Predictive maintenance projects in the oil and gas industry

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The Abu Dhabi National Oil Company (ADNOC) selected Honeywell's asset monitoring and predictive analytics solution to drive improved asset and machinery management across ADNOC's upstream and downstream operations. Leveraging AI technologies like machine learning and digital twins, the platform is expected to help generate significant yearly savings through reduced unplanned maintenance, increased reliability, uptime and safety.

The 10-year contract marks one of the largest predictive maintenance projects in the Oil and Gas industry and is part of ADNOC's flagship Centralized Predictive Analytics and Diagnostics (CPAD) program. CPAD, which underpins the company's 2030 Strategy and Oil & Gas 4.0 initiatives, aims at transforming ADNOC's operations to maximize value from every barrel of oil, while delivering the greatest possible returns to the United Arab Emirates.

"ADNOC continuously drives innovation and seeks new and advanced technologies that can enhance operational efficiencies and optimize performance," said Dr. Alan Nelson, chief technology officer, ADNOC. "The predictive maintenance project is significant in scale and in its application of AI technology. Data on thousands of critical assets will be hosted on a platform where AI techniques will be applied to enable us to better understand the performance of our assets and to predict shortfalls in advance, thereby enabling us to maximize operational efficiencies. Honeywell was selected as our technology partner to provide this state-of-the-art solution after a highly competitive and rigorous bid process."

ADNOC will deploy Honeywell Forge Asset Monitor and Predictive Analytics solutions at its Panorama Command Center in its Abu Dhabi headquarters. Its Panorama Digital Command Center currently aggregates real-time information across ADNOC's businesses and uses smart analytical models, AI and big data to generate operational insights and recommend new pathways. The addition of Honeywell's solutions will enable the central monitoring of up to 2,500 critical rotating equipment across all ADNOC Group companies.

With continuous online equipment monitoring, aided by digital twin models and machine learning analytics, operators and maintenance personnel will be able to identify impending machinery issues earlier and shift from reactive and preventative maintenance practices to a predictive maintenance approach. Sophisticated insights into equipment health will also allow ADNOC to evaluate equipment overhaul extension programs, increase the availability of equipment and maximize production. Built on a scalable enterprise platform, the solution will accelerate time to value by providing ADNOC engineers with a host of embedded data science and simulation tools.

"Honeywell Forge Asset Monitor and Predictive Analytics can deliver significant OPEX cost-savings each year while optimizing CAPEX expenditure," said Que Dallara, president and chief executive officer of Honeywell Connected Enterprise. "We look forward to ADNOC realizing these benefits after deploying this leading-edge technology. Our enterprise-grade solution provides the intelligence augmentation that business leaders rely on for quick and efficient decision making. Leaderscan now focus their resources on innovation and achieving optimal business outcomes."

The predictive maintenance project is one of many digital transformation initiatives by ADNOC to embed cutting-edge technology across its entire value chain and deliver on its Oil & Gas 4.0 mission to stay ahead of the world's growing demand for energy. Other digital initiatives include its Panorama Digital

Command Center; smart data analytics Thamama Subsurface Collaboration Center; and the use of AI-assisted value chain modeling, rock image pattern recognition technologies, and blockchain-based hydrocarbon accounting, to name a few.

Honeywell is an established leader in digital transformation across the Middle East and globally. Through Industrial Internet of Things (IIoT) based solutions, Honeywell has enabled many of the region's oil and gas projects to achieve improved performance and efficiency. The company's solutions support a variety of long-term, national development and economic diversification initiatives across the Middle East and North Africa region.