KEY BENEFITS

Cost saving of $15.9M

>90% reduced effort building OSIsoft PI Asset Frameworks (AFs)

60 analytics applications run across each of the 33 assets.

O&G Super Major Connects 100B Data Points Across 33 Platforms

Offshore assets face increasing pressure to reduce deferrals, maximize margins and reduce health and environmental incidents. Risk in upstream organizations is shifting from exploration to production, increasing expectations for running world class operations. Oil and gas leaders are adjusting to this new reality.

To address this shift, a super-major oil and gas company recently embarked on an ambitious, multi-phased digital transformation strategy to increase revenue by reducing production deferrals and running operations at more than 95 percent efficiency. Key to this was taking the billions of data points generated each year across its complex offshore oil and gas assets and making it available in a contextualized data lake. The payoff from examining such a massive and diverse trove of data can be immeasurable, giving operators on the platforms and on-shore analysts new, important insights.

Challenges

While collecting and analyzing data sounded promising, the company's digital transformation campaign began falling behind schedule. The problem wasn't data analysis but collecting and managing the data in an efficient, scalable, accurate way. In most cases, the company was already gathering and analyzing needed data, but the efforts were generally localized, inefficient and didn't scale. Technicians and engineers produced and maintained endless spreadsheets. Or they developed bespoke applications for narrow, local objectives that didn't help technicians elsewhere. For example, if a technician identified equipment in Africa that needed more frequent maintenance to run optimally, the technician in the Caribbean, overseeing the same equipment, couldn't benefit from the insight. Senior technician – "Trying to get data from other teams is hard. We'll ask for compressor signal data, but it won't come back for weeks, and even then, it's only half of what we need. That back and forth just saps people's energy and morale." Without a 360-degree view of operations-related data, insights remain out of reach.

"Trying to get data from other teams is hard. We'll ask for compressor signal data, but it won't come back for weeks, and even then, it's only half of what we need. That back and forth just saps people's energy and morale."

Senior Technician

These challenges impacted three key use cases in phase 1 of the transformation:

1. **Harmonized Enterprise Data –** The client wanted to create a uniform enterprise-wide data structure for data generated by target equipment across all assets. Data however was siloed and difficult to integrate.
2. **Real Time Anomaly Applications –** Dozens of applications needed to be created to utilize real time data from its historian system. What was missing was a flexible data hierarchy related to production equipment. This would lead to a harmonized way to assess the performance and health of target equipment, instruments, controllers, processes and fluid monitoring across all offshore assets.
3. **GE Predix Asset Performance Management (APM) application –** The company was investing millions of dollars in GE's Predix APM application. However, they struggled to bring process data onto the platform in a usable manner, slowing the APM deployment.

Solution

Element's FDEs (Forward Deployed Engineers) and customer SMEs worked closely with business leaders (VP of Maintenance and Reliability), ensuring data collection and management were aimed at producing the biggest business impacts. The following activities were performed:

KEY BENEFITS

Developed over 30M+ data connections

Built 1,600 asset data models

Connect	Manage	Share
Element AssetHub hosted within customers Azure tenant Ingest metadata from OSIsoft PI data archives, SAP Maximo, hazard data, P&ID diagrams, and engineering data sheets	Design and build equipment-centric Asset Twins based upon the desired attributes of their target equipment Transform and contextualize process, maintenance and safety data	Export metadata in the form of PI Asset Frameworks (AFs) to import back into the OSIsoft PI System Export hierarchies and raw data to the customers Azure storage for use with GE Predix APM, app developers, and data scientists

Outcome

Element AssetHub is demonstrating the power of asset data modeling and management at scale. Key to the success is eliminating the manual and time-consuming work typically performed in spreadsheets to prepare data for analysis and industrial applications. The Phase 1 use cases benefited in the following ways:

1. **Harmonized Enterprise Data –** The data generated by over a million sensors across its offshore assets stored in the OSIsoft PI System was contextualized with SAP Maximo, hazard data, P&ID diagrams, and a myriad of spreadsheets hidden in silos around the company. Data is now accessible by any operator or analyst using their BI/analytical tool of choice.
2. **Real Time Anomaly Applications –** More than 60 analytics applications have been built and applied to each of the 33 assets. To enable this, Element created an Asset Twin for each asset from production equipment Asset Templates that could be replicated across its fleet. These templates included detailed equipment information such as manufacturer, model number, age, repair histories, engineering drawings, and data sheets.
3. **GE Predix Asset Performance Management (APM) application –** Process engineers can now connect to the contextualized data and use APM to assess operating window excursions, respond to issues in real-time and run case management to prevent unplanned downtime and improve reliability.

"Element's value is delivering trusted data from source to consumer so that we can reduce the amount of unplanned outages and deferrals, and maximize margin. They are helping us harmonize our data, and ensure its reliability, so we can use it with all of our applications in a trustworthy, repeatable fashion."

VP of Maintenance and Reliability

By using AssetHub, the company is also experiencing significant project time and cost savings. Project costs savings amount to $15.9m by building OSIsoft PI System AFs internally and without the cost of external/SI consultants (3 full time consultants for 6 months). The project was also delivered earlier due to > 90% reduced effort in building AFs (from 6 months to 3 weeks).

Without the power of using Element AssetHub across its assets, the company would still be struggling with spreadsheets and custom-built software, with data analysis remaining a localized function. A 360-degree view enables exponential value creation across the entire organization.

ABOUT

Element unlocks industrial data, enabling modern analytics systems to find insights that transform operational performance, resulting in hundreds of millions of dollars of value for customers. Today, asset data is siloed and underutilized. Element AssetHub connects, manages, and shares asset data across the enterprise by developing Asset Twins - dynamic digital representations of equipment. With Element, any person or system can have a 360-degree view of every asset.