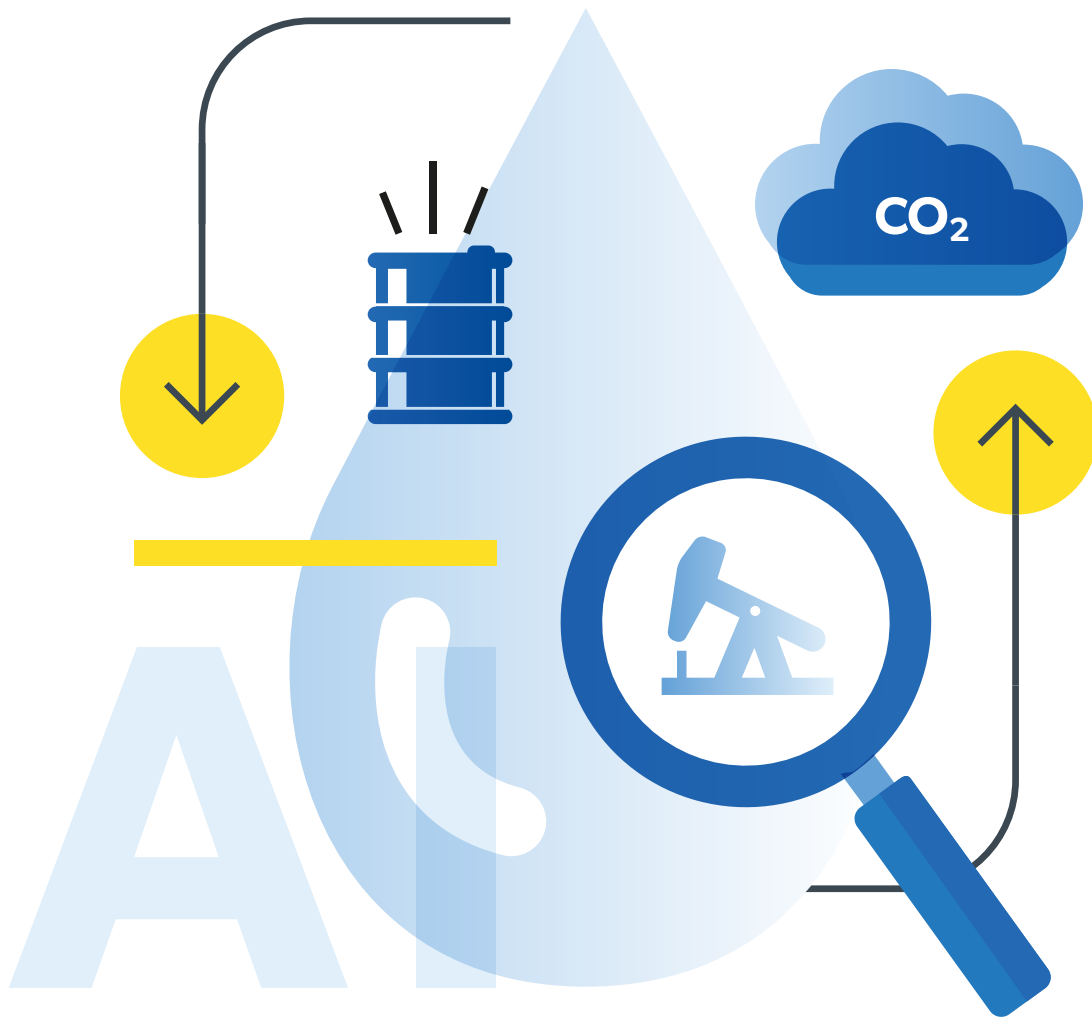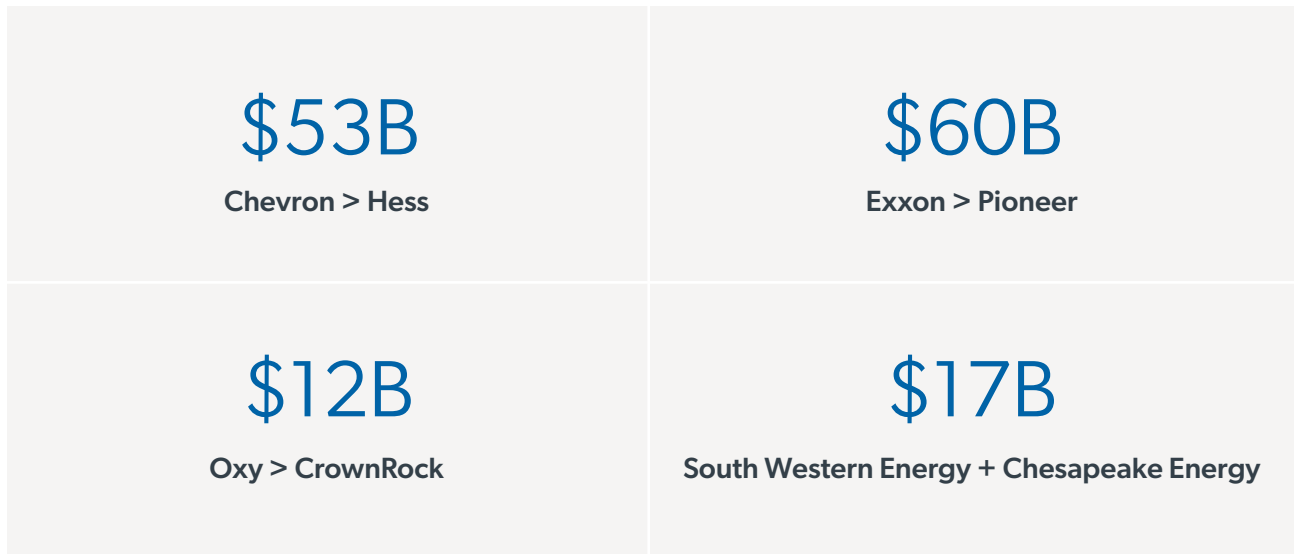# Oil and Gas Industry Trends 2024

Embracing technology to increase production, improve efficiencies, and reduce emissions

CapTech®

The oil and gas industry has always been subject to dynamic shifts and evolving trends with supply and cost variables, geopolitical climate shifts, and persistent policy changes. In 2024, several key trends are expected to significantly impact the industry, including the influence of renewable energy, digital transformation, sustainability initiatives, and continued competition for limited resources.

M&A deals in the
Permian Basin exceeded

$100B+

in 2023

$53B	$60B
Chevron > Hess	**Exxon > Pioneer**
$12B	$17B
Oxy > CrownRock	**South Western Energy + Chesapeake Energy**

In 2023, the industry experienced a wave of mergers and acquisitions (M&A) as many companies sought to enter the Permian Basin and expand into renewables. M&A deals in the Permian Basin exceeded $100 billion in 2023, the largest being Chevron's acquisition of Hess for $53 billion, Exxon's acquisition of Pioneer for $60 billion, and Oxy's acquisition of CrownRock for $12 billion at the end of the year.[i] 2024 started with news of a merger between SouthWestern Energy and Chesapeake Energy for $7.4 billion in stock, creating a $17 billion company.[ii] While there will be room for further deals in 2024, the number of such transactions is expected to decline, given that many major players have already made significant investments.

The industry is well positioned for growth in 2024, with several factors driving demand:

A Recovering Economy

The global economy's ongoing recovery from the effects of the COVID-19 pandemic is expected to fuel increased demand for oil and gas. As economic activities rebound, energy consumption, particularly in transportation, manufacturing, and construction sectors, is likely to surge.

A Growing Industry

Expanding industrial activities, especially in emerging markets, will increase the demand for oil and gas. Industries such as petrochemicals, plastics, and manufacturing heavily rely on hydrocarbons as feedstock and energy sources, bolstering demand.

The Surge in Petrochemicals

Oil demand is closely linked to the transportation sector, including road, air, and maritime transport. While we expect travel to continue to normalize following a surge post-pandemic, there will be an increase in the consumption of petroleum-based fuels driven by the demand for petrochemicals. According to the International Energy Agency, this will account for over a third of the growth in oil demand by 2030 and nearly half by 2050, ahead of trucks, aviation, and shipping.[iii]

Meeting Emerging Needs

Growing populations and rising standards of living in developing economies will fuel increased energy consumption, driving demand for oil and gas to meet the needs of expanding urban centers, industries, and infrastructure development. Without outside investment, these developing economies cannot invest in clean energy and will continue to rely on traditional sources to keep up with growing demand.

Heading into 2024, we see six industry trends that will require technology-focused considerations by organizations. By staying adaptable and forward-thinking, industry players can seize the opportunities presented by industry trends and position themselves for long-term success in a rapidly evolving global energy market.

01

Embracing Sustainability

The shift towards renewable energy sources remains a significant trend in the oil and gas industry. With growing concerns about climate change and environmental impact, companies will focus on diversifying energy portfolios, investing in low-carbon technologies, and exploring carbon capture, utilization, and storage (CCUS) initiatives. This transition will likely drive research and innovation in renewable energy storage and grid integration. Companies will qualify for tax credits, marking a pivotal moment in their transition to sustainable energy sources.

Moreover, government spending, including the Infrastructure Investment and Jobs Act (IIJA) and Inflation Reduction Act (IRA), will further incentivize companies to continue sustainability efforts by providing significant financial benefits. The IIJA reduces risk on investment while the IRA provides credits for transitioning from fossil fuels and facilitating the transition to carbon neutrality of scope 1 and 2 emissions.

The IRA also allocates $1 billion for financial and technical support to mitigate methane emissions and institute a waste emissions charge, marking the nation's inaugural tax on greenhouse gas emissions.

METRIC TON LEVY

2024
$900

2026
$1500

This levy commences at $900 per metric ton in 2024 and is slated to rise to $1,500 by 2026 .[iv]

Successful oil and gas companies will take advantage of technologies like Industrial Internet of Things (IIoT) to ensure compliance with evolving regulations and invest in better ways to measure and report on emissions in near real-time. This investment will allow organizations to reap the financial benefits of recently passed legislation, remain flexible to support future changing regulations, and avoid the cost of increasing penalties. To maximize value realized from new solutions like IIoT, companies must think holistically about the data generated by these devices and ensure a strategy is in place to integrate this data with other sources throughout the organization. Understanding events in the field requires contextualization of IIoT data generated, which can only be achieved when this data is paired with other information sources.

02

Driving Digital Transformation and Automation

Digital transformation will continue to revolutionize the oil and gas industry in 2024, with advanced technologies such as artificial intelligence (AI), machine learning (ML), and IIoT playing a crucial role in optimizing operations, improving safety, and enhancing efficiency. Oil and gas companies will continue to seek ways to create value and insights from their data, and successful companies will break down data silos, update legacy systems, and, post-acquisition, integrate platforms allowing users to gain access to their data to provide a holistic view of their performance measures. Additionally, a rise in automation will streamline processes, reduce costs, and enable real-time data-driven decision-making, leading to increased productivity across the value chain.

Implementing robust data analytics platforms leveraging AI and ML will be pivotal to processing large amounts of data to generate actionable insights, optimize operations, and predict maintenance needs — ultimately enhancing worker efficiency and safety. Cloud adoption and near real-time data integrations from the field remain top priorities for companies looking to improve their performance and increase operational efficiencies. While data access and availability are paramount to success, with massive volumes of data, costs can quickly add up. Companies can keep costs in line through data storage optimization, tiering, data compression, compute auto-scaling, and continuous monitoring.
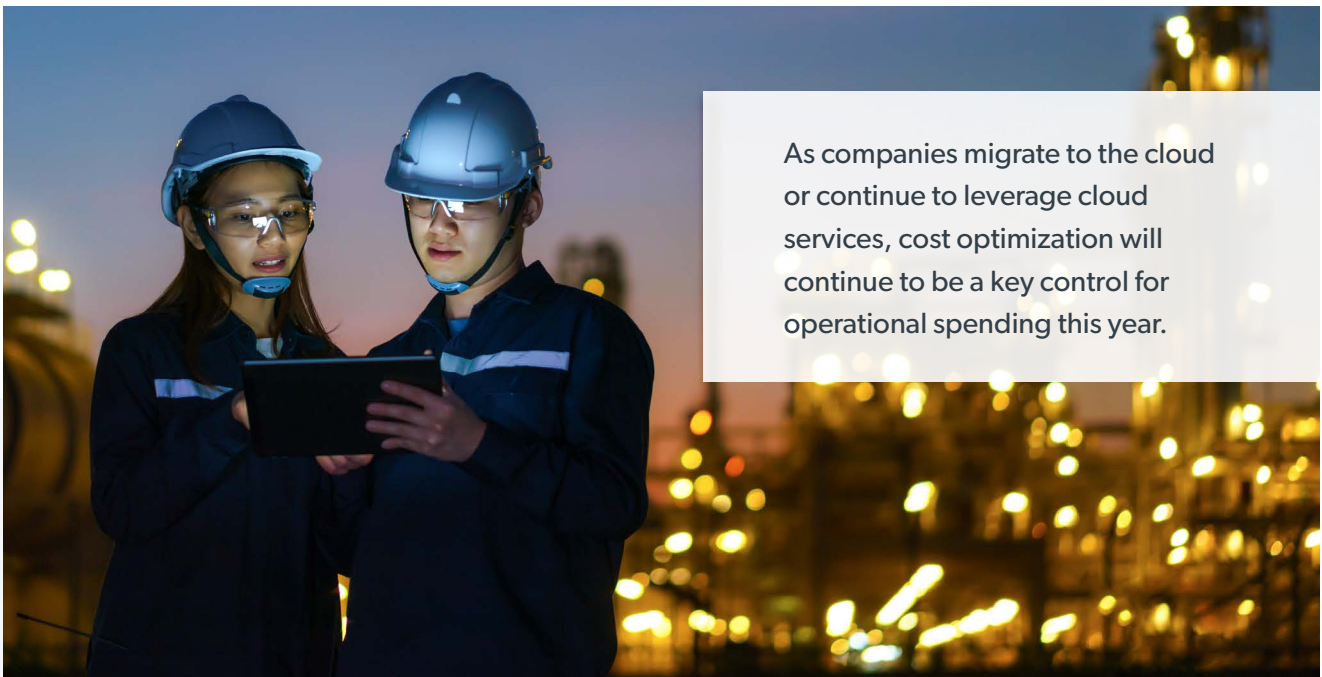
As companies migrate to the cloud or continue to leverage cloud services, cost optimization will continue to be a key control for operational spending this year.

03

Adapting to Geopolitical and Supply Chain Dynamics

Resiliency and adaptability will be essential for the oil and gas industry in 2024 amidst increasing volatility in global markets and geopolitical challenges. Shifts in political alliances, trade agreements, and regional conflicts can significantly influence oil prices and supply. Ongoing conflicts in the Middle East and the recent attacks in the Red Sea are examples of early 2024 geopolitical risks that continue to impact the industry. To mitigate this, companies will focus on building robust supply chains, implementing risk management strategies, and exploring new market opportunities. Flexibility and agility will be key to navigating uncertainties and maintaining a competitive edge.

The increasing complexity of supply chains and a need for efficiency continue to drive automation and predictive analytics. Automation streamlines various processes, such as inventory management, order processing, and logistics — reducing manual errors and accelerating the pace of operations.

By leveraging historical and real-time data, predictive analytics can forecast demand fluctuations, allowing companies to adjust their operations, inventory, and production schedules accordingly. This data is vital for managing capacity and enabling proactive decision-making to avoid overproduction and underproduction.

With the help of predictive analytics, supply chains can anticipate demand patterns, identify potential disruptions, and optimize inventory levels.

Successful companies will use advanced simulation and scenario planning tools to evaluate the risks and ROI of initiatives. These tools will enable companies to assess different risk management strategies and optimize their response to various geopolitical and market scenarios. This output will help build robust supply chains and identify alternative sourcing options to mitigate potential disruptions. Adopting digital technologies such as cloud computing and advanced communication tools will enhance collaboration and information sharing across the organization, facilitating quick decision-making and enabling rapid adjustments to changing market conditions.

04

Driving Responsibility in Emerging Markets

Emerging economies, particularly in regions like Asia and Africa, will continue to drive energy demand as they grow, creating a greater need for oil and gas resources to support industrialization and infrastructure development. Companies will focus on expanding their presence in these markets, supporting transportation and plastics demand, while improving sustainable and responsible resource extraction.

The integration of renewable energy, digitalization, decarbonization efforts, resilience-building, and sustainability initiatives will shape this expansion and determine the sector's future direction. Embracing these trends is vital in driving the innovation and operational excellence necessary to scale a sustainable and resilient energy landscape.

geological and geospatial data to identify potential oil and gas reserves more efficiently and accurately. Advanced analytics, including ML algorithms, can enhance predictive modeling for exploration and extraction, aiding in sustainable resource development. Decarbonization efforts will also take center stage, with companies investing in technologies to reduce carbon emissions and minimize environmental impact. This reduction might include adopting carbon capture and storage (CCS) technologies and implementing more efficient and cleaner production processes.
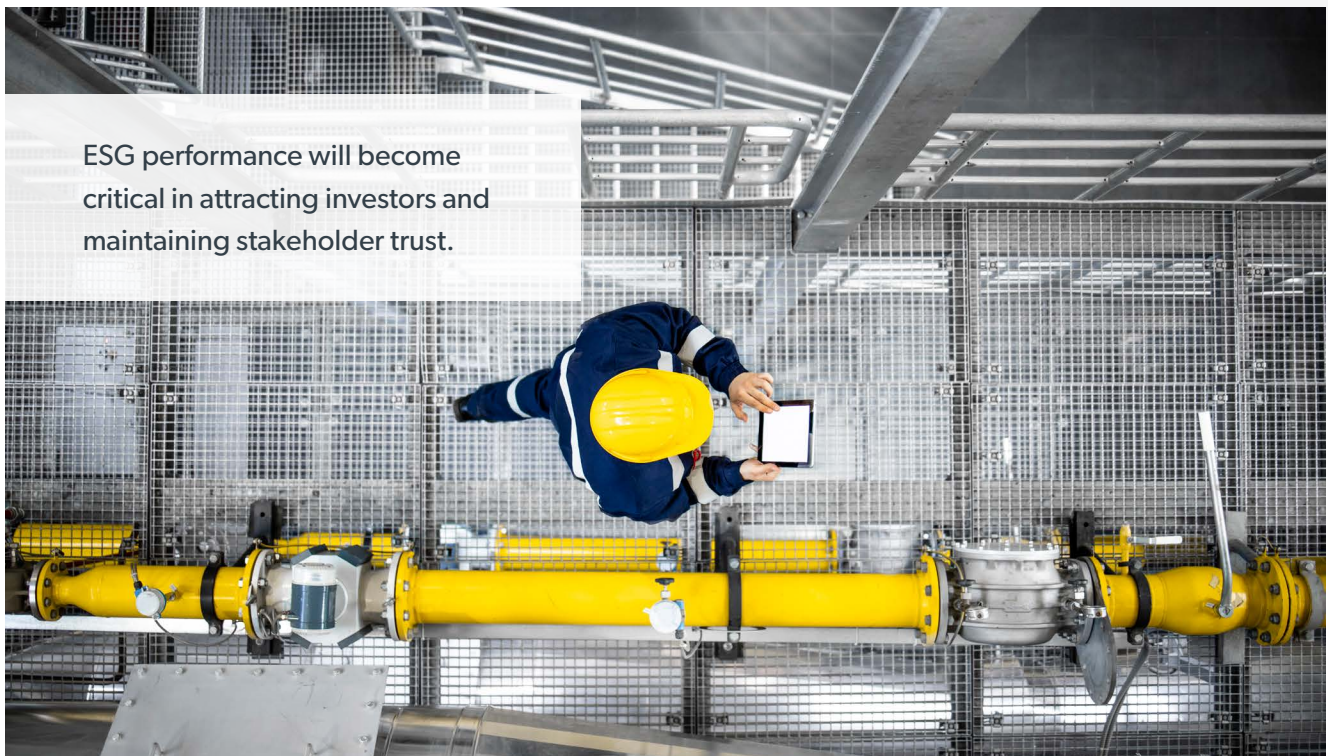
Companies that proactively integrate these initiatives into their strategies will be better positioned to navigate the evolving energy landscape while meeting the growing demand from emerging economies in a responsible manner.

> **Successful companies will continue to invest in innovation through renewable energy solutions and advanced technology in the field, which will require new technology solutions and integrations.**

Leveraging digitization and IIoT can improve operations, extraction, and distribution to support demand. Cloud-based data analytics platforms can help energy companies analyze

05

Focusing on Emission Reduction and ESG Initiatives

Emissions reduction and Environmental, Social, and Governance (ESG) considerations will gain prominence in 2024. Oil and gas companies will intensify their efforts to reduce emissions, enhance community engagement, and prioritize worker safety. Safety remains a paramount focus within the industry, with an increased emphasis on leveraging advanced technologies such as drones, sensors, and data analytics to improve operational safety, monitor infrastructure integrity, and mitigate risks. Furthermore, there is a growing emphasis on workforce safety through enhanced training, the adoption of automation, and the use of virtual reality and robotics for remote simulations and safety drills.

Supplementing safety initiatives with IIoT data and ML enables companies to mitigate risks to their employees, reduce costs, and improve morale. Using data already collected through various sources and applying advanced analytics and ML can highlight opportunities to update SOPs and adjust plans to effectively reduce risks. Automation and robotics will streamline processes, reduce costs, and improve safety by minimizing human intervention in hazardous environments. Companies will continue to invest in emissions reduction and offset risks of investment through such tools as the IIJA.

ESG performance will become critical in attracting investors and maintaining stakeholder trust.

Realizing the Value of Last Year's Transactions

While the oil and gas industry will continue to experience deal flow and strategic partnership activity in 2024, this year will also see a focus on realizing the synergies and value contemplated when major transactions were executed in 2023. Successful companies will rapidly move to implement the changes required to achieve the financial and operational efficiencies underpinning their go-forward operating model. Speed to realization of intended value will be critical to meet shareholder expectations and ensure the organization is prepared to take advantage of future deal opportunities when they arise.

Master Data Management (MDM) will play a crucial role by defining processes to manage critical business data to ensure uniformity, accuracy, and stewardship across the organization. MDM is an essential first step in integrating data from different entities involved in major transactions, ensuring consistency and reliability in the information used to drive operational and financial decisions.

By implementing robust MDM and data governance practices, companies can effectively consolidate and harmonize data from various systems, enabling a unified view of the organization's assets, customers, and operations. This, in turn, facilitates the identification and realization of synergies, streamlines processes, and supports effective decision-making.
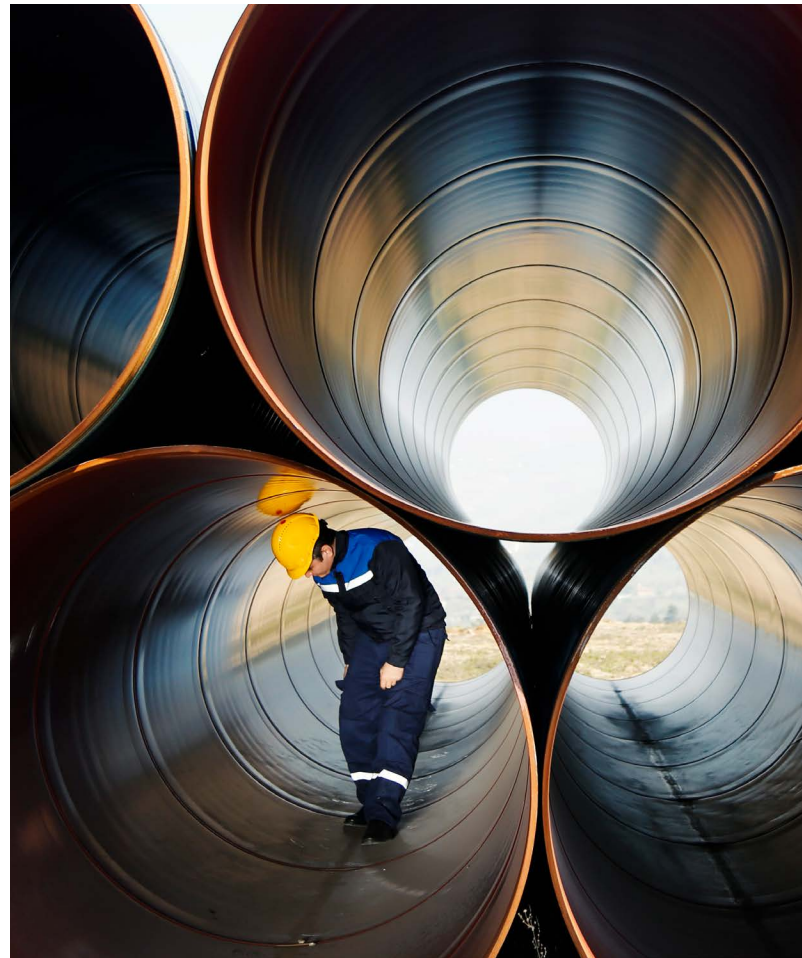
Overall, the rapid and effective implementation of MDM will be instrumental in achieving the anticipated value and operational efficiencies resulting from major transactions. It will enable companies to swiftly align their operations, optimize resources, and position themselves to capitalize on future deal opportunities, thereby meeting shareholder expectations and driving sustained success in the evolving landscape of the oil and gas industry.

Technology Can Help Build a Resilient Energy Future

The oil and gas industry is poised for a transformative year. While sustainability goals are driving a major wave of innovation in clean technologies and production processes, geopolitical volatility and emerging energy markets are creating a perfect storm of risk and opportunity, demanding agility, adaptability, and a more resilient global energy system. Disciplines like MDM and Cloud provide a solid foundation and create a shared ecosystem of data from which powerful insights can be derived — providing improvements in efficiency and decision-making.

With increasing layers of complexity, limited resources, and increasing competition, companies will need to leverage technologies like AI, IIoT, and ML to expand industrial activities, reduce emissions, and mitigate safety risks.

Despite the complex interplay of sustainability demands, global market instability, and external forces on the industry, 2024 is a pivotal time to accelerate innovation by embracing technology to build a more resilient energy future.

[i]Permian Basin deals exceeded $100 billion in 2023, " Reuters, December 12, 2023. https://www.reuters.com/markets/deals/ma-deals-permian-basin-exceeds-100-billion-2023-woodmac-2023-12-12/

[ii]Chesapeake, Southwestern Energy agree to $7.4 billion merger, " Nasdaq, January 17, 2024. https://www.nasdaq.com/articles/chesapeake-southwestern-energy-agree-to-$7.4-billion-merger

[iii]Demand for petrochemicals will drive growth in oil demand, " IEA, November, 2017. https://www.iea.org/reports/world-energy-outlook-2017

[iv]IRA levy will rise to $1,500 by 2026," CRS Reports, August 29, 2022. https://crsreports.congress.gov/product/pdf/R/R47206

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