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SUSTAINABILITY

Collaboration and Innovative Tech Enables the Oil & Gas Sector to Optimize Outcomes

by Rebekah Eggers

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Collaboration and investments will be key to sustainable development goals.

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Strategic Partnerships

Collaboration and SDG

Strategic partnerships between oil and gas companies, business partner ecosystems, institutions, and governments are essential for integrating sustainability into core business strategies and aiding in achieving SDGs, while enhancing long-term business resilience and securing social license to operate **(1)**.

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The inherent challenges of the industry, such as environmental impacts and social equity, necessitate a collaborative approach to foster inclusive economic growth and sustainable resource management. Governments and coalitions play a crucial role in these partnerships, providing the regulatory frameworks and support needed to drive significant changes. For instance, formal partnership agreements often detail the duties and intended results, leveraging the long-standing relationships companies have with various stakeholders **(1)**.

Case Studies

"People Positive" Framework

The "People Positive" framework by Ørsted exemplifies how companies can effectively contribute to SDGs through strategic partnerships. This initiative focuses on stakeholder engagement and cross-industry collaboration to ensure that the social impacts of renewable energy projects are positive. By emphasizing Affordable and Clean Energy (SDG 7) and Climate Action (SDG 13), Ørsted's approach not only supports sustainability but also

promotes universal access to energy and proactive climate change measures **(1)**. UC Berkeley is collaborating with Ørsted to establish a standardized industry framework for broader adoption **(2)**.

IPIECA-UNDP-IFC Partnership

Another notable example instrumental in aligning the industry with SDGs is the partnership (SDG 17) between IPIECA, the UNDP, and the IFC. This collaboration has produced significant outputs like the preparation of reports and case studies that showcase efforts to address the SDGs, enhancing the industry's contribution to sustainable development. The partnership effectively demonstrates how integrating SDGs into business operations can lead to substantial environmental and social benefits **(1)**.

Interoperability at ExxonMobil

ExxonMobil established a modern technology foundation to share information seamlessly and securely on connected platforms among engineers, geoscientists, and researchers who determine how and where to extract oil and gas. Standardization using modern technologies, data governance, and interoperability enable ideas to be easily shared (SDG 9) electronically eliminating the time consuming and complicated steps previously necessary to share proofs of concepts **(3)**, **(4)**.

Digital Technologies and AI

Impact

Digital technologies are reshaping decision-making processes within the sector by providing tools that enhance data analysis and strategic planning. Advanced analytics and data visualization tools are crucial for optimizing complex processes and identifying inefficiencies, enabling companies to respond effectively to market volatility and operational challenges. These technologies facilitate a deeper understanding of

operational data, leading to more informed and quicker decision-making, essential for efficiency, safety, environmental sustainability, and maintaining competitiveness in a rapidly evolving industry **(5)**.

The oil and gas industry utilizes digital technologies and AI across various segments of the industry, from upstream to downstream operations. For example, upstream companies are saving more than $5 per barrel of oil equivalent (BOE) with tech-infused exploration and drilling, end-to-end well and reservoir management, and asset performance maintenance. For downstream, reliability centered maintenance, supply chain digitization, and customer excellence are preserving more than $1 per barrel, while boosting asset availability and increasing profitability. Additionally, AI technologies optimize energy use and production levels in real-time, boosting productivity and minimizing environmental impact by reducing waste **(5), (6)**.

Generative AI, focusing on creating new content from multiple data sources, promises incremental value across industries. Energy sector senior leadership expect 11% more from Generative AI than all other industries with 63% of energy industry CEOs expecting to realize value from Generative AI and Automation in the next three years **(7)**.

Examples

Woodside Energy

Woodside Energy is optimizing the human-technology partnership by leveraging AI and automation to build the safest, most efficient energy pipeline and work towards a goal of decreasing operational expenditures by 30% **(8)**.

The Kuwait Oil Company

The Kuwait Oil Company was on a mission to connect everything for maximum operational efficiency. KOC improved its production targets from upstream operations by automating processes and workflows, reskilling (SDG 8) multiple resources to focus on

exploration and production **(9)**.

Chevron

Chevron achieved robust capabilities in program and portfolio management practices to support their SAFe implementation and provide a complete, connected understanding of technology spend and value (SDG 12). Chevron intelligently structures vast amounts of technology-spend and enterprise-operational data to deliver actionable insights that business, finance, and technology leaders (SDG 9) can use to work better together **(10).**

Conclusion

Summary

While oil and gas companies have traditionally been viewed as major contributors to environmental degradation, strategic partnerships with governments and the integration of digital technologies, AI and modern technology foundations are transforming these companies into leaders of the clean energy transition. This transformation is not only pivotal for environmental sustainability but also crucial for the long-term profitability and social acceptance of these companies in a rapidly evolving global energy landscape. Yield, energy, and throughput (YET) optimization techniques in production and refining operations promise reductions scope 1 and scope 2 carbon emissions by around 20 percent and are incremental to net-present-value **(6)**.

Through collaboration and leveraging innovative technologies, the sector is poised to meet the escalating global environmental and social expectations, effectively balancing profitability with the imperative to uphold and promote sustainable practices. Additionally, fostering a culture of innovation and continuous improvement will be crucial for attracting and retaining talent and promoting productive employment.

References

(1): **Mapping the oil and gas industry to the Sustainable Development Goals ...**

(2): **Orsted and UC Berkeley**

(3): **ExxonMobil Speeds Information Sharing**

(4): **Latest Data Subsystem Platform**

(5): **AI Drives Transformation of Oil and Gas Operations - JPT**

(6): **Technology transformation for oil and gas companies**

(7): **Generative AI for the Energy Industry**

(8): **Woodside Energy Speeds Transformation**

(9): **Kuwait Oil Company “connecting everything”**

(10): **Portfolio Management Practices for Chevron**

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