# AI In Oil And Gas - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

Market Report | 2025-04-28 | 130 pages | Mordor Intelligence

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**Report description:**

The AI In Oil And Gas Market size is estimated at USD 3.54 billion in 2025, and is expected to reach USD 6.40 billion by 2030, at a CAGR of 12.61% during the forecast period (2025-2030).

The oil and gas industry is witnessing a surge in AI applications, spanning reservoir analysis and drilling optimization to safety monitoring and emissions reduction. This AI wave is set to reshape exploration, production, and environmental sustainability, propelling market growth.

Artificial intelligence, particularly in the form of predictive maintenance, is reshaping asset management in the oil and gas industry. This trend is poised to be a key driver of market growth by bolstering reliability and mitigating operational risks.

In October 2023, C3 AI, a leading Enterprise AI software firm, announced a collaboration with Shell, integrating predictive maintenance software into the C3 AI reliability application. This strategic partnership underscored the increased adoption of AI platforms in the oil and gas industry, underpinning market expansion.

AI technologies promise heightened operational efficiency in oil and gas, enabling companies to identify patterns, automate decisions, and analyze vast datasets from sensors and machinery. Equipped with AI, predictive maintenance solutions can preempt equipment breakdowns, allowing businesses to plan maintenance, minimize downtime, and optimize asset utilization.

The market is primarily driven by the oil and gas industry's need to lower production costs. Faced with volatile oil prices, companies are turning to AI to streamline operations, enhance efficiency, and cut costs.

As AI adoption accelerates, especially in the oil and gas industry, companies are leveraging its capabilities to extract deeper insights from their data. By optimizing their operations, these firms are not only cutting costs but also boosting productivity.

Russia faced an energy crisis following the 80 billion cubic meters (BCM) cut in pipeline gas supplies to Europe after its Ukraine invasion. This, in turn, hampered the operations of midstream and downstream players in the oil and gas industry, stalling market growth.

The European Union's push for energy self-sufficiency through renewable sources poses a challenge to the traditional oil and gas industry. This shift indirectly curtails the scope for AI solutions in the region's oil and gas industry, impacting market growth.

The global oil and gas industry, already navigating market dynamics, faced a severe setback during the COVID-19 pandemic. The ensuing global shutdown and reduced economic activities led to a significant drop in oil demand, plummeting international crude oil prices. Consequently, production and exploration activities in the industry were hampered, affecting the adoption of AI technologies.

AI In Oil And Gas Market Trends

The Upstream Operations Segment is Expected to Witness Significant Growth

- Upstream operations in the oil and gas industry encompass exploration activities, from geological surveys and land acquisition to onshore and offshore drilling. A key challenge in this phase is the search for new oil reserves and seeps by geologists and exploration teams.
- The integration of AI in oil and gas, particularly in exploration, is gaining traction. Advanced AI algorithms can process vast datasets, including seismic surveys, geological formations, well logs, and satellite imagery. This enables precise identification of potential oil reservoirs, both on land and in the ocean.
- ExxonMobil, a prominent player, exemplifies this trend by harnessing AI for oil exploration. By deploying AI models, the company can analyze real-time seismic data and historical drilling records, enhancing its ability to detect natural oil seeps in oceanic settings.
- Major global oil and gas corporations are increasingly turning to AI to bolster the efficiency of their exploration endeavors. By leveraging AI tools to digitize records and automate geological data analysis, these companies can swiftly identify issues like pipeline corrosion or heightened equipment wear.
- Huawei, for instance, developed a specialized cloud for oil and gas exploration. By harnessing AI and Big Data, the company reanalyzed a massive 10 PB of historical exploration data for a customer, extracting new value and revolutionizing seismic data collection.
- Advancements in cloud-based analytics and the rise of digital twins are reshaping predictive maintenance in the oil and gas industry. Notably, industry giants like BP, ExxonMobil, and Shell are utilizing predictive maintenance to assess equipment conditions and anticipate maintenance needs.
- As per OPEC's April 2024 data, the demand for crude oil is on a consistent growth trajectory, reflecting the escalating production needs in the oil and gas industry, which bodes well for the market's future.
- With a heightened focus on environmentally friendly practices, the oil and gas industry is increasingly turning to AI for early hazard detection. By analyzing aerial photos, satellite imagery, and remote sensing data, companies can swiftly identify oil spills and pipeline leaks, curbing environmental damage and limiting pollutant spread. These factors collectively underpin the market's projected growth.

North America Holds the Largest Market Share

- North America is a pivotal hub for AI, particularly in terms of its robust oil and gas industry. The region's economic prowess, coupled with widespread AI adoption among oilfield entities, a rich landscape of top AI suppliers, and substantial joint investments from both public and private sectors, propels the demand for AI in oil and gas. With oil and gas production and investments increasing, the market's potential is expected to expand further.
- The United States is poised to lead North America's AI in oil and gas market, owing to its expansive oil and gas industry and a notable uptick in AI integration. According to data from the US EIA, the United States outpaced all other nations in crude oil production for six consecutive years. In 2023, the United States hit a record high, producing an average of 12.9 million barrels of crude oil daily, surpassing the previous record of 12.3 million set in 2019. This abundant supply lowered energy costs and catalyzed private investments, further bolstering the nation's economic landscape.
- The role of AI in the oil and gas value chain is profound, especially in an industry marked by dynamic energy production. Ai has reshaped companies' operations, ranging from reservoir valuation to tailoring drilling strategies and assessing well risks. Given North America's advanced infrastructure, it is expected to lead the global market. Moreover, the surge in AI investments among start-ups is set to amplify market growth in the near future.
- The infusion of AI in oil and gas exploration has ushered in a new era of precision and efficiency, fundamentally altering how companies locate and extract hydrocarbon resources. Consequently, as investments in oil exploration activities rise, the utilization of AI in the industry also increases.
- Major US players like ExxonMobil and Occidental Petroleum are making use of this AI wave. They are channeling billions into diverse oil exploration ventures and consolidating their positions through substantial mergers and acquisitions.
- In March 2024, an advanced AI program developed by Corva LLC took the reins at a remote Nabors Industries Ltd rig. Leveraging satellite communication, this AI made split-second decisions, enhancing drilling speed by at least 30% and potentially reducing human operator commands by 5,000. The primary aim behind this technology is to cut costs and maximize oil extraction. With such bold strides in AI adoption, especially in oil exploration, US companies are poised to reshape the market landscape.

AI In Oil And Gas Industry Overview

The AI in oil and gas market is fragmented, featuring a mix of global giants and numerous small and medium-sized enterprises. Noteworthy players include IBM Corporation, Fugenx Technologies, C3.AI Inc., Microsoft Corporation, and Intel Corporation. These companies are increasingly turning to strategic collaborations and acquisitions to bolster their product portfolios and secure a competitive edge.

January 2023: C3 AI, specializing in AI application software, unveiled its C3 Generative AI Product Suite, debuting with the C3 Generative AI for Enterprise Search. This suite boasts advanced transformer models, streamlining integration across diverse value chains. The introduction of C3 Generative AI is poised to boost transformative efforts in various industries, including oil and gas.

August 2023: Wintershall Dea, a leading European player in natural gas and oil, pivoting toward a focus on gas and carbon management, joined hands with IBM Consulting to establish an AI Center of Competence (CoC). This strategic alliance, with Microsoft as a shared technology partner, is geared toward driving forward AI applications that elevate energy production.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

**Table of Contents:**

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