2021 CIO Agenda: An Oil and Gas Perspective

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Initiatives: Energy and Utilities Digital Transformation and Innovation; CIO Role Evolution

In 2020, plans for impressive business impact via digital innovation were derailed by unprecedented financial stress. However, our 2021 CIO Survey finds that CIOs are well-positioned to restore these plans as business conditions improve, and they can use this research to choose the best approaches.

Overview

Key Findings

- The disruptions of 2020 are driving fundamental changes to the oil and gas industry. In the short term, financial stress is driving a leaner and more cost-efficient and competitive industry.

- IT’s rapid and effective pandemic response has gained recognition, highlighted its business criticality and bolstered the strategic voice of IT leadership. CIO influence is increasing.

- Despite the disruptions of 2020, oil and gas CIOs expect conditions in 2021 to improve. Digital innovation funding is expected to increase and IT investment will become more strategic.

- Significant progress has been made in digital maturity. Trailing companies have closed the gap and leading oil and gas companies are scaling. A more balanced approach to digital technology investment is emerging.

Recommendations

CIOs engaged in energy and utilities digital transformation and innovation should:

- Help business executives make better plans for their company’s recovery by leveraging this report to clarify how others are responding to the disruptions of 2020.

- Develop and sustain an agenda of change to IT’s delivery models and roles in alignment with evolving business strategy by leveraging the hard-won credibility and strategic voice they have now obtained.

- Prepare for a strong rebound in digital programs and elevated expectations for rapid progress by acting now to reset IT’s leadership and structures — including improvement in their own reporting relationship.
Survey Objective

The 2021 Gartner CIO Survey was conducted to inform CIOs on how to prosper in the post-COVID-19 world.

Data Insights

This document was revised on 2 February 2021. The document you are viewing is the corrected version. For more information, see the Corrections page on gartner.com.

At the beginning of 2020, digital optimization of business performance was moving briskly. Then COVID-19 brought major market upheaval and extreme stress for almost every oil and gas company. The industry responded by cutting capital spending, shedding workers and reducing activity and operating spend. The end of 2020 has seen an end to the worst and signs of a tentative and partial recovery are emerging. Prices stabilized, rig counts edged up and discretionary cash flows started to return. In the midst of the turmoil, IT gained an unanticipated boost. The ability of CIOs to quickly establish safe and secure operations for pandemic conditions despite stressful economic circumstances earned IT significant respect. However, CIOs cannot become complacent and assume that this hard-won respect will be permanent. Now is the time to press forward with elevating IT’s influence and with IT delivery model modernization.

While most do not anticipate the deep, sharp shocks of 2020 will be repeated in 2021 or the near future, business conditions will remain highly challenging. Resuming digital transformation, which was attenuated in 2020, is a top priority as companies strive to become leaner to gain near-term strategic advantage. In addition, companies are working to rebalance their long-term capital plans to cope with a future that’s even more competitive, uncertain and disrupted by energy transition. Many companies recognize that digitally enabled capabilities, such as remote work, automated operations and AI-driven decision making, are central to future success.

The 2021 CIO Survey shows an industry ready to address major challenges and assertively resume the process of reinvention required for success over the next decade. Despite the disruptions of 2020, companies are working off firm foundations. Digital maturity is at the highest levels ever recorded in our survey. Digital investments are becoming more balanced across the range of technologies. And for unexpected reasons, most CIOs find themselves with the opportunity to advance changes to IT and their own role. Savvy CIOs will seize this chance to complete essential changes to IT and their roles that are needed to help their companies thrive.

Disruption Response Drives a Reshaping Industry

Near-Term Financial Stress Is Driving a Leaner and More Competitive Oil and Gas Industry
COVID-19 has impacted almost every company in every sector of economies around the world (see Figure 1). The Organisation for Economic Co-operation and Development (OECD) estimates global GDP will be around 5% less by the middle of 2021 than it would have been without the pandemic. For top-performing companies across all industries, the disruption has acted as a major catalyst for change (see Note 1). Top-performing respondents report that their response to COVID-19 has positioned them ahead in business performance compared to competitors. More than half (54%) perceive that they are ahead of their competitors in their ability to fund new business initiatives, and 63% perceive that they are ahead in employee productivity.

The pandemic has changed oil and gas, but differently compared to many other industries. COVID-19 affected oil and gas operations, but the subsequent massive drop in prices and faltering recovery dwarfed the day-to-day impact. A pandemic-driven global economic slowdown dramatically reduced demand for hydrocarbon products. The International Energy Agency (IEA) estimates oil demand from January to July fell by 10.5 million barrels per day compared to 2019. A partial recovery in summer...
2020 faltered, and the IEA estimates overall demand will be 8.4 mb/d lower in 2020 than 2019. Revenue and profits across all segments of the industry fell and remain comparatively low.

Many oil and gas companies responded with major cost cutting, including workforce reductions, production shutdowns and asset divestment. Companies commonly curtailed spend, focused on essential activity and redirected available investment into clearly advantaged projects. This expenditure constraint is reflected in only 16% of companies being ahead in the ability to fund new business initiatives. Only 23% are ahead in cost competitiveness, reflecting the widespread drive for cost reduction and efficiency across the industry. With almost everyone cutting costs, differentiation through cost competitiveness is more difficult.

However, some companies have been hit harder than others. Factors including portfolio type, cost of production, state of the balance sheet or stakeholder community composition vary the degree to which a company is impacted. The 2021 CIO Survey finds that 44% of oil and gas companies assess employee productivity as ahead of where it would have been had COVID-19 not become a global pandemic (not shown), and 41% say their relative business performance is ahead (see Figure 1). Some of this reflects the need to do more with less — similar activity with a reduced workforce. However, it is also a reflection of the varying degrees to which a company can mitigate the worst effects or even take advantage of new opportunities created by a shifting competitive landscape.

The economic headwinds brought by the pandemic are changing the landscape of the industry. Most companies will emerge leaner, more productive and more cost-efficient. The basis of competition in the industry is also shifting, and the range of strategic postures taken by companies is likely to diversify.

Call to Action: Companies and the industry are being reset. CIOs face very challenging conditions and hard choices for IT. Nevertheless, they should use the opportunity to reshape IT to be as adaptive as possible and seek to redesign IT the operating model for a leaner and agile future.

The Fast and Effective Pandemic Response Has Highlighted IT’s Criticality and Bolstered the Strategic Voice of IT Leadership
The impact of COVID-19 on IT leadership contrasts strongly with its effects on business performance and competitiveness (see Figure 2). Oil and gas company CIOs now have stronger relationships with the CIO (76%) and business leaders asking for more strategic things (71%). In 85% of companies, IT has increased its provisioning of technology platforms to enable the enterprise to navigate change, 4% more than in top-performing companies across all industries. Other data in the 2021 CIO Survey show very high numbers of CIOs increasing their activities around measuring and articulating the value of IT (88%) and providing the technology platforms to assist change (85%). Recognition of IT’s critical and successful role has raised executive awareness and provided a stronger voice for IT leadership.

In oil and gas, COVID-19 has strongly highlighted enterprise reliance on IT systems to ensure safe and secure operations can continue. CIOs have achieved this often in the teeth of major reductions in spend and stringent budget constraints. All told, 94% of oil and gas CIOs told us that more staff now work from home than before the pandemic. In many companies, IT systems and processes have ensured both that previously office-based workforces can continue to function and that remote asset operations can continue successfully with distributed working. This has often involved scaling up or adopting remote
working and collaboration tools in many new areas of the business. In most cases, CIOs have successfully responded to the challenge of ensuring the infrastructure, bandwidth and security necessary to achieve this. This has brought greater appreciation and recognition at the executive level, fostered a more strategic stance on demands from IT and facilitated IT culture change.

Call to Action: CIOs should use any hard-won credibility and stronger relationships to develop and sustain an agenda of change for IT that aligns it with evolving business strategy. CIOs can use their new voice and the strategic demands of the business to gain buy-in for changes to IT’s delivery models and competencies that may not previously have been recognized as needed at the executive level. CIOs have an opportunity to drive positive change in IT that they should quickly seize.

Despite the Disruptions of 2020, Oil and Gas CIOs Expect a Better 2021

Figure 3: Changes in Oil and Gas Company Revenue and IT Budget

Changes in Oil and Gas Company Revenue and IT Budget
Percentage of Respondents

<table>
<thead>
<tr>
<th>Revenue/Overall Budget/Turnover</th>
<th>IT Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase</td>
<td>44%</td>
</tr>
<tr>
<td>Stay the Same</td>
<td>28%</td>
</tr>
<tr>
<td>Decrease</td>
<td>28%</td>
</tr>
<tr>
<td>Increase</td>
<td>47%</td>
</tr>
<tr>
<td>Stay the Same</td>
<td>40%</td>
</tr>
<tr>
<td>Decrease</td>
<td>13%</td>
</tr>
</tbody>
</table>

n = 25* (Q1), 30 (Q2) oil and gas, excludes “don’t know”

Q1. By what percentage do you expect your enterprise’s revenue/overall budget/turnover to increase or decrease from 2020 to 2021?
Q2. By what percentage do you expect your enterprise’s IT budget to increase or decrease from 2020 to 2021?

Source: 2021 Gartner CIO Survey
Note: Percentage may not total 100% due to rounding.
* Small sample size; results are directional.
In 2020, most oil and gas companies reduced operating expenditures and capital budgets. IT spend and budgets were decreased in line with the reductions elsewhere across the enterprise. The majority of oil and gas companies have now adjusted to prevailing conditions and do not expect the dramatic shocks of early 2020 to recur in near-term planning horizons. Most anticipate that 2021 will consolidate a recovery of sorts — 44% of survey respondents expect their company’s revenue to increase in 2021 (see Figure 3). These companies’ attention have refocused on longer-term strategic considerations addressing competitive stance and commercial viability as digital transformation continues and the energy transition gathers pace.

On the other hand, a sizable group (28%) do expect some revenue reduction. Global economic conditions remain challenging, price recovery is fragile and the COVID-19 pandemic continues to affect demand. If prices maintain some stability and demand gradually normalizes, more shut-in wells will be brought back on stream and major producers, including members of the OPEC+ group, will be tempted to pump more and relax production restrictions. This will intensify downward pressure on prices and potentially increase volatility. Some oil and gas companies will continue to experience severe stress. These companies will maintain focus on survival with cost and business optimization critical priorities.

In 2021, IT budgets will be strongly dependent on company viability and forward projections on market conditions and the competitive landscape. However, the business value of IT has been elevated by the COVID-19 pandemic (see Digital Maturity and CIO Influence Elevate in this report). In addition, it is only five or six years since the last downturn forced major cost optimization on oil and gas IT. Cost reduction cannot be taken much further without introducing undue risk for many companies. Under these conditions, roughly equal numbers of survey respondents expect increased IT budgets in 2021 (47%) or the same level of funding (49%). Only 13% expect further decrease.

**Call to Action:** Unless their company is fighting for survival, CIOs should press for budgetary support on the basis of continued distributed working. However, any increase is likely to be modest, so even the most fortunate CIOs should anticipate considerable pressure to increase productivity. Continued cost discipline should be combined with adopting leaner more flexible delivery models to achieve this.

**Digital Innovation Funding Increases and IT Investment Becomes More Strategic**
Well over half (67%) of oil and gas CIOs expect an increase in funding of digital innovation in 2021 (see Figure 4). Additionally, 68% expect the focus of IT investment to become more strategic and 38% expect an increase in IT headcount.

These data points underscore the central contribution of digital innovation as a means to cope with disruption by delivering business capability change and improved performance. Disruption has affected companies differently, and the approach to adjusting digital innovation investment in 2020 varied widely. Some stopped their digital initiatives outright. Others cut back slightly, while a few maintained investment at previous levels or even increased it. Companies that postponed or stopped digital initiatives may expect to pick them up again in 2021. Some who maintained them will aim to continue to do so. Other 2021 CIO Survey data shows that 30% expect their level of investment to be roughly the same. Overall, digital innovation looks to be a strong area of focus for companies across the industry.
IT spend was hit hard in 2020. A common response to disruption has been to cancel or defer any discretionary spend and focus required investment around the most important outcomes for the enterprise. In the first instance, this was to ensure safe and reliable working under pandemic conditions. With that now achieved, most companies are reappraising business strategy under increased uncertainty.

Call to Action: Companies and CIOs must make every dollar count, and with heightened recognition of the essential role of IT, investments which align with strategic essentials are likely to be preferred.

**Digital Maturity and CIO Influence Elevate**

Digital Maturity Elevates as More Are Scaling and Trailing Companies Close the Gap

*Figure 5: Stage of Digital Maturity in Oil and Gas Compared to All Industries*

**Stage of Digital Maturity in Oil and Gas Compared to All Industries**

<table>
<thead>
<tr>
<th>Percentage of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oil and Gas</strong></td>
</tr>
<tr>
<td>No Digital Initiative</td>
</tr>
<tr>
<td>Ambition</td>
</tr>
<tr>
<td>Design</td>
</tr>
<tr>
<td>Deliver</td>
</tr>
<tr>
<td>Scale</td>
</tr>
<tr>
<td>Refine</td>
</tr>
</tbody>
</table>

*n = 34 (oil and gas), 1,877 (total), all answering
Q. Which of these best describes the stage of your organization’s digital initiative — i.e., your organization’s digitalization efforts?
Source: 2021 Gartner CIO Survey
735736_C

Effectively, every company in the oil and gas industry that will embrace digitalization has now done so. All told, 97% of survey respondents have some form of digital initiative, up from 89% in the 2019 CIO Survey. In the last two years, the industry has made major strides forward in increasing digital maturity
(see Figure 5). The profile of oil and gas companies is closer than it ever has been to that of all industries. The largest percentage of companies are in delivery (26%, compared with 18% two years ago) and 42% of companies are scaling and refining, compared with just 19% two years ago. A major milestone has been crossed. The gap between leading and lagging companies is closing. Those with no initiative or at the ambition stage now make up only 18% percent of the industry total, when two years ago this was 43%. The industry has made remarkable progress.

Nonetheless, the rest of the world has not stood still. Oil and gas still lags behind the total across all industries, with higher percentages at the ambition, design and delivery stages and fewer at the scaling and refining stages. More oil and gas companies are learning how to scale digital initiatives, but this is where the industry lags most conspicuously. The largest single group across all industries (30%) is scaling — ahead of oil and gas at 24%.

Oil and gas companies of all types and in all regions are succeeding in operationalizing digital innovation. More are scaling the benefits, but for well over half the industry this remains a challenge to address. Economic headwinds, IT spend reduction, workforce constraints and strategic uncertainty will combine to make the path ahead difficult and hard to navigate.

Call to Action: If they have not already done so, CIOs should shift IT’s delivery approaches to facilitate digital initiative execution. CIOs who have already aligned IT’s operating model closely with their enterprise’s digital strategy should consolidate IT’s new role by closely engaging with other technology leaders to develop strategies for scaling digital.

Oil and Gas CIOs Gain Influence and Begin the Move Away From Outdated Reporting Lines
Figure 6: CIO Reporting Lines in Oil and Gas Compared With All Industries Top Performers

CIO Reporting Lines in Oil and Gas Compared With All Industries Top Performers
Percentage of Respondents

<table>
<thead>
<tr>
<th>CIO Reporting Lines</th>
<th>Oil and Gas</th>
<th>Top Performers</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEO (Head of Organization)</td>
<td>29%</td>
<td>56%</td>
</tr>
<tr>
<td>CFO (Head of Finance)</td>
<td>35%</td>
<td>12%</td>
</tr>
<tr>
<td>COO (Head of Operations)</td>
<td>9%</td>
<td>13%</td>
</tr>
<tr>
<td>Other Reporting Relationship</td>
<td>26%</td>
<td>19%</td>
</tr>
<tr>
<td>CIOs in the ExCo</td>
<td>32%</td>
<td>75%</td>
</tr>
</tbody>
</table>

n = 34 (oil and gas), 303 (top performers), all answering
Q. To whom do you report?/To whom does your CIO report? Are you a formal member of your organization’s executive management team? Is your CIO a formal member of your organization’s executive management team?
Source: 2021 Gartner CIO Survey
735736_C

Two significant shifts in CIO reporting relationships have taken place in oil and gas since the 2019 CIO Survey. Strikingly, the number of CIOs with “other” reporting relationships (i.e., outside the CEO, CFO or COO) has plummeted from 40% to 26% today (see Figure 6). Oil and gas companies have begun the move from the outdated reporting structures of the past by consolidating reporting relationships to a smaller range of executive officers. Secondly, many more CIOs now report to their CEOs. This percentage has doubled to 29%. With increasing digital maturity, and more recently with the spotlight on IT to enable pandemic resilience, some oil and gas companies have moved toward more modern engagement of IT as a strategic business resource, elevating IT leadership.

However, there is a long way still to go. Around one in three (32%) oil and gas CIOs are formal members of their organizations’ executive management teams, and this percentage has changed little in the last two years. Compared to top performers, oil and gas companies are still significantly behind in elevating CIOs reporting. All told, 79% of top performing companies have CIOs on their executive management
teams, and 56% have CIOs report to the CEO. In oil and gas, 35% of oil and gas CIOs still report to CFOs against only 12% in top-performing companies.

The changes so far are welcome. Oil and gas companies seeking to scale digital initiatives need a responsive IT closely coupled with a digital strategy, and aligned with business drivers and enterprise goals. As oil and gas companies’ reliance on digital technologies continues to grow, savvy leaders will draw on the expertise and experience of IT leadership to ensure technology is being effectively exploited. In highly uncertain and investment-constrained times, the temptation to govern IT from a cost-optimization perspective will be strong. However, as top performers show, companies that include technology expertise at executive levels, and as part of the enterprise decision-making team, are better positioned for success.

Call to Action: Oil and gas CIOs should capitalize on any momentum for reporting line elevation, pointing to the trends in this research. Using top performers as an example and their cross-enterprise perspective, CIOs can make the case for greater involvement in enterprise executive decision making.

Technology Insights

A More Balanced Approach to Digital Technology Investment Emerges
Oil and gas companies plan additional new funding in 2021 for a broad range of digital technologies (see Figure 7). Strikingly, very few companies plan to decrease spending on any technology category, with the exception of infrastructure and data center. Cybersecurity tops the list, with 71% of companies planning to spend more. Business intelligence/data analytics and artificial intelligence (AI)/machine learning (ML) will also see increased funding for 65% and 50% of companies, respectively. In addition, 40% plan to spend more on the Internet of Things (IoT) and 35% on communications/connectivity. The drive to gain more operational intelligence and to optimize asset performance are well-established aims for oil and gas digital initiatives.

Many companies have created data acquisition architectures that include augmenting existing sensor networks with new sensors and better connectivity. The goal is to apply analytics to larger and richer datasets to improve decision making, and hence, asset operations. As digital maturity increases, companies seek to extend analytical capabilities, improving predictive capability and the ability to
simulate real asset conditions in search of cost avoidance and optimized asset performance. They also broaden the reach of analytics across historical and legacy datasets away from the asset — geological report datasets, equipment maintenance histories, refinery inspection logs being among many examples. Until recently, there has been some hesitance in seeking AI/ML solutions in this context. That hesitance has disappeared for many; the percentage of companies investing most new funding in AI/ML is double that of two years ago.

The data also reflects two other notable current industry drivers and trends — the search for greater efficiency and cloud adoption. All told, 50% of companies plan to spend more on process automation, 47% on core systems improvement and 26% on software development or upgrades (including maintenance and licensing). Facing major budgetary constraint and uncertainty over short- and longer-term planning horizons, a group of companies will focus strongly on systems efficiency and value rather than in new or expanded digital efforts. Robotic process automation (RPA) is already well-established in the industry, but mostly in back-office, financial, commercial or supply chain functions. Searching for greater business efficiency and reduced cost, many will seek to extend the benefits more widely. Some will also extend RPA into frontline operational areas. Most oil and gas companies still have a sizable legacy technology environment, and many have significant technology debt from old and difficult-to-maintain systems. A group of companies are likely to see investment in improving or upgrading these systems as a cost-effective way to gain some level of operational efficiency in the shorter term.

Finally, the percentage of companies planning increased funding for cloud solutions (38%) continues the trend of recent years toward the cloud. Contrasted with a similarly large percentage (34%), reducing spending on infrastructure and data centers is strongly consistent with a general momentum for cloud adoption across the whole range of cloud services. For large numbers of companies, the traditional industry reticence to adopt cloud solutions is a thing of the past.

Compared to previous years, the range of technologies receiving additional investment is broader and more balanced. A low base due to budget reductions in 2020 is a factor in this, but the data also suggest that greater digital maturity is also increasing confidence in benefits realization beyond investment in just analytics. More oil and gas decision makers recognize that improved decision making and business performance come from systems of technologies working together, rather than point solutions based on one or two technologies.

Call to Action: CIOs should ensure digital technology-based initiatives are closely aligned with business performance outcomes. Business outcome drivers should be used to design digital initiatives that include the appropriate range of technologies deployed in complementary ways to achieve the required goals. CIOs should seek to maintain the move beyond application of isolated technology initiatives to a more systematic and less technology-centric approach.

Adoption of Digital Technologies Become More Widespread
Figure 8: Technologies Seen as Game Changing in Oil and Gas

Technologies Seen as Game Changing in Oil and Gas
Percentage of Respondents

- Artificial Intelligence/Machine Learning: 32%
- Business Intelligence and Data Analytics: 29%
- Internet of Things: 15%
- Cloud (Including XaaS): 12%
- Digital Workplace: 12%
- Industry-Specific: 12%
- Automation (Physical, Robots): 6%
- Compute Modernization: 6%
- Mobile: 6%
- 5G: 3%
- CRM: 3%
- Customer/Citizen/User Experience: 3%
- Digital Twin: 3%
- Ecommerce and Omnichannel: 3%
- ERP: 3%
- Network/Communications Modernization: 3%

n = 34 (oil and gas), excludes “don’t know/no answer”

Q. Which technology area do you expect will be a “game changer” for your enterprise in 2021?

Source: 2021 Gartner CIO Survey

Note: Coded open-text responses. Multiple responses allowed.
Three distinct groupings of technology are visible in oil and gas company digital technology adoption plans (see Figure 8). First, essentially every oil and gas company has adopted or plans to adopt digital workplaces for home working (97%), robotic process automation (94%) and AI/ML (97%). Digital workplaces and RPA are already widespread, with around four in five having already adopted them or doing so within a year (see Figure 9). In oil and gas, digital workplaces are a response to the COVID-19 pandemic requirement for distributed working of almost the entire workforce, and as such, have been adopted rapidly. They are seen as game changing because they enable radically different working practices but are not a priority for increased future investment. On the other hand, RPA is, for the reasons discussed elsewhere in this research (see Changes in Technology Investments in this report). RPA and other process automation technologies are set to spread more widely within oil and gas companies and become pervasive in many areas of the business in the future.

The second grouping is the next wave of technologies set to become widespread. These will become commonplace, but have not yet been adopted by a majority of companies. They are:
Different drivers underlie these adoption trends. Cloud tops the list of technology receiving most new funding for 38% of companies and also features in the game-changing technology set. As oil and gas companies face greater competition and uncertainty, they are seeking to become more resilient and adaptable. Pursuit of efficiency will drive leaner business and operating practices. The flexibility of cloud solutions and their ability to simplify and quickly adjust infrastructure operations to current conditions is likely to continue to drive adoption.

Multiexperience development platforms will become more widely adopted as a result of changes in the IT operating model and the drive to operationalize digital innovation. Digital twin and edge computing adoption are part of the trend to asset operational transparency and performance optimization through data aggregation and analytics. The bandwidth or connectivity constraints inherent in remote oil and gas production facilities, or complex and already highly instrumented refineries, mean edge computing is attractive as a means to enable greater analytics capability without needing legacy architecture replacement.

The third grouping comprises two technologies that have so far been adopted only by a small minority and which will mature more slowly across the industry. Blockchain is becoming operationalized, but in a narrow range of use cases, notably in contract or payment settlement transactions. Interest remains in other use cases, but blockchain is not seen as a game-changing technology by oil and gas. Its early transformational promise looks to remain unfulfilled in the industry for the foreseeable future.

Oil and gas industry plans for augmented human technologies, on the other hand, initially seem harder to explain. Only 15% of companies have adopted these technologies or plan to do so within a year. As an asset-centric industry, oil and gas companies may be expected to seek the productivity benefits of a connected and augmented workforce. However, oil and gas has a wide range of asset types, especially in the upstream, and the cost benefit of augmenting field workers on some types of asset may not be compelling. Particularly when, for technologies such as augmented reality, hardware options remain limited and only slowly maturing. In addition, with bandwidth and spending constraints, companies may prioritize connecting assets over connecting people. Nevertheless, this data suggests oil and gas companies may be neglecting this technology type.

**Call to Action:** While the overall pattern of investment and adoption of digital technologies has become more balanced in the industry, analytics still stands out as the top area of focus. CIOs should ensure initiatives seek to access the potential value of the widest set of appropriate digital technologies. They
should critically review plans for human augmentation from a standpoint that adoption will be beneficial.

**Methodology**

The 2021 Gartner CIO Survey was conducted online from 14 July 2020 through 14 August 2020 among Gartner Executive Programs members and other CIOs. Qualified respondents are each the most senior IT leader (CIO) for their overall organization or a part of their organization (for example, a business unit or region). The total sample is 1,877, with representation from all geographies and industry sectors (public and private), including 34 from oil and gas. The survey was developed collaboratively by a team of Gartner analysts, and was reviewed, tested and administered by Gartner's Research Data and Analytics team. Results do not represent “global” findings or the market as a whole, but reflect sentiment of the respondents and companies surveyed.

View the full results from our Oil and Gas respondents

**Evidence**


**Note 1: Top, Typical and Trailing Performers**

This report segments 2021 Gartner CIO Survey respondents based on self-reported IT and enterprise performance. This segmentation allows a group of digital leaders to be identified as a best practices group to contrast the performance of others.

**Top performers** — Respondents whose:

- Relative business performance compared with competitors is ahead of where it would have been had COVID-19 not become a global pandemic.
- Organization’s digital initiative is in the scale or refine stages (the two top categories).
- Organization has already planned and implemented a new normal (post-COVID-19) strategy.

**Typical performers** — Respondents whose:

- Cohort performed too well to be included in trailing performers, yet not well enough to be included in top performers.

**Trailing performers** — Respondents whose:
Relative business performance compared with competitors is behind or the same as where it would have been had COVID-19 not become a global pandemic.

Organization has no digital initiative or is in the ambition stage (the two bottom categories).

Organization has not already planned and implemented a new normal (post-COVID-19) strategy.

Document Revision History

2019 CIO Agenda: An Oil and Gas Perspective - 29 March 2019
2018 CIO Agenda: An Oil and Gas Perspective - 9 March 2018
2017 CIO Agenda: An Oil and Gas Perspective - 9 February 2017

Recommended by the Authors

Getting Back on Track in Oil and Gas
Top 10 Trends That Affect Oil and Gas CIOs in 2020
12 Cost Management Milestones for Oil and Gas CIOs During COVID-19 Response, Recovery and Renewal
AI Operationalization in Energy and Utilities
Use Digital Factories to Drive Deep Optimization Across the Enterprise

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