2018 oil, gas, and chemicals industry executive survey

A return to opportunity and confidence?

Executives are largely optimistic about the 2019 outlook for oil, gas, and chemicals

Upstream

Exploration and development

Production

For some upstream companies, **caution still tempers optimism** but activity is picking up with more than half saying they expect to increase development and exploration spend, rig deployment, and headcount in 2019.

There is a strong focus on the near-term, with reducing costs, increasing operational efficiency, and maintaining production all top priorities.

Midstream

Gathering and processing

Pipeline transportation

Storage and shipping

Executives are **highly optimistic about investment** in infrastructure due to expansion in both upstream and downstream.

Midstream focus seems to be shifting from natural gas to oil and NGLs, more favored by the commodity price outlook.

Managing costs, operational reliability, and environmental impact capture the attention of most executives.

Downstream

Refining

Distribution & Marketing

Most downstream companies see opportunities for **consistent, modest growth** across the business with expectations for increasing refining margins, exports, and capex spend.

Cost and regulations top the list of downstream concerns, including environmental and permitting issues, while biofuels and declining consumer demand are not top of mind.

Chemicals and Specialty Materials

Basic chemicals

Intermediates

Formulated products and materials

Most executives in the chemicals and specialty materials sector are **optimistic about growth, consolidation opportunities, and realizing digital potential**.

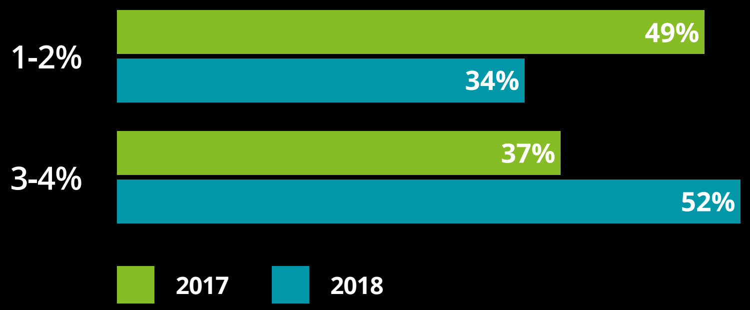
But sector executives are concerned about regulation, geopolitical risks, and changing customer expectations and requirements.

Innovation, sustainability, and supply chain remain the key high-priority strategic areas for the sector.

The 2018 survey reveals growing overall confidence in the return of a more favorable business environment.

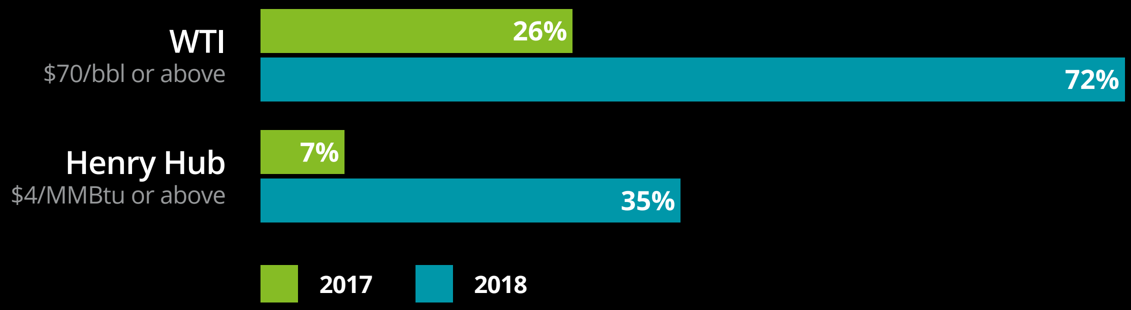
Higher economic growth expectations

What are your long-term expectations for US real GDP growth?



A very similar shift is reported in expectations for world GDP growth.

Higher oil and gas price outlooks for 2020



Higher investment confidence across all sectors*

Downstream and chemicals maintain the highest confidence levels.

Price recovery and strong demand are likely driving this perception.

* **Note:** The chemicals sector was not included in the 2017 survey, so 2017 chemicals data is not available.

Consolidation through M&A remains a key strategy for competitive advantage through the commodity cycles.

Oil and gas executives see the oilfield services segment as having the highest consolidation potential.

Chemicals executives see the most consolidation likely in their own sector.

Consolidation through M&A is a route to scale, focus, and cost control, strengthening companies across economic and commodity cycles.

Upstream

Still working through its recovery from the downturn

Despite an uptick in optimism, executives are sending mixed messages about the health of the segment.

Operators want to spend less and get more—while at the same time divest acreage, infrastructure, and companies.

Working efficiently and upping R&D spend are high on the priority list of executives for cutting costs in upstream; digital is a distant third.

The US domestic business context appears to be top of mind for upstream players, but the Middle East is not far behind.

What is your outlook for upstream growth?

Rig deployment	Exploration spend	Headcount	Capex
61%	56%	56%	52%

% of respondents expecting an increase

A little over half of respondents expect capex, exploration spend, rig deployment, and headcount to rise, but caution is still apparent in the segment.

Top four priorities for strategic focus in 2018 and 2019

- Maintaining or increasing current production levels
- Reducing or streamlining G&A costs
- Divesting acreage, infrastructure, or companies
- Reducing total capital expenditures

The segment seems split between focusing on growth, maintaining the status quo, and streamlining the business. This reflects executives' outlook on oil and gas prices.

Which strategies are expected to have the most potential for sustained cost reductions?

Most upstream companies are focused on the short- to medium-term, but R&D spend stands out as the only priority with a truly long-term focus.

Improving operating efficiency
Short-term

Deploying new digital strategies
Medium-term

Increasing R&D investment
Long-term

These strategies will likely become increasingly important as prices rise. Most respondents (62 percent) think that anywhere from 20 to 60 percent of cost changes are cyclical, and 17 percent think cyclical cost changes are higher than 60 percent.

What policy and/or geopolitical issues could most affect your company through the end of 2019?

Many companies see domestic issues as the biggest concern. International factors were considered less pressing, likely in response to the significant production growth and high crude stock levels seen in recent years.

Domestic

Changes in US tax policy and regulation
Opening of access to new US federal lands, offshore or onshore
Environmental and/or local stakeholder issues

International

OPEC production decisions
Supply disruptions in the Middle East and North Africa
Continued Russian economic sanctions
Mexico opening to investment

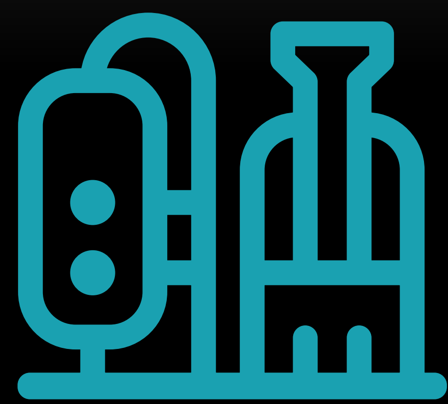
Midstream

Preparing to take advantage of a more positive upstream and downstream business and market environment

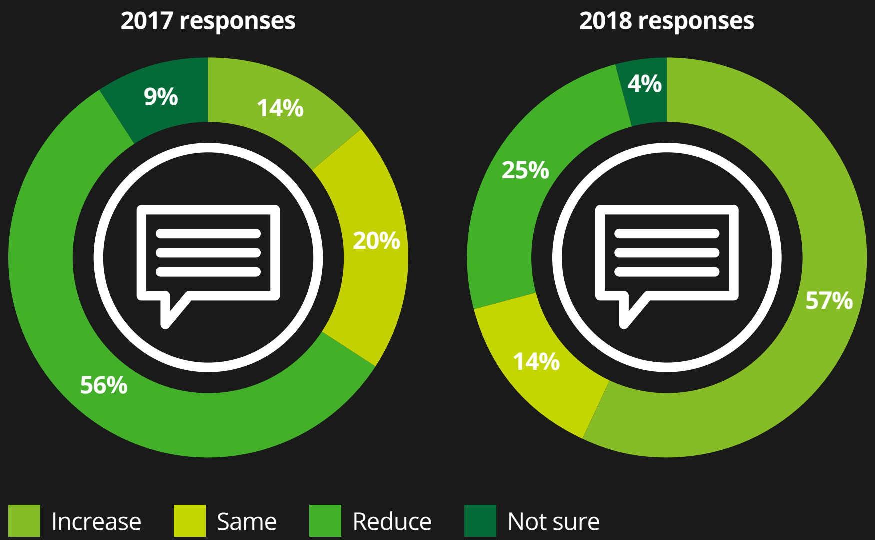
Among all oil and gas segments, the midstream capex outlook has turned most positive due to rising growth opportunities and the upturn in upstream.

Oil-based infrastructure, especially in and around the Gulf Coast, seems to offer major opportunities for growth through 2019.

Controlling costs and enhancing operations remain key for midstream executives as they plan for growth.



What is your spending outlook for 2019?



About three-fourths of respondents expect flat to higher capex growth—highest gain in any segment compared to the 2017 survey.

What is driving this change in sentiment?

21%
Upturn in the upstream segment

17%
Upstream consolidation and rationalization

15%
New oil and gas opportunities in Mexico

5-7%
Product export infrastructure and new LNG markets

Optimism is a reflection of recovery in upstream growth, consolidation opportunities, and a rising US export profile.

% increase in positive responses (2018 vs. 2017)

Which regions and businesses offer the most opportunity for profitable growth through 2019?

Regions: The Gulf Coast leads due to rising oil and gas production in the Permian basin.

- 62% Gulf Coast
- 44% Pacific Coast
- 39% Midwest and Appalachia
- 37% Rocky Mountains
- 31% East Coast

Businesses: Oil-based infrastructure offers the highest growth potential, compared to natural gas-based in previous outlooks.

- ↑ 28% Crude oil pipelines
- ↑ 6% Natural gas gathering and processing
- ↑ 3% Refined oil products pipelines
- ↓ 11% Natural gas pipelines
- ↔ Terminals and storage
- ↔ NGL pipelines
- ↔ Condensate splitting

% change 2018 vs. 2017

What are the biggest midstream challenges?

- 40% Costs
- 39% Operational issues
- 37% Environmental issues

Operational concerns have amplified and now replace regulatory concerns.

Downstream

A steady segment that has performed well in recent years

Expectations for downstream capital spend growth line up with expectations for export growth.

Environmental issues are top of mind, but other concerns seem to be spread broadly and evenly within the segment.

What is your capital expenditure and export growth outlook for 2019 compared to 2017?

Downstream spend

64% expect net increase

48% expect up to 10% increase

Export growth

72% expect net increase

49% expect up to 5% increase

Most downstream players have a positive outlook with modest growth. While domestic consumption is still below 2017 levels,[1] export volumes are at record highs and expected to continue rising.

What are the biggest challenges facing your business through 2019?

More important

- Environmental issues
- Costs
- Permitting issues
- Infrastructure bottlenecks
- Operational issues (including reliability and safety)
- Declining consumer demand
- Fuels specifications or biofuel mandates
- Other regulations
- Local stakeholder issues

Less important

Top concerns likely reflect the number of regulatory challenges other projects like pipelines have faced.

Businesses do not seem as concerned by declining consumer demand, despite widespread discussion about the impact of electric and autonomous vehicles.

Chemicals and Specialty Materials

Sector expects to experience strong growth with its focus on innovation and digital

Executive opinion seems counterintuitive with respect to US growth potential, M&A activity, and digital maturity.

Regulatory changes, geopolitical uncertainty, and changing customer behavior remain the key challenges.

Strategic priorities for long-term value creation include innovation, sustainability, and supply chain.

Survey says...

56%

expect the United States to be the fastest growing chemical-producing region.

85%

believe that the sector is moderately to highly digitally mature.

6 in 10

expect M&A activity to increase by 2019.

But in reality...

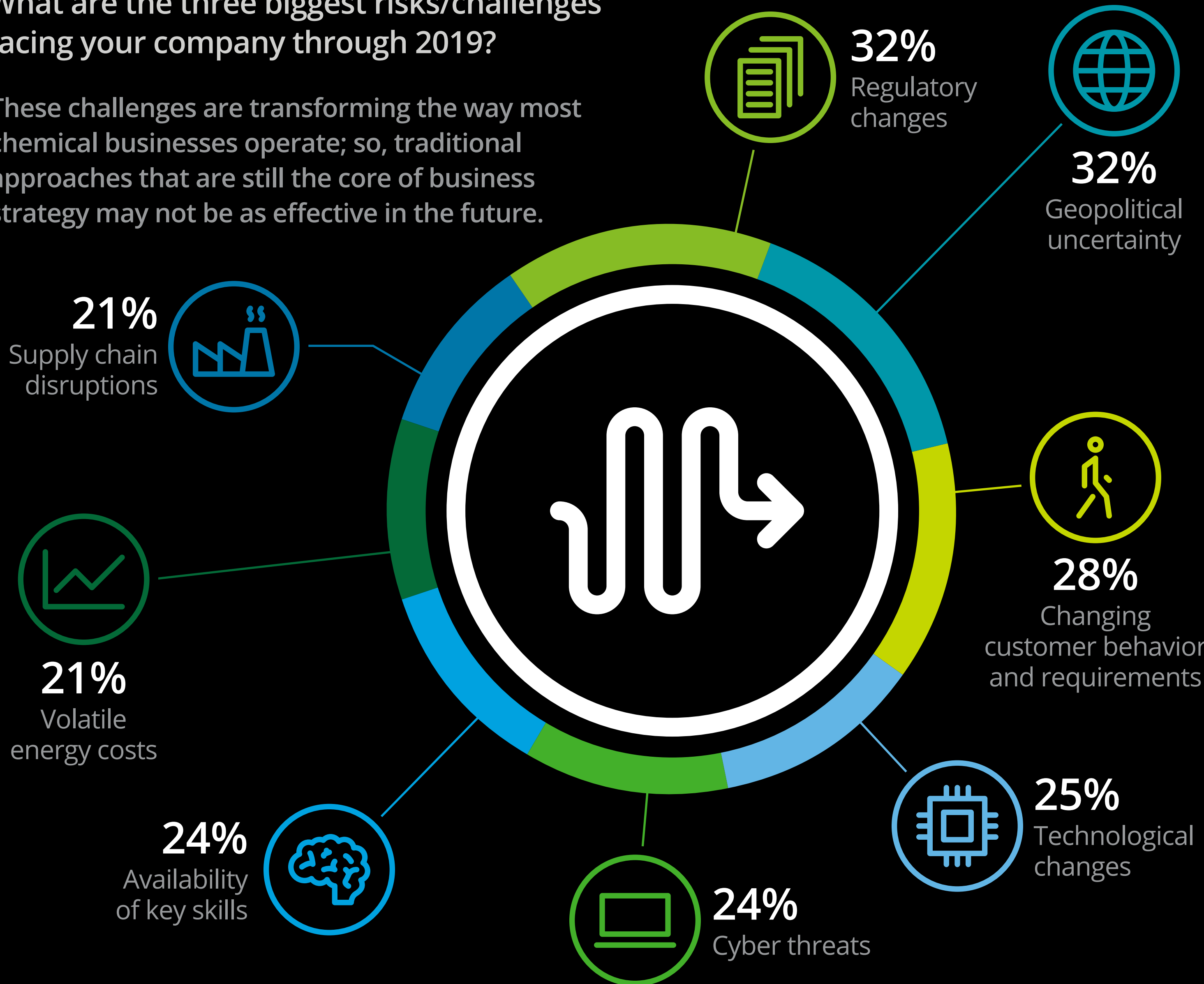
China continues to be the fastest growing chemical-producing region globally. Between 2010 and 2017, China's production grew at a compound annual growth rate of 10.3 percent—compared to only 0.3 percent in the United States.[2]

The sector lags other industries in digital maturity. On the digital maturity scale of 1 to 10, the sector is rated 5, while on the enterprise digital strategy horizon of 1 to 4 years, the sector is at 1.5 years.[3]

Sector valuations are near all-time highs, limiting M&A attractiveness.[4]

What are the three biggest risks/challenges facing your company through 2019?

These challenges are transforming the way most chemical businesses operate; so, traditional approaches that are still the core of business strategy may not be as effective in the future.



What are your company's top three strategic priorities over the next three to five years?

- Prioritize innovation and R&D
- Invest in sustainability and compliance
- Augment supply chain capabilities
- Realize higher value from advanced tech
- Manage/optimize product portfolios

Digital

Gathering momentum across all sectors, but executives are prioritizing technologies

Executives expect AI, machine learning, and analytics to have the largest impact due to their early ROI and proven role in achieving specific business objectives.

Both oil and gas and chemicals look at digital to improve productivity and profitability; digital seems to play a bigger role in accelerating innovation and transforming manufacturing in the chemicals sector.

Two-thirds of executives state that the digital maturity of the oil, gas, and chemicals industry is still relatively moderate relative to other industries.

Probable factors that explain this state of the industry[5]

- Legacy asset base with operational continuity as the primary objective
- Skills gap and inadequate boardroom sponsorship
- Data deluge, data silos, and distinct objectives of business groups
- Cybersecurity concerns and aversion to change
- Scalability and sunk and switching costs

Top three technologies with the largest impact on the oil, gas, and chemicals industry

Artificial intelligence/ machine learning/ advanced analytics

Executives are most positive about technologies where there is a consensus on their near-term ROI.

Energy storage and efficiency

Emerging technologies that bridge the existing supply-demand gap are also key.

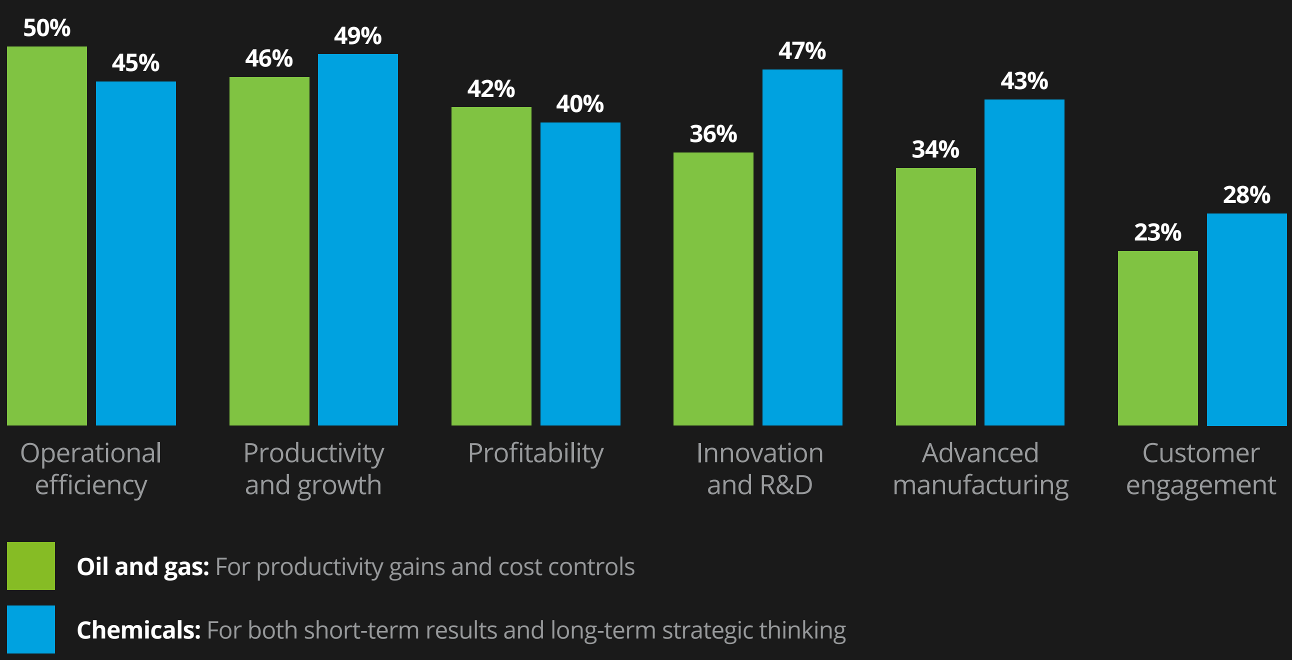
High-performance computing, cloud, IoT, robotic process automation, and digital design

Early deployment of core technologies creates opportunities to quickly realize gains.

Wearables, blockchain, and digital twin

Executives are assessing and awaiting more use-cases.

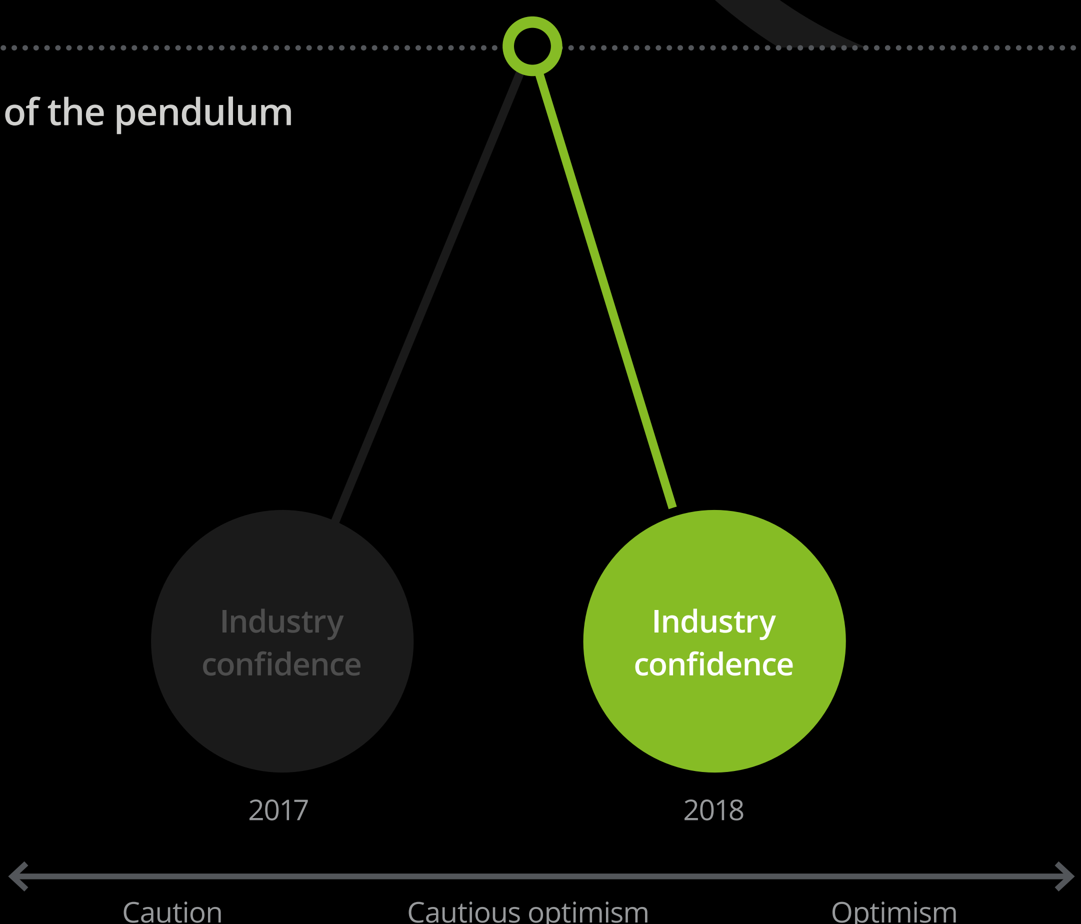
Key benefits of deploying digital



Key takeaways
A return to cautious optimism with some risk

1. The commodity price recovery and strong demand, along with a bullish economic outlook, combine to bring a more positive outlook for all sectors.
2. Downstream and chemicals are most confident; they have been less impacted by the downturn and able to continue to invest for growth.
3. Upstream (including oilfield services) and midstream are still working through their recovery strategies, but executives see brighter days ahead.
4. Geopolitical and regulatory risks are perceived as high in all sectors, tempering the more positive outlook.
5. A growing focus on sustainability in operations and environmental impacts emerges across the industry.
6. Digital technology deployment is growing in importance, but mainly in applications where rapid payoffs in cost control and productivity can be seen.

The swing of the pendulum



Endnotes

1. “Petroleum and other liquids: Products supplied,” US Energy Information Administration, September 28, 2018, https://www.eia.gov/dnav/pet/pet_cons_psup_dc_nus_mbblpd_a.htm, accessed October 8, 2018.
2. Deloitte analysis of data from American Chemistry Council, September 2018.
3. Deloitte analysis of data from Gerald C. Kane et al., “Achieving digital maturity: Adapting your company to a changing world,” *Deloitte Insights*, July 13, 2017, https://www2.deloitte.com/insights/us/en/focus/digital-maturity/digital-mindset-mit-smr-report.html, accessed October 8, 2018.
4 Deloitte analysis of M&A data extracted from Thomson Reuters, accessed September 2018.
5. Anshu Mittal, et al., ”From bytes to barrels: The digital transformation in upstream oil and gas,” *Deloitte Insights*, September 15, 2017, https://www2.deloitte.com/insights/us/en/industry/oil-and-gas/digital-transformation-upstream-oil-and-gas.html, accessed October 8, 2018.

About the survey

Deloitte, together with the research firm Harrison Group, a YouGov company, undertook the 2018 US oil, gas, and chemicals industry executive survey (the “2018 survey” or “survey”) in the summer of 2018. The survey explores the near-term outlook of oil, gas, and chemicals professionals across all sectors of the industry. The findings cover survey respondents’ expectations for the remainder of 2018 and 2019, including key areas of business and market environment, strategic priorities, and challenges and opportunities down the oil, gas, and chemicals value chain.

The charts and text included in this survey report reflect the responses of survey participants. For clarity of the findings, we have in some cases combined responses to several questions into one visual representation or textual commentary, and we have also included some references to observed market trends to provide useful context.

The survey consisted of over 325 structured interviews with industry professionals with experience ranging from five to more than fifteen years, and from all four oil, gas, and chemicals industry sectors: upstream, midstream, downstream, and chemicals.

Read survey findings from previous years

2017 oil and gas industry executive survey report

2016 oil and gas industry executive survey report

Let's talk

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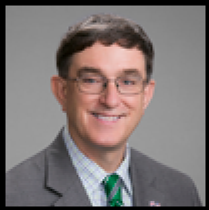

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