil and gas industry is no exception. Digital technology and solutions are being utilized throughout the value chain to improve efficiency, better manage operations, collect and better utilize information, work in more remote areas, and much more.
**Emerging Technologies**

Technology seems to be evolving and improving every day. What used to be considered futuristic models or science fiction are suddenly reality. It can be difficult to keep up with the pace of technological advancements that are occurring, and even harder to decide which technologies are right for your company.

The specific technologies most impactful to a company can - and likely will - vary, of course, but when we analysed for technologies with the most cross-industry and global impact over the coming years, eight technologies emerged. They are at varying degrees of maturity; some have been around for years but are finally hitting their stride, while others are maturing rapidly. For the oil and gas industry, we can help you examine each of these for their potential to help you reduce costs, improve efficiency, and be more competitive.

1. **Artificial intelligence (AI):** Software algorithms that are capable of performing tasks that normally require human intelligence, such as visual perception, speech recognition, decision-making, and language translation. AI is an “umbrella” concept that is made up of numerous subfields such as machine learning, which focuses on the development of programs that can teach themselves to learn, understand, reason, plan, and act (i.e., become more “intelligent”) when exposed to new data in the right quantities.

2. **Augmented reality (AR):** Addition of information or visuals to the physical world, via a graphics and/or audio overlay, to improve the user experience for a task or a product. This “augmentation” of the real world is achieved via supplemental devices that render and display said information. AR is distinct from Virtual Reality (VR); the latter being designed and used to re-create reality within a confined experience.
3. **Blockchain**: Distributed electronic ledger that uses software algorithms to record and confirm transactions with reliability and anonymity. The record of events is shared between many parties and information once entered cannot be altered, as the downstream chain reinforces upstream transactions.

4. **Drones**: Air or water-based devices and vehicles, for example Unmanned Aerial Vehicles (UAV), that fly or move without an on-board human pilot. Drones can operate autonomously (via on-board computers) on a predefined flight plan or be controlled remotely. (Note: This category is distinct from autonomous land-based vehicles.)

5. **Internet of Things (IoT)**: Network of objects — devices, vehicles, etc. — embedded with sensors, software, network connectivity, and compute capability, that can collect and exchange data over the Internet. IoT enables devices to be connected and remotely monitored or controlled. The term IoT has come to represent any device that is now “connected” and accessible via a network connection. The Industrial IoT (IIoT) is a subset of IoT and refers to its use in manufacturing and industrial sectors.

6. **Robots**: Electro-mechanical machines or virtual agents that automate, augment or assist human activities, autonomously or according to set instructions — often a computer program. (Note: Drones are also robots, but we list them as a separate technology.)

7. **Virtual reality (VR)**: Computer-generated simulation of a three-dimensional image or a complete environment, within a defined and contained space (unlike AR), that viewers can interact with in realistic ways. VR is intended to be an immersive experience and typically requires equipment, most commonly a helmet/headset.

8. **3D printing**: Additive manufacturing techniques used to create three-dimensional objects based on digital models by layering or “printing” successive layers of materials. 3D printing relies on innovative “inks” including plastic, metal, and more recently, glass and wood.
**Deals**

**Mergers and acquisitions**

Acquisitions or divestments are crucial to many oil and gas companies’ strategy, driven by the need to secure supply, extend market footprint, or free up cash and capital. Whether it is a full-scale merger, or sale or purchase of producing properties, or evaluating options, PwC is well known in the marketplace for our knowledge and experience in all types of financial transactions including mergers and acquisitions, valuation, growth or divestments, and exit strategies.

**PwC capabilities**

- **Identify**
  - What are my alternatives, who should I target?
  - Tax strategies
  - Strategy evaluation
  - Market and industry analysis
  - Deal flow
  - Legal deal alternatives
  - Lead advisory

- **Evaluate**
  - How do I avoid paying too much?
  - Financial due diligence
  - Tax due diligence
  - Operational due diligence
  - Valuation advice
  - Public bid support
  - Corporate finance
  - Risk assessment
  - HR diligence and strategy
  - Environmental/Carbon Due diligence

- **Execute**
  - What is the most efficient way to close the deal?
  - Deal structuring/tax advice
  - Legal and regulatory advice and approvals
  - Sale and purchase agreement advice
  - Negotiation assistance
  - Completion assistance
  - Purchase price allocation

- **Maximise**
  - How do I achieve stability and early post deal wins?
  - 100 day planning
  - Transition support
  - Project management
  - Synergy implementation
  - Corporate governance design
  - Add-on deal identification

- **Change**
  - How do I manage change programmes?
  - Performance improvement
  - Systems and IT
  - Organisational design
  - Value Chain Transformation
  - Human resources and culture change
  - Strategic repositioning
  - Business process and infrastructure

- **Harvest**
  - How do I harvest value from the combination?
  - Sell side due diligence and carve-out
  - IPO advice and capital and debt raising
  - Capital and debt rising
  - Value analysis
  - Decision analysis
  - Secondary listings
  - SPACS (Special Purpose Acquisition Companies)
Our integrated M&A services are designed to minimize transaction risks and maximize returns on energy investments. We focus on the deal continuum from strategy through execution and post-deal integration, including financial and operational due diligence, accessing the capital markets and valuing, negotiating and structuring deals. We provide advice on the implications of financing projects, corporate debt, restructuring, divestitures, investments, mergers and joint ventures. We advise on ways to better manage assets and large capital investments amidst increased competition, or in times of uncertainty. Our advisors can evaluate technical, operational, market and financial risks.

Oil and gas companies continue to expand across the globe. Almost every company regardless of size, industry or country of operation is exposed to some degree of corruption risk. Particularly when a company is moving into a new market, the risks can increase. In addition to working with companies on deals, we are a leader in providing anti-corruption solutions to our public and private sector clients around the globe. We have professionals operating in over 70 countries, familiar with both domestic and international anti-corruption landscape, customs, practices and languages.

PwC has industry-dedicated transaction and deal teams in over 50 countries and in key financial markets across the world.

**Access to capital**

For companies seeking to raise debt or equity in the capital markets, PwC can provide an independent view of the critical issues involved in accessing a particular capital market. Our advice is tailored for the oil and gas industry, the size and complexity of the business, and the scope of the transaction. For companies considering going public, or spinning off part of their business, we have the experience and expertise to position the entity to go public and then take an active part in making the event successful when it happens.

Our oil and gas IPO specialists advise companies as they ready themselves for entering the public equity markets — to assist in uncovering and addressing unforeseen issues before they negatively impact your deal. Our IPO Readiness service is a comprehensive, yet flexible assessment of specific gaps and needs in areas such as accounting, financial reporting, governance, compliance issues, treasury and risk management, media and investor relations.

**Restructuring troubled businesses**

PwC is one of the world’s largest providers of business recovery and insolvency services. Active in 144 countries, our global network of highly skilled professionals can rapidly deploy cross-border services to stakeholders in troubled and seriously underperforming businesses. The firm’s business recovery professionals are valued by clients for their ability to quickly identify problems, gain cooperation, develop viable solutions, and implement them with sensitivity and precision. Our experienced oil and gas teams offer a full range of advisory and implementation services, from turnaround and restructuring plans to optimised exit strategies. Whether there is a single business segment that is underperforming, or a company-wide issue, our business recovery specialists can help.
Tax services
PwC has the largest network of tax professionals in the world, with over 36,000 in our global practice. In Energy, we have over 1,300 dedicated oil and gas tax professionals who understand the nuances of tax regulations that impact the industry.

Global tax services
Tax regulatory issues are top of mind for oil and gas companies operating around the world. PwC has the strongest international network of any professional services firm, with dedicated tax specialists in 157 countries. This means that we can support you both locally and globally, wherever you require tax advice.

Our global energy tax services focus on helping our clients understand local tax regimes, and develop tax strategies for all of the various taxes that come into play, including corporate income tax, personal income tax, indirect taxes (including value added tax), royalties, excise taxes, etc. Our energy professionals can help companies deal with the tax consequences of oil and gas contracts (such as Joint Operating Agreements, Production Sharing Contracts, manufacturing and marketing agreements and farm-out/farm-in agreements) being negotiated or concluded with the government or co-operators.

Energy clients engage us because we combine a strong understanding of their business and economic environments with specialist tax knowledge in hundreds of national and local jurisdictions across the globe. As tax codes become increasingly complex and tax planning more controversial, we help companies to:

- Identify and reduce tax risks,
- Understand and meet their compliance obligations,
- Implement tax strategies that complement their business and operational objectives,
- Resolve disagreements with tax authorities when they arise,
- Manage tax accounting and reporting issues and design of best in class tax functions, and
- Support companies with tax policy initiatives related to tax legislative and regulatory change.

International tax structuring
Our tax professionals solve challenging issues, anticipate changes that can impact your tax situation and financial statements, and keep you apprised of local, state, foreign and international tax regulations as they pertain to your company’s operations. Our network of international tax structuring professionals can help you to structure your international business in a tax efficient manner, both locally and globally. We can help you construct effective cross-border strategies and manage your global effective tax rate. We will also keep you abreast of new developments in the international arena that affect your business.

Global compliance services
For both corporate income taxes and indirect taxes, our Global Compliance Services group offers unparalleled excellence. Our approach to corporate income tax compliance helps companies seeking better tax management across a number of territories or with multiple entities in one territory. This is particularly relevant when a company is entering new countries or where accounting and finance resources are being moved into shared service centres. We have specialized tax compliance centres and skilled local territory tax teams providing quality technical support around the world.

“Senior tax buyers name PwC as their first choice tax provider for all tax services globally*”
*These results are based on an independent survey of 2,180 primary buyers of tax services globally, conducted by research agency Jigsaw Research (Q1 & Q2 2015).
**Indirect taxes**

Indirect taxes, including goods and services taxes (GST), value-added taxes (VAT), severance, property, employment, excise, motor fuels, sales and use taxes, and customs duties are uniquely imposed by a variety of jurisdictions and can be a significant burden for any energy company. Energy companies in particular, due to their large volume of commodity-based transactions, can be exposed to significant taxes on transactions. Our indirect tax professionals can assist in first determining what taxes are imposed by a jurisdiction, whether the activities of a company are enough to subject it to the tax, and how to either structure the company’s activities so as to minimize the tax or assist in complying with the filing requirements. Due to the significant differences in taxes and related rules among the jurisdictions, it may be possible to minimize the overall tax paid through proper planning.

**Tax merger and acquisition services**

PwC has one of the largest network of M&A tax specialists in the world with more than 700 experienced deals tax professionals across the globe. We can offer you experienced deal structuring and financing advice at all points throughout the deal cycle and, aside from our tax specialists, our transactions services, corporate finance and legal specialists can support you in all aspects of your transaction, working as a deals team. Our deep experience, strong international network and commercial focus allow us to add real financial value to transactions. We deliver thorough, quantitative analysis, rigorous implementation and leading-edge structuring techniques. We can help you:

- Assess and manage acquisition/merger risk
- Structure acquisitions to optimise net cash flows
- Prepare businesses for disposal
- Carry out pre-acquisition or pre-sale due diligence
- Ensure tax efficient deal structuring
- Ensure that optimal tax solutions are implemented post deal

Our M&A tax teams work seamlessly with our assurance and consulting teams to deliver a complete deals team for any type of transaction.
Transfer pricing

Inter-company transactions across borders are very significant in the energy industry and continue to get more focus and scrutiny by taxing authorities. At PwC, we have a strong international network of dedicated transfer pricing specialists with advanced training in economics, accounting, law and project management, who are ready to work with you. Our industry and tax authority experience and unique capabilities enable us to develop innovative approaches for energy industry companies. The last few years have seen a surge of transfer pricing audits, a trend that is not expected to slow down anytime soon. A decade ago, only a few countries had formal transfer pricing documentation requirements but that list continues to grow every year and is a major focus of most taxing authorities and is critical in the new BEPS world in which we are operating. This new environment requires multinational corporations to take proactive, coordinated steps to understand their transfer pricing arrangements and documentation requirements. Risks must be identified and addressed. Disputes and audits must be avoided, managed, and resolved. All issues must be coordinated and aligned across jurisdictions before they develop into larger business concerns. Our global tax controversy and dispute resolution professionals will assist your company to proactively evolve in this rapidly changing environment.

Our global transfer pricing teams can also assist your company with the new country by country reporting requirements that are being adopted by many countries as part of the OECD base erosion and profit shifting (BEPS) initiative. This is an area that many companies and certainly taxing authorities are focused.

International assignment services

Most oil and gas companies today operate in more than one country or region. For these companies, deployment of talent is a key to success. Whatever the mission—sharing knowledge, implementing management processes, expanding business into new territories—assignees provide the fuel for global growth. Our International Assignments (IAS) tax group can help companies with ensuring that your international assignment policies are aligned with and meet the needs of your business while being cost-efficient. We help clients prepare tax-efficient international assignment structures and policies and manage risks by complying with the regulations where their workforce is deployed. We are best in class technology for your company and your assignees to manage their global travel and global compliance and tax obligations. Our IAS tax teams are also closely aligned with our corporate tax teams to also help companies manage PE risks due to international short term business travellers.

Tax controversy and dispute resolution

Multinational energy companies are facing the most challenging tax environment in history: a convergence of global forces has resulted in a substantial increase in the number and size of tax audits, assessments, and disputes with revenue authorities worldwide.

Fiscal demands on developed and emerging countries have placed considerable pressure on governments to raise revenue and prevent the erosion of their tax bases. Governments worldwide are cooperating as never before to share taxpayer and industry information, assist other countries with document and information requests, and participate in separate multi-country audits (including “simultaneous” examinations). Some countries are even considering the concept of “joint audits” where a single audit team—comprised of government tax inspectors and auditors from two or more countries—examines a specific taxpayer. At the same time, companies are experiencing increasingly complex regulations, heavy penalties, and transparency and disclosure issues.
PwC’s Tax Controversy and Dispute Resolution network assists taxpayers in this emerging area. We can work with you to efficiently manage and favourably resolve tax audits and disputes throughout the world. PwC has tax specialists to assist clients in virtually every area of dispute. We combine deep technical understanding, local knowledge, strong relationships with government officials, tax litigation experience, and a global perspective to provide you with unrivalled service.

**Value chain transformation**

Business restructuring is a complex process. For each business transformation, every facet of the organisation is involved, and the implications - operational, tax and legal - are wide in scope. Implementing an effective value chain management process that brings all these facets together is critical.

Our Value Chain Transformation services move beyond traditional tax planning by helping our clients align tax, legal and operating models, resulting in improvement of both pre-tax and after-tax margins during complex business change. Our team works with you in the following ways:

- Create an operational structure that aligns your organisation's unique elements.
- Assess your value chain management process and find ways to maximise supply chain efficiency.
- Align your operational, tax and legal structures to achieve sustainable financial and operational benefits during business transformation.
- Determine how shared services between departments can help control costs, optimise your processes, and create visibility throughout your value chain.

With the proper business alignment in place, you can achieve smoother operations, greater profitability and more sustainable growth and have your tax function much more aligned with your global business objectives.

**Tax Function of the Future**

PwC has global teams focused on people, process and technology used within the tax function to advise clients on how to continue to improve and enhance their tax functions globally. These professionals focus on the tasks that people are performing, the process engaged within the tax function and how the organization leverages technology to improve quality and enhance efficiency. Our teams can assess your current tax function and determine strengths and weaknesses and work with you to design a plan to continue to enhance and improve the effectiveness and efficiency of your tax function. Tax technology is a key part of the evolution of the tax function and our teams can help you analyse areas where technology can bring value to your team and the company and minimize or eliminate certain processes that may currently be done manually to allow your teams to focus on more value added tax planning opportunities.

**Tax Policy**

As previously mentioned, we are living in an every changing world and tax policy, legislation and regulation changes continue to evolve rapidly. We have professionals in our global tax practice that have previous experience in government and tax administrations that focus on global tax policy and the impacts to our clients that operate on a global basis. Our professionals advise tax leadership in many companies on how potential tax reform or regulatory reform can impact their operations and work with these companies and their government affairs teams to facilitate discussions with lawmakers on how proposed legislation and regulation may impact business. We can also model potential legislative and regulatory tax impacts to your business and understand the key drivers that may have an impact on your operations. This is an area that continues to evolve in the new transparent world in which we all operate and we can provide valuable insight into local, regional, national and global implications of tax legislative and regulatory changes.
Insights and tools

Our commitment to the oil and gas industry goes beyond our services. We stay in touch with our clients through thought leadership and sponsorship activities. PwC is a Patron member of the World Energy Council, and a long-time sponsor and participant at the World Energy Congress. We also sponsored the World Petroleum Congress, last held in 2014 in Moscow, Russia.

In addition to these global events, our oil and gas practices join a variety of organizations and trade groups in their home territories to support the industry, share knowledge, and stay abreast of industry developments.

From our experience, we develop industry specific instructional materials and reports on issues of strategic importance to help keep our clients informed. Some of our recent and upcoming publications are listed below. Most can be downloaded from our website at www.pwc.com/energy.

2017 Global Oil and Gas Trends – Published annually, our global oil and gas trends piece takes a macro perspective of the sector, and the key issues and trends that are evolving. In our 2017 Trends, we looked at how energy companies can adjust their business models to a period of recovery.

A Sea Change: Emerging from a downturn - How will the oilfield service sector emerge from the crisis to position itself for future success in a new world? As some OFS companies dare to gaze at the stars, what do they need to do to prepare for a potential upturn? As they emerge from the turmoil, in many ways the operating landscape has radically transformed since the oil price decline in the summer of 2014. What will they need to focus on to succeed in this new world?

Driving capital efficiency to fuel oil and gas projects - Capital efficiency starts with corporate strategy and requires agility and foresight to pursue, abandon, or defer capital projects. This is critical to companies who are chasing margin over revenue in today’s market.

New Energy futures – Perspectives on the transformation of the oil and gas industry Global demand for affordable, reliable energy will continue to grow for the foreseeable future, but there is a new longer-term backdrop as the world transitions to a low carbon system. Companies in the oil and gas sector need to reconsider their portfolio and related capabilities to not only survive, but thrive, in this new future.
**Best in class** - How upstream gas can work smarter

Our interviews with (and analysis of data from) six Australian natural gas producers shows that further developing our upstream drilling and completion capabilities to be in-line with current practices in North America could impact our natural gas breakeven costs by up to 20 percent. Closing this gap between Australian operations and world best practice will require effort from industry and regulators but is certainly achievable.

**Gateway to growth: innovation in the oil and gas industry**

We surveyed 66 oil and gas industry executives from 18 countries across the energy value chain, to find out how innovation is impacting their businesses. The oil and gas respondents in our survey anticipate faster revenue growth than nearly any other sector. Some of this growth may come from energy price increases. But for oil and gas, that is far from the whole story.

**Africa Oil & Gas review 2016 – The Choice to Change**

In this year’s edition, we have taken a look at events that have taken place in the last 12 months within the major and emerging African oil & gas countries. With a sustained downturn in the oil price, the industry continues to respond by reducing costs, postponing or cancelling projects and exploring ways to reinvent itself.

**Understanding upstream supply chain management: What does good look like?**

Drawing on insights from PwC’s 2014 Upstream Supply Chain Management Benchmarking Study, which included extensive surveys and in-depth interviews among more than 20 participating E&Ps, this article focuses on the current environment for upstream Supply Chain organizations, the structure and practices that the study found to differentiate good and bad performance, and what Supply Chain organizations can do now to increase the value they provide to their companies.

**The progression of an LNG project – Canadian LNG Projects**

Canada is new to the LNG sector, one of the countries presently gearing up to export product to Asia, and perhaps beyond. Over the last few years, and more particularly in the past year, export licenses have been granted by the Canadian National Energy Board to several LNG developers.
**Key oil and gas contacts**

The member firms of the PwC network provide industry-focused assurance, tax and advisory services to build public trust and enhance value for its clients and their stakeholders. More than 223,000 people in 157 countries across our network work collaboratively to develop fresh perspectives and practical advice.

**Global leaders:**

**Niloufar Molavi**  
Global Oil & Gas Leader

Niloufar Molavi is the US and Global Oil & Gas Leader for PricewaterhouseCoopers (PwC). Niloufar leads a practice comprised of over 6,000 professionals serving energy clients in the oil and gas industry and is responsible for all client services – assurance, advisory and tax. She previously served as the Managing Partner for the Greater Houston Market, and was the energy leader within PwC’s Tax practice and as the firm’s U.S. Chief Diversity Officer, overseeing the firm’s diversity strategy and all of its related programs and initiatives. With over 25 years of tax experience with PwC, Niloufar has served a wide range of energy companies both in the U.S. and abroad, advising clients on international and U.S. tax structuring, mergers, acquisitions and potential public offerings.

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**Kenny Hawsey**  
Global Oil & Gas Tax Leader

Kenny has over 25 years of US and international tax experience working with multinational corporations in the oil & gas industry across upstream, downstream, oil field services and drilling companies. Prior to becoming our Global Tax Leader, Kenny has served as the US Energy Tax Leader and the Middle East Energy Tax Leader and the Saudi Tax Leader based in Riyadh, Saudi Arabia. As the global energy tax leader, Kenny leads our tax practice of over 1,300 industry professionals. His experience includes international assignments to Russia (Moscow), Azerbaijan (Baku), The United Arab Emirates (Dubai) and Saudi Arabia (Riyadh). Kenny’s experience includes dealing with a broad range of tax issues including cross border transactions and dealing with many concessions and production sharing agreements.

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Reid Morrison
Global Oil & Gas, Utilities & Mining Advisory Leader

Reid is a Principal in PwC's Houston Office and leads the US Advisory Energy Sector Leader. He has 25+ years of experience in the oil and gas industry across upstream, downstream, midstream, oilfield services, and bio-fuels both domestically and internationally (supermajors, NOCs, independent refiners, E&P independents, global OFS, etc.) His client experience covers strategy, operating models, restructuring, process redesign, M&A, supply chain, operational excellence, reliability, trading, and human capital.

Reid leads our energy advisory practice of over 1,500 professionals worldwide. Prior to PwC, Reid led the Global Energy & Chemicals practice at BearingPoint and Heidrick & Struggles. Reid received a Bachelor of Arts from Southwestern University, Georgetown, Texas in 1990 and received his Masters from the University of Tulsa in 1992.

For more information, please visit www.pwc.com/energy
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