avathon.

PROBLEM

A supermajor with high-volume off-shore platforms needed to maximize production potential and improve overall platform safety.

PROJECT

AI predictive analytics were deployed across multiple critical subsystems as well as their fleet to predict impending failures and optimize maintenance activities.

RESULTS

By using Avathon Industrial AI platform the customer improved production by $30M annually per platform.

THE PROBLEM: IMPROVING PLATFORM AVAILABILITY AT SCALE

With high-availability platforms across their operations, the stakes are extremely high for oil and gas supermajors due to the sheer scale of their offshore production operations. One supermajor calculated that if they improved platform availability across their fleet by just 1%, they could net an annual uplift of roughly $300M. Not only would this provide serious financial incentives and implications for share-holders, these efforts would also improve safety for the engineers and operators deployed offshore.
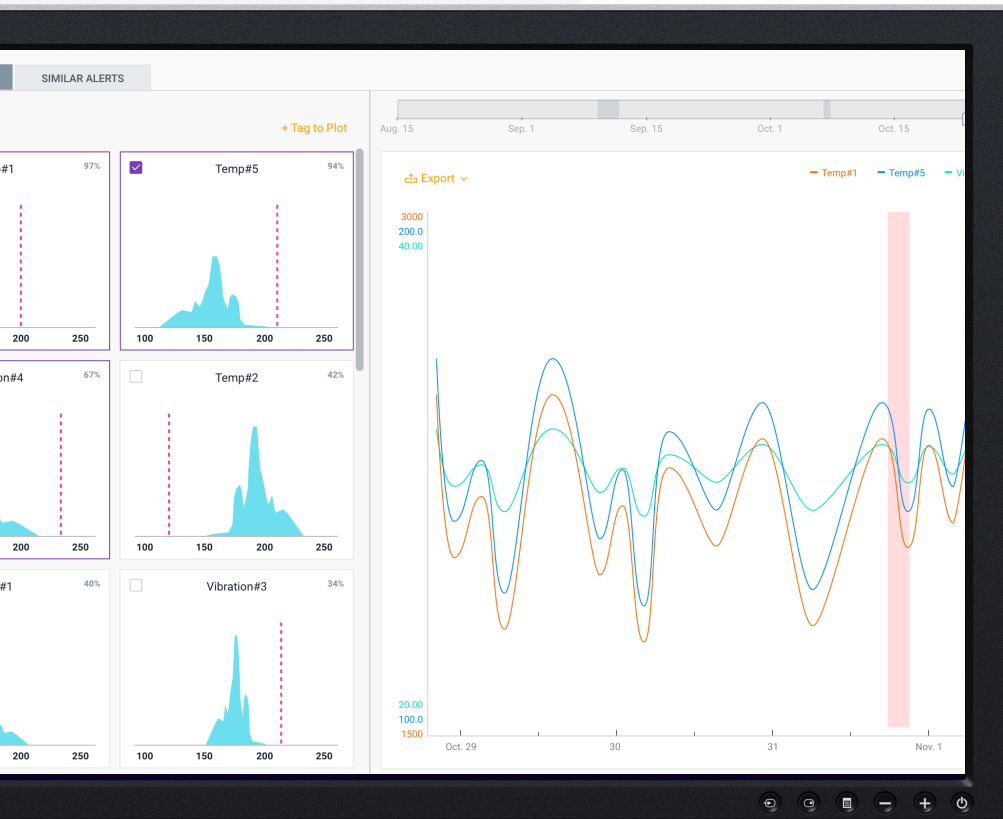
Already heavily invested in digital transformation, this supermajor operated their maintenance programs with a high degree of digital competence and a data-first mindset. Assets were well instrumented and monitored, and teams of data scientists were working to build and deploy predictive artificial intelligence (AI) models. But deploying AI is particularly challenging to do at scale. Often, the created models didn't meet the stated success criteria to move to production, and there was additional complexity in data streaming, alerting, model retraining, and model management that was difficult to operationalize. The supermajor therefore turned to Avathon, a leading industrial AI company, to realize ROI from their maintenance analytics efforts.

THE SOLUTION: AI MODELING FOR PREDICTIVE ANALYTICS

In the initial stage of the project, the customer wanted to evaluate Avathon's model-building capabilities and submitted a blind set of data for the separator system at one of their marquee platforms. This separator system had a track record of unexpected failures in multiple glycol systems and export compressors, which contributed to about 80% of the downtime on that platform. Avathon leveraged two to three years of historical data for each subsystem, developing models that were able to correctly predict 75% of the historical failures with an average of nine days advance warning. This exceeded the customer's success criteria of 50% accuracy and five days advance warning, proving the viability of the modeling approach.

The next stage of the project focused on operationalizing the models at scale in a live production environment. This involved developing the data pipelines for both modeling and live execution, as well as implementing new innovations in normal behavior modeling that deliver alerts with fewer false positives and a higher degree of precision. All of these capabilities were delivered using Avathon Industrial AI platform, analytics software that governs data ingestion, model building and execution, alerting strategy, subject matter expert (SME) input, and automatic retraining. Over the course of just four months, the initial set of 20 models was deployed and successfully activated on the first platform. A second platform, requiring 20 additional models, was then completed in just two months.

THE RESULT: A COST-EFFECTIVE MAINTENANCE PARADIGM

Avathon deployed Industrial AI platform onshore in the customer's remote control center, providing alerting, 10-minute diagnostics, and a significant increase in overall operational visibility. It is credited with a 4% increase in existing platform availability by avoiding net deferral events on both platforms.

Since its deployment, our Industrial AI platform has been an integral factor in the company's avoidance of several net deferrals. One of these occurred on a critical export compressor, in which Industrial AI platform triggered an alert based on a rapidly elevating level of asset risk.

By examining the feature importance and tag correlation, SMEs were able to conclude that there was a fault in one of the temperature sensors and that the asset was not at immediate risk. At the next scheduled maintenance period, it was concluded that the temperature sensor had come loose and was providing faulty values. All in all, this averted what would have otherwise been a significant effort to stage the asset to determine the root cause, a process that could have taken up to two days and cost at least $10M in deferred production.

Fully deployed across the entire fleet of offshore platforms, our Industrial AI platform's projected economic impact amounts to about $800M annually. This project is among the largest successful offshore oil and gas AI deployments.

ABOUT AVATHON

Avathon, a leader in Industrial AI, extends the life of critical infrastructure while advancing the journey toward full autonomy. Avathon's Industrial AI platform empowers commercial and government customers with scalable, secure, and value-driven solutions that enhance efficiency and resilience across heavy industry.

To learn more about how Avathon's AI solutions can unlock the power in your data, visit www.avathon.com.

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