

# OQ Upstream Establishes Centralized Digital Asset Performance Management System

Leveraging AssetWise<sup>®</sup> APM to Digitize Workflows  
Increased Asset Reliability by 25.7% and Reduced  
Environmental Flaring by 82.6%

## DIGITIZATION AND ASSET PERFORMANCE OPTIMIZATION

A global strategic management company based in Oman, OQ operates in 17 countries and, with its fuels and chemicals sold in over 80 countries, is a key player in the energy sector. The OQ Upstream business unit focuses on oil and gas exploration and production, and operates almost all of Oman's gas transportation networks. The company currently produces 220,000 barrels of oil equivalent per day and transports natural gas for 150 connected parties in the country via a large-scale network of high-pressure gas pipelines. Committed to operational excellence and a low-carbon future, OQ is working toward maximizing value for Oman energy and ensuring a sustainable future through asset optimization and digitization.

Managing more than 110,000 maintainable assets, more than 44 plants and stations, and over 4,300 kilometers of pipeline across Oman, OQ understands the importance of optimizing asset reliability and performance, and the role that digitization plays in achieving sustainable, world-class operations. From the early OQ years, all reliability aspects were paper based, scattered, and treated in reactive mode. "Digitalization is a key enabler in our journey towards operational excellence," said Mansoor Al Abdali, managing director at OQ GN. With an eye on strategic asset management, the company initiated a project to digitize asset maintenance and reliability processes, ensuring asset integrity, cost efficiency, and optimal plant operations.

## STREAMLINING DATA, REPORTING, AND ASSET MAINTENANCE WORKFLOWS

Asset performance optimization is a big concern within OQ and the oil and gas industry as a whole. Failed assets result in shutdowns, and

shutdowns lead to a loss of production, repair costs, environmental impacts, and flaring, as well as safety risks. "We need to avoid shutdowns and failures," said Hussain Al Naamani, reliability management team lead at OQ EP. To avoid shutdowns, OQ needed to implement preventative maintenance and corrective action plans. This required the identification and understanding of asset failure modes, improving asset maintenance and reporting strategies, and streamlining workflows and data coordination among multiple disciplines.

To address these issues, OQ wanted to develop a centralized digital system to access, share, and analyze asset data. "We need to have one single source for data management, and we need to have the data reported to us," Khulood Al Maawali, asset performance engineer at OQ EP. To facilitate collaboration, establish reporting workflows, and enhance data quality and quantity, OQ required a digital platform capable of providing dashboarding and visualization, and automating key performance indicators. The expected outcome of their digital efforts was to end up with better decision-making to extend asset life and achieve proven reliability growth.

## ASSETWISE PROVIDES CENTRALIZED DIGITAL SOLUTION

To manage asset integrity, reliability, and maintenance, OQ selected AssetWise APM, which provided a central digital platform for data integration and analysis, accessible to the internal team, field operations, and stakeholders. "AssetWise APM first allowed us to solve the problem of data management; it is a powerful tool to store and analyze data. In addition, it is customizable to meet the business needs," said Faisal Al Noumani, senior reliability engineer at OQ GN. Using Bentley's application offered a flexible data environment capable of aggregating asset data from multiple

## PROJECT SUMMARY

### ORGANIZATION

OQ Upstream

### SOLUTION

Process and Power Generation

### LOCATION

Oman

### PROJECT OBJECTIVES

- ◆ To establish a centralized digital asset performance management system.
- ◆ To improve asset reliability for more sustainable and environmentally safe operations.

### PROJECT PLAYBOOK

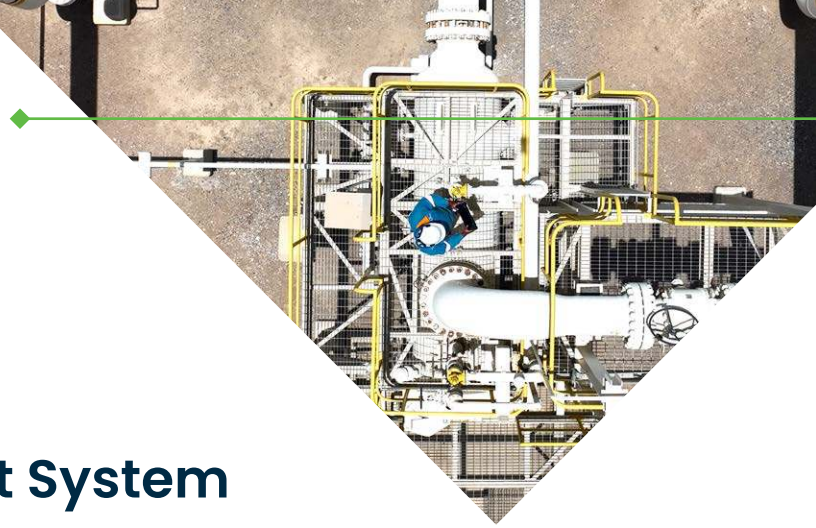
AssetWise

### FAST FACTS

- ◆ OQ Upstream owns and operates thousands of assets and more than 4,300 kilometers of pipeline of Oman's gas transportation network.
- ◆ To optimize asset performance and operations, OQ used AssetWise APM to centralize and digitize asset performance, and management processes.
- ◆ Bentley's software provided a single source of truth to collect, share, and analyze asset data for accurate insight into asset health.

### ROI

- ◆ Using AssetWise APM automated multidiscipline data workflows, inspections, and reporting processes.
- ◆ Having a centralized digital asset performance management platform reduced functional failures by 50% and improved asset reliability by 25.7%.
- ◆ OQ is now maintaining 98% operational uptime, reducing the impact of flaring by 82.6%.
- ◆ As part of OQ's continued digitization efforts, AssetWise APM is being integrated to develop a digital twin by 2024.



“Bentley is our partner in our digitalization journey and in enhancing our asset performance and reliability.”

– Khalid Al Fahdi, Head of Technical Services, OQ EP

sources, including mobile uploads from field inspections and OQ’s internal computerized maintenance management system (CMMS). The software facilitates multidiscipline and stakeholder collaboration and data coordination, as well as serves as a single source of truth for asset data management and analytics, enabling proactive decision-making.

More specifically, the interoperability and automation features of AssetWise APM streamline reliability management information for OQ by digitally calculating asset availability and maintainability, and digitizing condition monitoring activities. By collecting, analyzing, and managing accurate asset information, OQ has valuable insights into asset health and has developed a failure reporting, analysis, and corrective action system. “Using the link between APM and the CMMS, all failures and downtime from assets are reported to us,” said Amran Al Aamri, reliability engineer at OQ EP. Bentley’s AssetWise APM technology also provides the foundation for OQ’s asset integrity management program and risk-based inspections. “AssetWise APM is an enabler for innovation in terms of asset performance and it is adaptative to apply our unique solutions, integrating CMMS, real-time data, and Power BI,” said Al Aamri.

#### DRIVING BUSINESS EXCELLENCE AND SUSTAINABILITY

Overall, AssetWise has helped OQ overcome the challenges related to asset reliability management, monitoring, and maintenance, ensuring corrective

action measures are in place, optimizing lifecycle asset integrity, performance, and plant operations. Using AssetWise APM to digitize OQ’s lifecycle asset activities has allowed them to recognize the impact on reliability growth, reduction in failures and unplanned downtime, and less flaring impact on the environment. Based on implementation at one compressor site, the digital solution saved 14.8% in total maintenance costs and reduced functional failures by 50% to achieve an annual operational reliability growth of 4.3%. Within the last five years, OQ has seen asset reliability increase by 25.7%, plant uptime operations maintained at 98%, and flaring reduced by 82.6%, resulting in safer, more efficient, and, ultimately, optimal operations.

“After all these initiatives and technologies in which we end up with proven benefits in safety, production, reliability, availability, and reduction in environmental impact, the next step is a digital twin,” said Khalid Al Fahdi, head of technical services at OQ EP. Dedicated to driving continued business excellence and operational efficiency through digitization, OQ has already started a digital twin pilot project, incorporating smart technology applications and artificial intelligence. The plan is to have a complete digital twin platform by 2024 where Bentley’s AssetWise APM will feed the model with asset performance data along with the data from digital monitoring devices to enable real-time, intelligent, and sustainable operations. According to Al Fahdi, “We will continue working with Bentley in the future to grow and enhance sustainability.”



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