FUELING THE ENERGY FUTURE

Reinventing oil and gas for a new purpose
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1.0 Reinventing oil and gas for a new purpose

The oil and gas industry, like many long-established sectors, is dealing with massive disruption on multiple fronts. Oil price volatility adds complexity to a fast-changing energy industry outlook. Digital technologies, the drive for greener energy, and the demand for more convenient, personalized services place national mandates and shareholder value at risk. Today, oil companies are compelled to examine their very purpose and through this examination, define and drive the industry change that they, and society in general, want to see.

The energy future is being shaped both by energy providers and their consumers. Oil and gas companies, national and public alike, are considering how best to fulfill the world’s energy needs sustainably while continuing to lift people out of energy poverty. The ask is becoming increasingly complex. While regulation plays a part (with many local, national and regional governments imposing increasingly stringent constraints on the use of fossil fuels and emissions), the key catalysts for change are falling technology and commodity costs combined with shifting consumer behaviors.
As energy systems rapidly become decarbonized, digitalized and demand-driven, the industry fundamentals are changing.

Accenture sees four key game-changers for the energy industry:

1. Decarbonized energy systems
2. Energy efficiency
3. The new energy consumer
4. Post digital reality

With their purpose in mind, oil companies must now tackle the global energy challenge by deploying new strategies to both address and take advantage of these game-changers. A strategy to “transform their current core business” can create efficiencies to release funds to simultaneously “grow and scale the new businesses.” Accenture sees that this can primarily be achieved via adopting new processes and models supported by digital technologies and ecosystems. Efficiencies are thus maximized through the energy value chain while capitalizing on emerging opportunities in “the new” by leveraging digital to meet the demands of the changing energy consumer.

As oil and gas companies make this so-called “pivot to the new,” they will need more agile business models to thrive in the future and capitalize on the advantages these game-changing opportunities offer. Many oil companies are already transforming their core businesses to be hyper-efficient. Some are on a transition journey from “oil” to “energy,” redefining their purpose and focusing on new businesses as they shift to become more consumer-centric. But they need to act fast. Disruptors have entered the industry, so incumbents need to act faster and drive the change society wants to see. Only by accelerating their pivot to the new and making their companies and workforces more purpose-driven, will they succeed.

Oil and gas companies now see the urgent need to develop their unique strategy towards becoming an energy company.
2.0 An industry in flux

After the 2008 global financial crisis, the oil and gas industry experienced sustained growth, stability, and high oil prices. Yet over the same period, declining capital returns and costly project overruns subsequently impacted profitability. Then in 2014, the industry went through an oil price collapse characterized by steep falls in oil prices, enforced layoffs, and big capital budget cuts.

As crude prices recover, oil and gas companies are again achieving stronger profits. They remain committed to improving operational efficiency and managing risks. They also strive to take advantage of new opportunities to improve profitability and drive up value through technology and new business allied to the energy transition. See Fig 1 for an overview of upstream capital expenditure (CAPEX).

North American oil and gas supply growth continues. There’s a major capital and trading shift to the US market, which is becoming increasingly competitive as both independent and big oil companies battle for short-term growth.

Upstream, the focus is on a shorter cycle planning and execution window, improving cashflow to protect dividends; a sharper approach to capital projects; a lower-cost mindset; and use of more standardized and modular engineering concepts. Downstream, plants are running more efficiently and reliably, with much improved uptime and throughput. Oil and gas companies are expanding their natural gas value chains through liquefied natural gas (LNG) as well as investing in renewable power generation and electric vehicle value chains. All are trying to balance these investments while continuing to focus on core business improvements by reshaping and high-grading their portfolios.
Fig 1 Upstream CAPEX reflects changes in energy industry

- **NATIONAL OIL COMPANY & NATIONAL ENERGY REFORMS**
- **NORTH AMERICA ONSHORE & UPSTREAM SHAKEOUT**
- **OILFIELD SERVICES MARKET RESTRUCTURE**
- **RISE OF THE INDEPENDENTS**
- **REALLOCATION OF CAPEX**
- **INTERNATIONAL OIL COMPANY TRANSFORMATION**

**Capital shift to North America**

- **By geography**
  - Upstream CAPEX
  - Source: Accenture Research

**Growth of independents**

- **By company type**
  - Upstream CAPEX
  - Source: Accenture Research

**Flattening of unconventionals**

- **By asset type**
  - Upstream CAPEX
  - Source: Accenture Research

**An industry in flux**

Fueling the energy future
3.0 Dealing with disruption

Accenture analysis indicates that the energy sector has been caught in a perfect storm between two disruptive forces: “big bang” disruption and “compressive” disruption (see Fig 2).

**Big bang disruption** was primarily caused by the rapid rise of shale oil and gas production in North America, leading to an oversupply of hydrocarbons and downturn in global oil prices. By 2020, the US Energy Information Administration (EIA) expects US oil production to average over 13 million barrels per day.

**Compressive disruption** is due to the ongoing energy transition bringing changes in energy demand, new efficiencies, and a growing role for non-hydrocarbon alternatives, which is creating a major re-evaluation of future commodity prices and traditional energy value chains.

**Fig 2 Rising energy industry disruption**

Disruption levels increased in 72 percent of industries between 2011 and 2018, with the energy sector seeing a 56 percent rise.

Source: Disruptability Index 2.0, Accenture Research
The underlying trend in the energy sector is towards greater compressive disruption. It typically starts with a period of “empty” growth before revenues potentially stall and collapse. As an example, Fig 3 illustrates its impact on the coal industry between 2011 and 2018. The data shows that while demand was still robust, prices and investment were affected and the market capitalization of the largest players in the sector shrunk.

The risks of compressive disruption are further exacerbated by wider industry impacts, such as changes in global transportation, emerging mobility systems, and the rise of the connected consumer. Added to this, the energy industry has so far seen little disruption from new entrants, with no oil industry equivalent of an Amazon or Uber forcing incumbents to adapt—partly perhaps because intense regulation makes it harder for new companies to gain a foothold. In the US, independent oil companies have perhaps come closest to both causing and experiencing significant disruption, with shale fields impacting supply curves and putting pressure on other operators to reduce their break-evens. But with pressure growing, there’s no room for complacency.

Fig 3 The coal industry had a period of empty growth between 2011 and 2018 which contributed to the compressive disruption

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal demand (billion tons)</td>
<td>7.70</td>
<td>7.60</td>
</tr>
<tr>
<td>Coal price ($/million tons)</td>
<td>115</td>
<td>106</td>
</tr>
<tr>
<td>New capacity (gigawatts)</td>
<td>82</td>
<td>4</td>
</tr>
<tr>
<td>Market cap top 4 companies ($ billion)</td>
<td>45</td>
<td>5</td>
</tr>
</tbody>
</table>

Source: Accenture Research
4.0 Assessing the impact

The impact of these disruptive forces for the energy industry will be immense. Added to this is the fact that oil and gas companies, along with other large companies, are now starting to examine their very “purpose,” and aiming to shift beyond a primary focus on maximizing shareholder value to a broader one which aims to look after the interests of a wider set of stakeholders.

For example, in August 2019, the American Business Roundtable announced the release of a new Statement on the “Purpose of a Corporation” signed by 181 CEOs who committed to lead their companies to create long-term value for everyone—investors, employees, communities, suppliers, and customers. Even though some resources companies are taking actions to reduce CO₂ and while some were signatories to the American Business initiative, oil and gas companies are generally perceived as ranking poorly against such purpose measures. For example,

Fortune magazine’s annual “Change the World” list of companies looks at corporate purpose and how it can add value to business and society beyond profits, but features very few resources companies.

By better understanding the challenges associated with these disruptions, oil companies can innovate at scale to create intelligent organizations that are equipped to compete in the fast-changing energy economy. And they can achieve this by retooling the business for the four game-changers shaping the future of the energy industry:

1. Decarbonized energy systems
2. Energy efficiency
3. The new energy consumer
4. Post digital reality

Today, people want the companies they engage with to not just do well, but to also do good.

Rich Holsman, Managing Director, Resources Group Digital Lead, Accenture

1 https://www.businessroundtable.org/business-roundtable-redefines-the-purpose-of-a-corporation-to-promote-an-economy-that-serves-all-americans
2 https://fortune.com/2019/08/19/change-the-world-shared-value-purpose/
4.1 Game-changer #1: Decarbonized energy systems

With uneven or declining hydrocarbon use in many markets, economic growth and gross domestic product (GDP) are becoming disconnected from hydrocarbon demand. Although growth in some emerging markets is still strong, the cost of renewables is falling so oil companies must be aware of a potential “emerging market leapfrog.” This is when countries move directly to greener and renewable energy sources, skipping fossil fuel power generation altogether.

Furthermore, the disruptive potential of electric and autonomous transportation on fuel freight, shipping, and logistics is immense. Added to this, the circular economy and new manufacturing materials are also expected to significantly impact demand—so will the rapidly developing bans on single-use plastics. With enough reserves to cover demand to 2050 at least, oil and gas companies are starting to rethink their business models from being exploration-led to becoming production efficiency-led, and increasingly, demand-led.

While countries and companies are under pressure to align with the UN/COP 21 agenda, concerns over fossil fuels among the public and investors are driving activism. Investors, who are increasingly sensitive to environmental issues and risks of stranded assets, believe change is not coming fast enough. Today, people want companies they engage with not just to do well, but to do good. An Accenture report on trust shows that nearly two-thirds of consumers are attracted to companies that take a stand on sustainability.3

While tougher emissions targets and carbon-capture plans go some way to address sustainability concerns, for many, they don’t go far enough. While oil and gas companies are taking actions to accelerate the transition to greener energy systems, they need to address trust and reputation issues.

We believe that they need to put society and citizens at the heart of their purpose to help sustain their own workforces, attract new talent, and ultimately lead the rotation to a new, more socially responsible energy system. Otherwise they run the risk that their role in this new system will be much smaller or not exist at all.


In accompanying the energy transition, the companies working in this sector are showing a great capacity for adaptation ... we must be ready to use electricity in ways that couldn’t have been imagined not that long ago. We aim to satisfy different types of consumption which had never previously been considered.

Enel CEO Francesco Starace, April 2019
The International Energy Agency (IEA) says energy efficiency could make the biggest contribution to meeting the Paris goals. Despite continued economic growth, investments in energy efficiency are helping to contain emissions and energy demand—and are now seen as fundamental to decarbonize energy systems.

Oil and gas companies are addressing energy efficiencies often in collaboration with original equipment manufacturers (OEMs). They are, for example, working to improve engine design and manufacture advanced fuels and lubricants, as well as focusing on efficiency and emissions in materials like cement. Oil and gas companies are also increasingly using technologies to address inefficiencies in their own buildings and assets to improve their energy management.

With the contribution energy efficiency could make to improve global emissions, more investment is needed. The IEA estimates that spending on energy efficiency incentives was around $236 billion in 2017.

To maximize the benefits of such measures, average annual spends on energy efficiency between 2025 and 2040 would need to rise to around $1,284 billion.

Spending on energy efficiency incentives was around $236bn in 2017. To maximize the benefits of such measures, average annual spends on energy efficiency between 2025 and 2040 would need to rise to around $1,284bn.

Source: International Energy Agency

4.2 Game-changer #2: Energy efficiency

4 https://www.iea.org/efficiency2018/
In order to survive in this ever-changing world, oil and gas companies need to do a much better job of keeping pace with consumer demand for ever-more seamless, connected, and personalized experiences. Energy market transition combined with digitally enabled lifestyles is driving different consumer behaviors, attitudes, and values. From eco-awareness to new ways of working, consumer relationships with energy providers are being redefined. But while energy companies reposition themselves with consumers at their heart, when compared to other sectors, consumers have relatively little interest in interacting at all with their energy provider or fuel retailer. This creates a risk for oil and gas companies as many try to transform to become an eMobility provider or even a power provider.

**4.3 Game-changer #3: The new energy consumer**

*We are in the era of disintermediation. From eco-awareness to new ways of working, consumer relationships with energy providers are being redefined.*

Andrew Smart, Senior Managing Director, Energy Industry, Accenture
Digital technology is reinventing everything from business decision-making, productivity, consumer experiences, transport, and power delivery, to consumption tracking and social engagement. Connectivity everywhere is creating a new digital reality where companies can gain new insights from multiple data sources while applying technologies like artificial intelligence to transform core functions, optimize workforces, and operate cheaper, smarter, and faster.

Digital is changing an energy industry competitive landscape which is becoming more complex by the day. Multiple players are appearing at every stage of the value chain, offering improvements and alternatives to the energy consumer. They include private equity players, market/asset specialists, and niche independents who can run traditional assets and services more cost effectively. Add to these the utility, automotive, and technology companies that are pioneering electric and automated vehicles or offering integrated solar power, transport, and communication solutions to power increasingly connected transportation and homes. This changing competitive landscape requires more multi-partner collaboration and ecosystem development. However, compared to other sectors, the energy sector in general remains poor at leveraging the new digital and start-up ecosystems. In fact, the Accenture Trust study finds that only a third of oil and gas companies are using partnerships to support new business models, far fewer than in other industries.

5.0 The case for change

With the industry landscape becoming increasingly complex, and industry convergence increasing, oil and gas companies need to transform. On the supply side they must contend with more abundant resources; a competitive mix of more diverse energy sources; investor constraints on which resource bases to develop; and generally lower but more volatile prices.

On the demand side, operators need to shift from a commodity-centric to a more consumer-centric energy market, aligning their offerings to address environmental concerns, energy efficiency, and energy poverty, while still responding to ongoing demand for oil and natural gas.
These rapidly converging disruptive forces are seriously impacting an oil and gas industry that was already struggling to create long-term value—even during the stable period of relatively higher prices post-2008. During this time, return on average capital employed (ROACE) and free cashflow generation has fallen for major oil and gas companies and independent producers alike. There is also evidence that oil companies are having to address declining values in their asset base while return on capital investment is starting to move downstream. For many energy companies, this means cashflow and new investment are increasingly being driven by their manufacturing and consumer businesses while the upstream business is, in some cases, shifting from growth to just sustaining the existing business for maximum efficiency.

Across the industry, the case for change is unequivocal. To stay relevant and retain their license to operate, oil and gas companies must reinvent their industry and business models fast. As they strive to become more agile and adaptable, connected, and collaborative, they must focus on two key dimensions: where to play and how to win.

Where to play?
What is the essence of their business, role in the value chain, and value they create? This requires an assessment of what value can be driven from core resources to invest in new assets. They must address untapped value pools in their existing business along with new value pools associated with mobility, materials, and power/utilities.

How to win?
They also need to rethink their operating models, considering how to embrace new technologies and workforce strategies to better support their changing portfolios through the energy transition. Retooling the business will require new operating models which are above all agile, to allow flexibility, adaptability, and which can be enhanced by machines (see Fig 4).
5.0 The case for change

**Fig 4** Strategic options to retool the business

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<th>WHERE TO PLAY</th>
<th>HOW TO WIN</th>
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<tr>
<td>Traditional energy assets</td>
<td>New energy assets</td>
</tr>
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<td><strong>TAILOR ASSET MIX</strong></td>
<td><strong>RETHINK ENERGY BUSINESS</strong></td>
</tr>
<tr>
<td>• Hydrocarbon participation</td>
<td>• Role in the energy value chain and coverage across the value chain</td>
</tr>
<tr>
<td><strong>MAXIMIZE TODAY’S POTENTIAL</strong></td>
<td><strong>RETHINK OPERATING MODEL</strong></td>
</tr>
<tr>
<td>• Address inefficiencies in workflow</td>
<td>• Disrupt current workflow through automation and machine learning</td>
</tr>
<tr>
<td>• Reduce work</td>
<td>• Redraw boundaries in terms of who does the work</td>
</tr>
<tr>
<td>• Shift to a margin focus</td>
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</tr>
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Source: Accenture Research
6.0 Three transformation imperatives

6.1 Embrace next-generation digital technologies

To date, digital transformation of core oil and gas company capabilities—transforming processes with supporting digital technologies—has been largely piecemeal and not applied holistically. Some technologies have now shifted from silos to the core business,\(^6\) which is a start. In Accenture’s 2019 Energy Technology Vision Report, 80 percent of upstream and 73 percent of downstream executives said that digital technologies have become part of their company’s technology foundation, with a big impact on their business.

While still struggling to embrace the new platform and digital capabilities, the oil industry is starting to realize the importance of ecosystems and strategic partnerships to unlock digital potential. Accenture’s latest Digital Fuels Retail survey reveals that the primary reason almost 50 percent of companies entered into strategic partnerships was to better access technology and digital innovation.\(^7\)

In 2019, for instance, Accenture and SAP began working with more than 25 oil companies to jointly develop standards for a global industry-specific public cloud enterprise resource planning (ERP) solution.

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As oil and gas companies move to making data-driven decisions at pace, emerging digital technologies and the new possibilities they unlock offer them real opportunities to transform and start reimagining their entire industry. Key among these are distributed ledger technology/blockchain; artificial intelligence (AI); extended reality (XR); and quantum computing. Accenture calls this key quartet of technologies DARQ. While each is powerful individually, collectively DARQ technologies will change how entire industries look and work, including energy (see Fig 5).

Fig 5 Enable new capabilities with DARQ technologies

Source: Accenture Energy Technology Vision 2019
Build the workforce of the future

Retooling the future energy company will require new skills to equip an efficient modern workforce. In the latest downturn, the industry lost hundreds of thousands of jobs globally, with the oilfield services sector particularly impacted. Heavily dependent on engineering skills, oil and gas is a mature industry where the average employee is more likely to be older. What’s more, the Accenture Trust study revealed that fewer than one in ten recent college graduates want to work for energy companies, with sensitivity to environmental issues a growing concern for recruiters. This is a big challenge for oil companies as they seek to adopt new data and digital capabilities to enhance labor proficiency and optimize productivity.

To do so oil and gas companies can learn from more direct business to consumer industries, where the digital DNA has already more broadly been translated into the overall employee experience with more flexible career paths, a focus on continuous learning and personal development, a clearly defined higher purpose and a more inclusive culture. It also requires thinking differently about what the employee value proposition is for people to join your company in a market where they have so many other opportunities.

6.3 Align to stakeholder and investor concerns

Investors are becoming concerned that the oil and gas industry might never see a full up-cycle ever again. Investor pressure for certainty of returns and cashflow has increased the value of North America’s shale plays. The same pressure—along with growing sensitivity to break-even cost reduction—is driving demand to maximize production from existing assets rather than open fresh frontiers. This aligns well for the many oil and gas companies aiming to substantially reduce their carbon footprint. Changing oil company portfolios to include natural gas, electricity, biofuels, and carbon-capture projects will lower emissions and offset those from more conventional oil and gas assets. Energy companies are also seeking circular economy efficiencies. For example, increasing utilization of idle tankers; extending the life of facilities; repurposing decommissioned assets and equipment; reusing abandoned oil and gas wells for geothermal energy production, carbon capture and storage; or reusing waste products and water.

Oil and gas companies also need to show investors that they can defend against lower oil prices, market volatility and weak capital discipline, climate risks, and concerns about long-term oil demand.

As oil and gas companies try to radically reshape their portfolios faster for investor confidence they are also actively seeking shareholder feedback to better align their purpose and management incentives with current investor demands.
7.0 The future energy industry

Ultimately, as the world becomes more interconnected and non-linear, the combined impact of these multiple disruptions—along with regulatory evolution—will define the oil and gas industry’s future.

Value in the industry is shifting downstream and increasingly to newer businesses such as transportation, materials and power/utilities (see Fig 6). Adding to the complexity, returns in these industries are lower than in the traditional oil and gas sector as they are also shared with technology companies, chemical companies, original equipment manufacturers and utilities.

![Fig 6 Navigating an increasingly interconnected, non-linear world](image-url)

**Fig 6** Navigating an increasingly interconnected, non-linear world

<table>
<thead>
<tr>
<th>LINEAR WORLD</th>
<th>NON-LINEAR WORLD</th>
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<tbody>
<tr>
<td><strong>Mobility revolution</strong></td>
<td>Internal combustion engine efficiency</td>
</tr>
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<td></td>
<td>Ride-sharing</td>
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<tr>
<td></td>
<td>Electric vehicle adoption and autonomous cars</td>
</tr>
<tr>
<td><strong>Materials mash-up</strong></td>
<td>GDP growth</td>
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<tr>
<td></td>
<td>PetChem product innovation</td>
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<tr>
<td></td>
<td>Developing market indigenous consumption</td>
</tr>
<tr>
<td><strong>Power “super-charged”</strong></td>
<td>Conventional supply</td>
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<tr>
<td></td>
<td>Unconventional supply</td>
</tr>
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<td></td>
<td>Renewables supply</td>
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</table>

Source: Accenture Research
Technology companies, new start-ups, and consumers are changing how value will be created in future energy systems.

They are disrupting how business is being done and contributing to the evolution of new business models and energy ecosystems. These ecosystems are becoming increasingly fragmented, with relatively few large technology companies seeking new margin opportunities at one end and at the other, start-ups pursuing new partners to scale their innovations. As value in the energy system shifts, this new competitive landscape means slimmer margins will be squeezed even further.
8.0 Reinvent for hyper-relevance

To succeed in the new energy world, oil and gas companies will need to reinvent to better exploit their assets; leverage value from their expertise and ecosystem investments; reduce risks while continually optimizing performance; and change their mindset.

They can do this by reconfiguring their operating models for future agility and hyper-relevance, enabling them to better respond to changing market dynamics, adapt to consumer expectations, and meet stakeholder demands. They’ll adopt new capabilities. Capturing efficiencies in their core business will free up capital for greater innovation and new business development. They’ll also become more “human-centric,” for example, becoming an employer of choice for a new generation of talent, with strategies connected to a greater purpose (see Fig 7).
**Pivot wisely**

To get the timing, scale and direction of investments right:

1. **Transform your core business**
2. **Grow your core business**
3. **Scale your new business**
4. **Pivot wisely**

![Diagram of pivot process](image-url)
A rotation to the new—via a “wise pivot”—is Accenture’s digitally enabled, innovation-led, disciplined approach to renew and transform core legacy energy businesses while continuously and synchronously creating the investment capacity to grow and scale new businesses. It enables oil and gas companies to unlock new sources of growth and value arising from the energy transition supported by new technologies, enabling them to close the gap between what is possible and today’s reality (see Fig 8).

### Fig 8 Examples of the wise pivot in action

<table>
<thead>
<tr>
<th>Gas integration</th>
<th>Power disruption</th>
<th>“Materials” mash-up</th>
<th>Consumer &amp; transport revolution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Action plan</strong></td>
<td><strong>Action plan</strong></td>
<td><strong>Action plan</strong></td>
<td><strong>Action plan</strong></td>
</tr>
<tr>
<td>1. Leverage gas abundance to reshape asset portfolios</td>
<td>1. Accelerate electricity demand through new business models</td>
<td>1. Respond to natural gas liquids feedstock</td>
<td>1. Increase access points</td>
</tr>
<tr>
<td>2. Monetize trading and tap into “tail” markets</td>
<td>2. Establish new assets</td>
<td>2. Integrate hydrocarbon extraction to materials delivery</td>
<td>2. Influence commercial/residential consumption</td>
</tr>
<tr>
<td>• Retail liquified natural gas (LNG) provider</td>
<td>• Storage purchaser/supplier</td>
<td>• Joint Venture participant across the chemicals value chain</td>
<td>• NextGen energy retailer</td>
</tr>
<tr>
<td>• High-frequency trader</td>
<td>• Offshore wind farm operator</td>
<td>• “Materials” company</td>
<td>• Transportation convergence</td>
</tr>
<tr>
<td>• Industrials energy partner</td>
<td>• Beyond-the-meter provider</td>
<td></td>
<td>• Connected home manager</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Fuel-on-demand provider</td>
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</tbody>
</table>

Source: Accenture Research
9.1 Transform the core

Within this phase, the priority is to strengthen operating performance and generate additional cashflows to fund the transformation required to grow the core and scale the new. The primary focus for oil and gas companies should be on the following imperatives:

Enable data-driven decision-making
Replace slow, disparate processes and inspection mindsets with fluid approaches that allow simultaneous data-led decision-making across the organization, increasing speed with standardized designs across reservoir and resource types. Integrate real-time insights to optimize operations and adjust production on demand, while safeguarding data integrity with robust cyber-resilience. This will create faster and more innovative oil companies which operate more securely.

Drive efficiency and productivity
Get more from less by leveraging real-time operational visibility to boost asset availability and productivity while reducing costs. Combine a predictive view of asset performance with a better-connected workforce. Embrace the shift to Industry X.0—the digital reinvention of industry—to connect the entire organization via the Internet of Things (IoT), allowing more intelligent operations. This will create a more dynamic oil company with a focus on performance.

Adapt and implement faster
Embed the agility to stay competitive, for example, by rapidly reassessing today’s engineering solutions to exploit future available resources. Shift to an operating mindset focused on achieving returns within a narrower, shorter-run economic life by adopting a standardized solution set, lighter, nimbler assets and new commercial models to seamlessly collaborate with service providers and wider ecosystems. This will create an improved oil company with a focus on margin improvement.
While growth in the industry is increasingly focused on emerging markets, there are still selective investments to be made in mature markets, such as the US, where current conditions offer opportunities for new capital plays.

To maximize returns from existing physical assets, market positions, and consumer relationships, oil and gas companies should leverage connected platforms centered around consumers and business outcomes to boost productivity, speed, and responsiveness while driving innovation. Augmenting workforce skills with AI and new technologies (human and machine) to grow core value while developing new revenue streams should be an imperative. This transformation will be enhanced by a common purpose centered around sustainability, industry change, and reinvention.

Future growth will likely require a broader, deeper set of relationships than today’s transactional supplier and arms-length partnering arrangements. In an increasingly specialized and competitive market, the winners will typically be those with the best combination of in-house capabilities and ecosystem partners across the value chain, in all relevant disciplines and domains.
Upstream
Here there's room to optimize processes and influence strategic decision-making, such as using AI to improve prediction models and increase production. New technologies will enable companies to better optimize integrated value chains, develop more niche portfolios or create asset-light portfolios with few operational interests.

Downstream
Opportunities include expansion into new markets; replacing aging infrastructures in mature markets such as Europe and the US; and adding more intelligence to better integrate petrochemicals or renewables. There is also scope in integrated gas and power to drive demand via gas-fired power generation and global LNG growth.

Retail
Using digital (to create 360-degree views of consumers and focusing on improving their experience) can increase acquisition of new customers and retention of existing ones. Advanced customer analytics and smarter payment systems will enable more informed decision-making and cross-selling of additional products and services (energy and non energy related) to increase consumer retention and revenues.

In addition, immersive technologies such as XR enable oil and gas companies to reinvent the consumer experience as they move into retail-oriented sectors like power and gas utilities, and electric vehicle infrastructure.

Trading
Technologies such as blockchain can both secure and simplify energy trading, billing, payment, and reconciliation while making supply chain and regulatory processes more manageable. In addition, AI and analytics can enhance decision-making and execution, while energy trading and risk management (ETRM) solutions and a cloud-first approach are key to managing position visibility, risk, controls, and regulatory compliance, often via a single platform.
9.3 Scale the new

Just as every oil and gas company is unique, so is every transformation journey. In an era of rapid change, energy companies will continue to face multiple challenges, from price volatility to new energy plays. But while disruption increases risk, it also creates opportunity.

Reshaping the oil and gas industry requires companies to pivot their portfolios to the new in a timely way—in other words, growing new businesses while keeping the current portfolio profitable and agile. This can be achieved by optimizing the balance between: centralization and decentralization; fixed assets and pay-as-you-go; standard and bespoke; operator and entrepreneur; human and machine-based capabilities. In this way, oil and gas companies can work towards a complete reallocation of their resources and demonstrate to both their investors and consumers that industry transformation is underway.

Ultimately, the winners in future energy markets will be those who can transform, grow, and scale by developing best-in-class assets—hydrocarbon or renewables—and creating differentiated positions where they choose to play, whether across energy manufacture, transport, or delivery.

They will support their chosen direction with agile, optimized, digitally enabled operating models to reimagine every step of the value chain, influence consumer choices, and build cumulative demand, at speed and scale.
Renewables businesses are possibly the most mature area for scaling the new, especially for wind and solar technologies. However, these still depend on public subsidies, adequate regulatory frameworks and local weather conditions. Currently, onshore wind is probably the most mature, but offshore wind and solar photovoltaic (PV) systems are also scaling.

As oil and gas companies take their first steps in the new retail power landscape, they can capture consumers via their global brands while leveraging advanced data analytics to offer better consumer services. While at an early stage, business models for these advanced services are being tested through small-scale projects and start-ups. They include opportunities in distributed energy resources implementation, for example, rooftop solar, home batteries and electric vehicles.

There’s also interest in developing new energy management services to optimize consumption and comfort for connected homes, including advanced services such as demand-side management and virtual power plants. In these scenarios, the consumer will play a more active role in the operation of the power system. However, it’s early days, with work ongoing to develop a clear business case and strong value propositions for oil and utilities players.
10.0 Next steps to fuel change

To reimagine their businesses, create value, and scale in the emerging energy market, oil and gas companies will need to rewire their organizations with more connected end-to-end operating models. While many will be making key digital changes as they embrace automation at one end and better data analytics for faster decision-making at the other, dedicated effort is also needed to address the “missing middle” to ensure the shift is as effective and efficient as possible.
Central to the wise pivot is building agility into the organization, the ability to make faster decisions, distinguishing between strategic and operational decisions, and investing in analytics to capitalize on the competitive value of actionable insights. These basics can enable oil companies to deploy and scale digital transformations much faster and more effectively while increasing the impact of digital exponentially (see Fig 9).

**Fig 9** Agility and continuous improvement are key to scaling digital transformation

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**DIGITAL STRATEGY**
- Create ideas and test with steering committee
- Identify needs/ pain points “inside-out”

**PROOF OF CONCEPT**
- Capabilities mapping
- Observe “outside-in” initiatives
- Measure minimum viable product (MVP)

**PILOT AND SCALE**
- Growth engine
- Validate
- Analyze
- Pivot

---

**Proof of problem**
- Identify pilots / initiatives

**Proof of market**
- Agile development

**Proof of scale**
- Grow and optimize

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**Source:** Accenture Research
To achieve this, we believe that oil and gas companies need to first create the “base camp” from which they can transform. This base camp provides the capabilities required to transform into the future energy company. These include the right agile and data-driven operating models; supporting digital technologies and capabilities; platforms to rapidly scale; and the underlying data, security, and cloud capabilities (see Fig 10).

The challenge is often that digital transformation and increased agility requires alignment, and often companies do not have their digital architectures fully established, let alone aligned.

To achieve this requires a clear focus on deploying new talent and skills along with investments in innovation and new technologies. Balancing the mix of human talent with machine-based intelligence, for instance, will be key to success as oil and gas companies seek to reshape for a new future and scale fast.

**Fig 10** Oil companies need to establish a “base camp” operating model

Source: Accenture Research
The energy sector is now undergoing one of the most dramatic pivots of all industries, not just from a digital perspective, but as part of the move to a low-carbon and more sustainable future.

As oil and gas companies understand the value of digital technologies, and empower their workforce to pursue more innovative initiatives, they will need to rethink the traditional oil company operating model. The new energy company will look very different, driven by a wider purpose, focused on innovation and underpinned by a stricter cost base, fundamental efficiencies and a more collaborative culture driving towards more sustainable goals. As a result, oil and gas companies should then be more profitable, more competitive and better positioned for the energy transition.
Accenture has developed assets and capabilities to help accelerate and scale the requirements for industry transformation.

Fig 11 The oil company journey to the new

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Digital strategy & transformation

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Source: Accenture Research
11.0 Accelerate your new energy future with Accenture

When it comes to oil and gas industry disruption, wait and see is not an option: The time to reinvent for a decarbonized, digitalized and more demand-driven future is now. While uncertainties remain as to how fast to scale clean energy, these can be offset by the reputational appeal to investors, consumers and employees of proactively addressing the decarbonization of the energy system. While disruption increases risk, it also creates opportunity. Success in the emerging energy landscape will require the right mix of digital technologies to unlock value, whatever lies ahead.
About Accenture

Accenture is a leading global professional services company, providing a broad range of services and solutions in strategy, consulting, digital, technology and operations. Combining unmatched experience and specialized skills across more than 40 industries and all business functions — underpinned by the world’s largest delivery network — Accenture works at the intersection of business and technology to help clients improve their performance and create sustainable value for their stakeholders. With 492,000 people serving clients in more than 120 countries, Accenture drives innovation to improve the way the world works and lives. Visit us at www.accenture.com.