Success Stories

Enabling Scalable Analytics for Oil & Gas

BUSINESS DRIVER
Revenue Loss Avoidance

Challenge:
A Fortune 100 Oil and Gas company was interested in performing various analyses across one of their upstream production units. These analyses included benchmarking runtime, identifying the root cause of failure for submersible pumps, comparing runtime vs maintenance costs across OEMs, etc. Each and every one of these analyses required a fully manual and customized effort to prepare and implement. Over 80% of the analysts' time was spent wrangling data. As a result, it took them 6-9 months to get answers to even basic operational questions. The client realized they needed a repeatable and scalable solution to get to readied and accessible data for analytics quickly and accurately.

Solution:
The client used the Element Digital Twin System to organize and prepare data for analysis. They sourced large, complex datasets from diverse sources, including the OSIsoft PI System, maintenance logs, facility diagrams, well tests, and fluid composition of wells. The client mapped over 73,000 OSIsoft PI System tags across 1,000 pumps in only three and a hours into a useful, queryable format. They then built and exported PI Asset Frameworks. With standardized and contextualized data, the client was able to run multiple, varied analysis without needing to manually prepare each data set, saving millions in costs and freeing up weeks of valuable work hours each year across the organization.

Ensuring Data Integrity in Manufacturing

BUSINESS DRIVERS
Revenue Loss Avoidance
Reduce O&M Costs

Challenge:
A leading engine manufacturer was interested in developing a service offering to optimize customer O&M costs, as a supplement to their existing aftermarket services business. In the process of building analytics to support this new business, they bumped into an unexpected hurdle: engines of the same make and model had varying degrees of instrumentation – some engines had 50 sensors while others had over 100. As a result, the client couldn't perform basic benchmarking, let alone fleet-wide analytics; they could only perform analysis on a single engine at a time. Before they could deliver a high quality service to customers, they needed a solution to help identify and fill in the data gaps.

Solution:
The client was able to instill trust in their engine data through the Element Digital Twin System. First, they were able to build a Digital Twin of their engines which would enable them to associate sensor level data to the right engine. Next, they were able to normalize sensor data across their fleet via the Element Graph, allowing them to perform benchmarking analysis. Finally, Element's Data Integrity solution allowed them to easily identify missing sensors on engines, and create "soft sensors" (or extrapolated data) based on actual sensors for readings that were non-existent. As a result, the client created an analytics-ready, comprehensive, and trustworthy data foundation to maximize the value of their services offering.

Creating a Data Broker in Power Generation (Wind)

BUSINESS DRIVERS
Revenue Loss Avoidance
Optimize CapEx
Reduce Health, Safety, and Environmental Hazards

Challenge:
A wind power O&M provider was severely constrained in supporting its diverse stakeholders, which needed operational data in varying formats from over 20 systems deployed across their 245 wind turbines. The data consumers included an IIOT Platform (GE Predix), custom-built applications, and OEM platforms. In addition, their own employees required the data in different views depending on their function. The client was constrained not only by personnel resources, but also by technology limitations around delivering this data to these various systems and stakeholders. They needed a solution to meet the huge range of data delivery and presentation needs demanded by their stakeholders.

Solution:
The client was looking to aggregate all relevant data in an unstructured Data Lake which could serve as the data broker for all stakeholders. They were able to move away from building (and maintaining) individual data pipes for each consumer. Instead, they could create varying hierarchies of the same data with the flexible, graph-based Digital Twin, enabling them to meet the exact needs of each stakeholder. They could then export the data in a variety of formats depending on the application, including JSON for GE Predix and PI Asset Framework for the PI System. In just hours, the client was able to maximize the millions of dollars of existing investments across their software applications.

For more information
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Element Analytics creates industrial analytics software that empowers organizations to achieve new levels of operational performance. The Element Platform makes industrial time-series data easy to use and helps engineers, data scientists, and IT analysts rapidly turn data into actionable reliability, productivity, and sustainability insights.