Leading Design Office Replaces Aveva VNET with Intergraph Smart® Toolset in the Cloud

Key Facts

Project Location: United Kingdom

Products Used:

- SmartPlant® Fusion
- SmartPlant P&ID
- SmartPlant Interop Publisher
- SmartPlant Markup Plus
- SmartSketch®
- Intergraph Smart® Data Validator (SDV)

Delivery Playform:

- Shell ProjectVantage via Intergraph SmartPlant Cloud

Business Benefits

- Increased collaboration, improved design data accuracy and consistency, and avoided expensive delays and rework of FEED via early error discovery

Project Summary

This global Oil Operator's design office works on FEED projects primarily for the North Sea. The design office's work processes are currently based around traditional standalone tools which rely on the manual input/transfer of data between applications, coupled with manual cross-checking by engineers and designers.

Using standalone tools can result in issues around consistency and completeness of the design data, which can be very difficult to detect and correct, often leading to costly design flaws transferring into the follow-on phases of a project. The correct design scope and handover process is extremely important, due to the fact that the majority of costs are committed during the FEED phase of a project.

The goal of this initiative was to provide project teams and execution contractors with an increased level of understanding and confidence in the FEED package and to avoid potentially expensive delays and rework of the FEED during the execute phase.

To achieve this goal, the design office required an intuitive information-portal solution that would:

- Quickly bring together disparate data from the standalone tools, including AVEVA PDMS 3D, AutoCAD drawings, and multiple documents and datasheets based on traditional office formats.

- Identify completeness and inconsistencies in the data captured from these standalone data sources, enabling it to be quickly completed or corrected.

- Enable the sharing of design data across a network of project personnel, EPCs, vendors, and other third parties.

Following consultation with the Operator's in-house configuration team decided that the design office would replace AVEVA Vantage Net (VNET) and develop a solution based around the Intergraph Smart® toolset. SmartPlant® Fusion was used to capture the unstructured data, the structured data was validated and loaded with Intergraph Smart Data Validator, and SmartPlant Interop Publisher captured the PDMS 3D model and related data for inclusion into the Fusion dataset. This created a single information database that provided more value to a wider user community. By being hosted on Smart Cloud, the users can access the information from any location at any time.

Business Benefits

- Enhanced collaboration between discipline and project engineers by providing "smart" access to all related, multi-discipline design data by system, area, discipline, etc.

- Improved visibility of the completeness and consistency of design data through reporting, leading to better business decisions on owner's projects

- Reduction in design delivery cost through improved access to information, automated checking processes, and reduction in rework

- Improved data management and handover of design data through the capital project life cycle

Dangers Avoided

In addition to the business benefits, Hexagon PPM solutions on Smart Cloud also helped the design office avoid some potentially major issues. In a recent FEED project, a series of 10-inch lines were discovered, which were in the line list but missing from the 3D PDMS model. SmartPlant Fusion and Smart Data Validator engaged together and flagged these concerns in advance, avoiding potentially major issues. If not discovered, the damage would have impacted 45 tons of pipe, incurring extraordinary costs, time overruns, and procurement issues.

Manually "yellow-lining" and reporting on data differences between standalone design systems with large volumes of data can be very time consuming and may cause some potentially expensive errors. The combination of Hexagon PPM solutions that the design office implemented work together seamlessly via Smart Cloud to deliver the company's reporting and consistency requirements while avoiding expensive and time-consuming errors.

Future Plans

Due to the success of this initiative, the operator is now considering centralizing other offices into a Global Design Office, using the suite of Hexagon PPM applications in various project configurations on Smart Cloud for global FEED and execution projects. This design office set the standard in the industry, and other companies are following closely, aiming to adopt the data-centric way of working to achieve delivery of data faster, cheaper, and safer.

About Hexagon

Hexagon is a global leader in sensor, software and autonomous solutions. We are putting data to work to boost efficiency, productivity, and quality across industrial, manufacturing, infrastructure, safety, and mobility applications.

Hexagon's PPM division empowers its clients to transform unstructured information into a smart digital asset to visualize, build and manage structures and facilities of all complexities, ensuring safe and efficient operation throughout the entire lifecycle.

Hexagon (Nasdaq Stockholm: HEXA B) has approximately 20,000 employees in 50 countries and net sales of approximately 3.9bn EUR. Learn more at hexagon.com and follow us @HexagonAB.