INDUSTRY UPDATE »

PDS[®]to INTERGRAPH 3D the shift worth making

Recognizing the costs & challenges of maintaining a legacy environment

BY PATRICK MACKINLAY

From the inception of its Singapore Neste Renewable Diesel fuels refinery in 2007, Neste committed to the use of PDS[®] for design, construction and maintenance of the plant.

Since then, Neste has benefitted from an up-to-date, accurate digital plant model and from the reuse. standardization and automation provided by the system.

Ten years later, Neste recognized that Intergraph Smart[®] 3D was firmly established and proven in the market, and that costs and challenges of maintaining the legacy environment were beginning to mount; the time to update the future of the digital asset had arrived.

SMART 3D ... BUT HOW?

Neste was faced with a choice: either migrate the existing plant model to Smart 3D or leverage tools such as SmartPlant[®] Interop Publisher to reference the existing PDS model within a Smart 3D environment.

Initially, Neste favored the reference option, believing that it would reduce data migration project risks and provide a satisfactory solution in the medium term. After discussion with various stakeholders, however, the migration option began to look increasingly promising.

Neste, continuing a close and long-standing business relationship, contacted TecSurge to discuss the merits of the two approaches, and this consultation identified several factors in favor of migration:

- Eliminate requirement to maintain PDS skills for ongoing design and support; Smart 3D expertise is much more readily-available
- Enable Neste to retire legacy infrastructure and software, simplifying its IT landscape
- Unleash all capabilities of Smart 3D without being constrained by legacy system
- Simplify the digital asset environment, enabling Neste to more easily report on and update data across the entire refinery

UNDERSTANDING THE CHALLENGE

The Singapore refinery project consisted of three migrations:

- Piping specification and catalog data in SmartPlant Reference Data (SPRD) needed to be enhanced, integrated and tested with Smart 3D
- PDS physical model needed to be migrated to Smart 3D
- Orthographic and piping isometric drawings needed to be configured and regenerated in Smart 3D

Neste also required the preparation of a full Smart 3D hanger and support library to its specifications and to populate the migrated Smart 3D model with the resulting supports.

PARALLEL ACTIVITY STREAMS

The technical work began with a thorough consistency check between PDS piping specification and catalog data contained in the Neste SPRD database. This resulted in several corrections, after which Smart 3D interfacing was configured, and piping specifications were fully tested. In parallel, TecSurge began the

development, configuration and testing of a Smart 3D hanger and support library to suit Neste's requirements.

AUTOMATION PAYS DIVIDENDS

The original PDS model did not contain pipe support graphics, but relied upon "logical" markers to indicate support locations and types. TecSurge used a combination of proprietary automation and manual effort to populate the Smart 3D model with the newly developed hanger and support symbols and assemblies. Once the model migration



was completed, TecSurge used a combination of proprietary automation and manual effort to configure and regenerate the existing plant orthographic and piping isometric drawings. Close collaboration ensured an efficient and seamless delivery.

A SUCCESSFUL OUTCOME

An additional benefit obtained from this migration approach is that it delivered the results of a tailored Smart 3D implementation combined with the migrated model, allowing Neste to dramatically reduce the time to production compared with a more traditional sequential approach.

The successful completion of this project means that Neste is set to gain all the benefits accruing from the adoption of Smart 3D, as well as the savings in support, infrastructure and training from retiring the legacy PDS environment.

Patrick Mackinlay, principal consultant at TecSurge, directs product management and technology for the company.

How **Migrating** Heightens Design Efficiency

BY ASHLEY RANGUELOV

LINDE ENGINEERING. NORTH AMERICA

Hexagon PPM: What was the main driver for making the change from PDS to Smart 3D?

William Fronheiser: To stay at the forefront and remain on the cutting edge of a competitive industry, once Intergraph Smart 3D was released, our company began testing and evaluation of the software. After seeing the many benefits the new software would have over PDS for the company and our clients, the decision was made to make the change. The transition from PDS to S3D began with in-house training, and once all colleagues were trained, the switch was made. We have since realized the many benefits of using Smart 3D.

When did you transition from PDS to Smart 3D?

Fronheiser: In the summer of 2011.

Do you find it difficult to go from PDS to Smart 3D?

Fronheiser: Yes, but with support from work colleagues and with additional training classes, it made the transition easier.

Project execution has changed; everything needs to be better and faster. Tighter budgets and schedule pressures have increased, while projects are becoming more complex.

Customers who have utilized Hexagon PPM's decades-old legacy solution PDS[®] should consider upgrading to Intergraph Smart[®] 3D, the world's only next-generation 3D design solution specifically tailored for the most multifaceted industrial projects.

Several of PPM's most successful customers have migrated from PDS to Smart 3D, and their experiences have been so positive, they want to share their process.

William Fronheiser, principal structural designer for Linde Engineering North America, acknowledged that while the upgrade required training and diligence, his company's work quality has improved greatly and collaborating across continents is easy.

Why do you choose to use Smart 3D over PDS?

Fronheiser: Instant updates with screen refreshes to evaluate other disciplines are very beneficial, especially with global workshare projects. We can quickly resolve problems and keep the design on track with minimal downtime by seeing an up-to-date model with a click of a button.

Have you benefited from the transition? Fronheiser: Most definitely. Among the many new and beneficial features it offers, the drawing extraction feature of Smart 3D has increased our productivity and quality of work, at the same time reducing the hours required to do the work.

What do you prefer about using Smart 3D?

Fronheiser: One of the many benefits of using Smart 3D is being able to maintain a live link to a model in SmartSketch[®], making 2D drawing production and updates and revisions easy and simple. Once the link is established, the 2D drawing extraction process is all but

seamless. This increases our quality and productivity, with the added benefit of reducing the costs required to perform the work.

How does Smart 3D improve your day-to-day work over using PDS? Fronheiser: We work-share projects between offices on several continents and have the capability to have global teams collaborate, see work progress instantaneously and produce drawings globally. Smart 3D allows the work to progress seamlessly and keeps projects on schedule, under budget, with high quality.

What would you say to others facing the transition of PDS to Smart 3D? Fronheiser: Practice/use the software! Users need to have daily interaction with the software to maintain skill level. Our corporate HQ states one full year with daily use to be proficient.

Ashley Ranguelov is the program manager for Hexagon PPM's 3D visualization and engineering/schematics solutions. She is based in Huntsville, Alabama, USA.

Upgrading for Operations, Not Just Design

BY PATRICIA McCARTER

BASF

Nearly 30 years ago, BASF's North American advertising campaign helped the chemical company become a well recognized name on the consumer level with the slogan,: At BASF, we don't make a lot of the products you buy. We make a lot of the products you buy better.

And today, BASF is a front runner in the industry when it comes digital transformation; it is in the midst of upgrading its systems landscape for capital investments and technical support for operations.

At some of its plants, BASF currently utilizes Hexagon PPM's market-leading 3D modelling PDS[®] software, with efforts to advance to Intergraph Smart® 3D, which breaks through the barriers of traditional technology to enable a truly rules-driven, iterative design environment.

BASF Project lead for Engineering Data Management & Digital Plant Michael Höchel said this project began in 2016, with the goal of creating a digital working process environment driven by business needs. Ultimately, BASF wants to digitize its plants, which supply products for industries like the automotive, agriculture and construction markets.

"We want to establish a global platform that drives efficiency and quality in all our engineering & technical services based on a life cycle approach," said Höchel, who is based at corporate headquarters in Ludwigshafen, Germany.

Utilizing Smart 3D, BASF establishes data driven working processes for all



PPM solutions.

and construction (EPC)."

opportunities.

Arndt Teinert, senior E&M IT manager also based at BASF's headquarters, said CC IT WON'T JUST DESIGN PLANTS. IT WILL HELP OPERATE THEM. THIS IS TRULY INNOVATION.

distinct aspects of the production asset lifecycle. The company also utilizes SmartPlant® Instrumentation, SmartPlant P&ID as well as other

"The 3D model is a powerful tool," Höchel said. "Think about maintenance ... search and find, constructability checks, safety and plant optimization. In many cases, we as a plant owner and operator can use the 3D model across the lifecycle. The 3D model is not just a project tool for engineering, procurement

Höchel said BASF is working closely with Hexagon PPM President Mattias Stenberg and software developers to evaluate further collaboration

the introduction of Smart 3D in BASF is on a good way, and data migration for example from PDS will likely happen in the next year.

"Mattias has announced that Hexagon wants to support not only EPC but also the operators of production plants utilizing PPM tools," Arndt said. "We are happy about that. We have been involved in defining new functionalities for Smart 3D that we need in the next release, and we are working with the PPM team to make that happen.

"It's not just about designing plants. It's a lifecycle approach based on innovation."

Patricia McCarter is senior content marketing specialist and editorial director for Insight Magazine for Hexagon PPM. She is based in Huntsville, AL, USA.