

AspenTech and Hexagon PPM Join Forces for Digital Twin Workflow Solution for EPC Firms

Isaac Maw, Editor — engineering.com

At the recent Hexagon Live 2019 event in Las Vegas, Hexagon announced a new partnership between Hexagon PPM and asset optimization and process simulation software provider AspenTech. The partnership aims to help manufacturers in process industries better manage the financial risks of big, complex projects. The two companies will align AspenTech's engineering and cost estimation solutions with the Hexagon PPM's SmartPlant suite to create a data-centric workflow across the asset lifecycle. Essentially, the companies plan to take Hexagon's digital twin of the plant's physical infrastructure and combine it with AspenTech's process modeling and plant operations solutions to create a data-driven digital twin that can be used across the plant's entire lifecycle, from design through operations and maintenance.



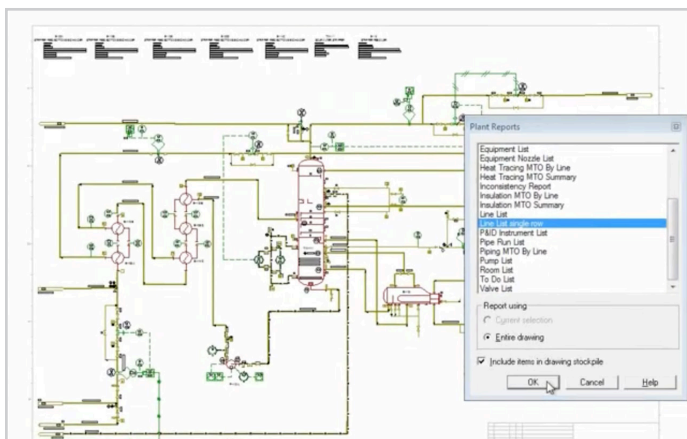
Paul Donnelly, Industry Marketing Director at AspenTech

"This partnership announcement is about enabling engineering, procurement and construction (EPC) companies to have a completely digital workflow from the time the plan is conceived until the time it's built and handed over to the owner operator," explained Paul Donnelly, Industry Marketing Director at AspenTech.

EPC workflows have historically been document-driven processes as they progress through the lifecycle, from conception to construction, and this can lead to inefficiencies, delays, lost documents, and miscommunication—especially when multiple external contractors or firms are involved.

"I like to say that the collective project wisdom, instead of just continually increasing across the life cycle, follows a saw-tooth shape. Every time you finish one phase and hand it off to the next, there's this drop off in collective project wisdom. And so, what we're doing with Hexagon is an attempt to take a document-driven process and convert it into a fully data-driven process. So that, instead of handing off documents to the next group of engineers, the next team that's going to move the project forward, you hand off a database and then they can query it any way they want, for whatever engineering documents or data that's needed," explained Donnelly.

This sort of knowledge capture through digital data is especially relevant for companies seeking to retain tribal knowledge which is lost when workers retire or move on. Data is stored in a central location, ensuring that all collaborators are drawing from a single source of information.



P&ID diagram in Hexagon PPM software

“What Hexagon brings to the table is the 3D model, and this document that we call piping and instrumentation diagram (P&ID). That is a 2D document that has every single pipe, valve, piece of instrumentation, tank, vessel. It’s all documented there. And that, to me, is the digital twin of the physical plant. And then what AspenTech brings is the digital twin of what happens inside all those pipes, tanks, vessels, because we have a deep understanding of the physical and chemical processes, often in the forms of a process flow diagram. So, these are the two key representations of what’s happening or what’s going to happen in the plant: the process flow diagram that has all the chemistry, inputs, processes, and outputs; and that’s married up to the digital twin of the physical representation of the plant in the form of either a 3D model or P&ID,” explained Donnelly.

While IIoT and digital twin enjoy much higher adoption in process manufacturing, Donnelly emphasized that these solutions have applications in discrete manufacturing, such as aerospace and automotive, too. “I kind of focus the conversations with the process industries, and that’s really my background and what I’m familiar with and really the primary markets at AspenTech and Hexagon PPM serve. But on the discrete side, this is happening just

as aggressively; airplanes, cars, you know, you name it, digital transformation is happening,” said Donnelly.

Interestingly, Donnelly noted that EPCs in the process industry are starting to look something like discrete manufacturing itself, because of prefabrication of components. “You may have a prefabrication shop or yard in China that’s going to build a component of a new refinery in the Gulf Coast of the United States and they’ll manufacture it, put it on a barge and ship it over. And, in a way, that’s similar to discrete manufacturing, where you’re taking the component and plugging it into the assembly. This means that manufacturers must ensure that, for example, all the connection points are going to align, clearances, et cetera. This is another great use of digital twin.”

AspenTech’s Recent Acquisitions for AI and Process Workflow

Tacking onto the news of this partnership with Hexagon PPM, Aspen Technology has also recently announced two acquisitions: Mnubo Inc., a Montreal-based provider of purpose-built artificial intelligence (AI) and analytics infrastructure for the IoT and Sabisu Ltd., a UK-based company that provides a flexible enterprise visualization and workflow solution to deliver real-time decision support.

According to AspenTech, these acquisitions will enable AspenTech to accelerate the distribution of embedded AI in both its existing and future solutions. By combining first principle engineering models and deep process expertise with AI capabilities, these solutions will enable the automation of knowledge and data-driven decision-making for continuous improvement across the design, operation and maintenance lifecycle of industrial assets.