A DESIRABLE DISRUPTION IN CONSTRUCTION

Managing Your Materials
Construction 4.0
Advanced Work Packages
Manifesto for Better Piping Fabrication
The Competitive Shipyard
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DID YOU KNOW...

An expanded digital version of Insight magazine with added content can be found online. bit.ly/PPM-Insight
How Technology Can Shepherd Leaders to ‘Near-Perfect’ Decisions

Digital transformation is emerging as a driver of widespread change in the world around us. Connectivity has shown the potential to empower millions of people, while offering unparalleled opportunities for businesses to create and capture value.

This transformation is the enabler that represents an opportunity to gain deeper insight, predict outcomes and ultimately make better business decisions by leveraging technology.

It’s really all about productivity.

Let’s take a look at the construction industry. According to McKinsey, the construction industry employs around 7 percent of the global workforce, yet it is among the least productive. On average a construction worker adds $25/hour of value versus the global economic average of $37/hour in all other sectors. Among many factors, this deficit is attributable to the rate at which it has adopted technology and the rate that it has not embraced a digitalization strategy.

At a customer level, the increasing complexity of managing and executing large construction projects negatively affects builders’ productivity and profits. As we think about the areas in which Hexagon plans to invest, the opportunity to help businesses in this industry increase productivity and capture the economic value that is revealed is a bright beacon for us to pursue.

My background, as a career technology marketer, has fundamentally been about connecting business outcomes with the application of technology. While I was with Microsoft, I had led cloud strategy at a time when cloud was in its infancy. One of the key benefit statements at the time was the ubiquitous access to information as a means to unlocking business value; this access been the promise of many a solution or product over the past 15 years.

My sincere belief, however, is that the best is yet to come, with technology trends around artificial intelligence, augmented reality and preemptive data-pattern matching providing the ability to guide business leaders to faster, near-perfect decisions.

At Hexagon PPM, we are excited to work in partnership with our customers to deliver solutions that help them construct more efficiently, design more rapidly and operate more safely. As a result our customers can deliver more value and compete more effectively in their chosen markets.

Best Regards,
Within the complex project industry, Intergraph Smart® Materials is the go-to solution to help corporations deliver materials at the right time, in the exact quantities and to the right location.

And now, when you integrate the interface of EcoSys™ to automate project controls within Smart Materials, the best gets even better.

Budgets and costs will be shared real time so project managers know exactly the current status of the project when they need it.

So much more simple yet powerful.

hexagonppm.com
From mobile technology to the shortage of skilled workers to the future of automation, Hexagon PPM professionals are constantly contemplating how to provide resolutions to our construction customers’ needs.

**Insight:** Historically speaking, construction leaders have not been as receptive of automation and modernization as other industrial fields. Why is that?

**MATTIAS STENBERG:** I believe the main reason is a lack of standardization. There is little perceived repeatability from project to project. Every project is unique. Other industries can produce a component exactly the same time after time; construction projects typically cannot. When you compare the productivity of construction against other manufacturing over the last few decades, it’s shocking. Manufacturing, which has modernized and automated, has gone up tremendously, but construction has actually gone down.

**Insight:** How can Hexagon PPM encourage the adoption of construction technology?

**STENBERG:** The technology is there. We have customers who are using Intergraph Smart® Construction quite successfully. The issue is helping our customers see how automation can work on their projects. It’s difficult to change someone’s longtime workflow process.

We’ve been holding Construction Roundtables with customers and potential customers all over the world, and we’re working to impact their way of thinking. You can sell someone a lot of software, but if you can’t convince them to alter their workflows, it isn’t going to improve their productivity.

**Insight:** Stock market activity is in an upswing. Do you see that being reflected in the world of construction?

**STENBERG:** The stock market is trading at an all-time high, and my personal view is that’s mainly a function of continued low interest rates. It’s a situation created by a lack of alternatives. If you can’t get a good return anywhere else, you put it in the stock market.

But I don’t believe there’s a connection in the status of the stock market with what we’re seeing in construction projects. There’s been a construction boom for quite some time, especially in America and Europe. And there’s new confidence in the Chinese market.

Our core market – oil and gas, engineering and construction – is slowly improving. The very worst of that downturn was about 18 months ago. There can be a lag, a long tail on a downturn.

**Insight:** A current lack of skilled labor – partially due to a loss of more than two million construction jobs during the recession – is hurting the industry. Can PPM solutions help project managers circumvent the challenges brought on by that scarcity?

**STENBERG:** The whole point is efficiency. If you look at a typical EPC before the crisis, they employed more people and had a higher sales turnover. But they did not
make more money in the terms of margin. They aren’t able to get any leverage out of the scale. They hire more people, but there’s no automation. No repeatability.

So, what do they need to do? They need to automate and actually have fewer employees. That is what our solutions help them do. That can help greatly in an industry that’s having difficulty finding labor. There has to be scale, or it just turns into a giant recruiting company.

**Insight:** How is mobile technology being utilized on the construction site? How is PPM contributing to that trend?

**STENBERG:** Mobile is a big trend, and not just in construction. Our customers are seeking it. We already have some excellent apps, such as Intergraph Smart® Materials Mobile Scan, Smart Construction mobile, and the new SDA mobile application.

Something that is creating a dramatic change is with Catavolt, a U.S.-based mobile app platform provider that Hexagon acquired earlier this year. It accelerates our ability to build mobile applications, dramatically.

**Insight:** How will that capability change PPM’s customer strategy?

**STENBERG:** We are transitioning away from, “Mr. Customer, here is something that we created in our lab. Do you want to buy it?” Now we can say, “We can build virtually any mobile application in under 90 days. How do you want to enable your mobile workforce?” Then customers can describe their workflows, their problems. With the help of Catavolt, we can create an app in a very short time, just a few months. The development cycle is so much faster.

Those applications can be changed just as fast, enabling organizations to shorten the continuous improvement cycle.

And with these mobile applications, they can be integrated with any third-party data source, such as SAP or ERP. Even if we are their preferred vendor, a big project will have hundreds of other IT applications involved that a client might want to integrate for their mobile workforce.

**Insight:** How do PPM solutions fit into the construction life cycle regarding the Internet of Things (IoT)?

**STENBERG:** As Hexagon we were doing IoT long before that term was ever invented. The Hexagon strategy has been measuring, reporting, making decisions, changing the real world … all in a constant loop of information, whether it was agriculture, a mine or a shop floor in an automotive plant.

HxGN SMART Build is an excellent example of how Hexagon is doing that right. It’s about connecting sensors from Leica laser scanners with software from PPM and building a solution around a customer’s workflow that can take in real-time information from the construction site. Already we’ve partnered with Skanska (a Swedish construction company) on SMART Build; they were our first customer for this, and now we have a handful more.

**Insight:** What new construction or materials functionalities does PPM have under development, and when can customers hope to get a peek at them?

**STENBERG:** There is a roadmap, of course, but we are hesitant to discuss in too much detail until we’re ready to make a launch. In general terms, we are working on next-generation user interfaces, and there’s the integration of Intergraph Smart Materials with EcoSys.

And it’s not just about construction. It’s about creating a digital twin for the entire project - the workflow from design to asset management and all the steps in between. We are capable of being part of the customer’s entire journey.

**Patricia McCarter is senior content marketing specialist and editorial director for Insight Magazine for Hexagon PPM. She is based in Huntsville, AL, USA.**
As Hurricane Harvey crept toward the Texas coastline in late August, the Category 4 storm was initially feared most for the fierce winds it would bring.

Much like residents who hunkered down in their homes, Harvey hunkered interminably over southeast Texas, pouring an unprecedented 40 to 60 inches of rain in the Houston area. The wind pounded, but the rain was so much worse.

Satellite imagery showed the massive pinwheel-shaped storm camped out over the Lone Star State for nearly five days. Not only did the flooding displace tens of thousands of residents, it caused the shutdown or decreased output of many Texas oil and gas wells, offshore drilling operations, refineries and pipelines. And for some oil and gas producers, Harvey impacted their drilling, refining and office operations.
An estimated 25 percent of the United States’ refining capacity was knocked offline, and many of those producers were Hexagon PPM customers.

Those in the storm’s exterior felt helpless to assist those impacted … customers, colleagues, friends.

Although PPM solutions help create a safer workspace for our oil and gas customers, there was little PPM could do after the hurricane. But fortunately, our brethren could.

Hexagon Geospatial has developed numerous products for use in natural disasters. Post-Harvey, the company prepared a proof of concept that reviewed the effect of flood water on commercial property in Texas.

Patrick Berner, M.App Solutions global director, said Geospatial used its spatial modeler and geoprocessing engine to analyze a subset of imagery covering a small area in Houston. Before and after imagery was used for analysis.

“From there we used our Smart M.Apps Analyzer tools to apply a commercial property layer to understand the percentage and total square footage of property that was covered by flood water,” Berner said.

“For spatial analysis we used Hexagon Geospatial business intelligence tools.

“Based on the commercial property features, we were also able to better understand the total property value affected and estimate the potential financial impact. The results could aid in prioritizing properties that were most affected by the floods as well as perform analysis for insurance purposes.”

While Texans were still mopping up from Harvey, Hurricanes Irma and Maria cut deadly swaths through the Gulf of Mexico and the Caribbean, creating unprecedented damage in Puerto Rico and the Virgin Islands.

To support recovery efforts, the HxGN Content Program provided pre-disaster high-resolution aerial imagery for first responders to stream at no charge via PRxTreme Corporation, a reseller to the Puerto Rico Planning Board. This provided quality-controlled, cloud-free imagery to assess damages, visualize needs, plan coordination efforts and improve response.

“Aerial imagery is increasingly being used to monitor the impact of crises and natural disasters,” said John Welter, HxGN Content Program director. “Orthorectified high-resolution aerial imagery gives an accurate and reliable representation of the captured reality; hence, it is a key source of information for effective response and recovery and even contributes to better disaster preparedness.”

Pre-disaster aerial imagery is needed to create baseline maps to compare with post-event images. It is also needed to create maps, spatial data products and geo-information for those responding to the natural disaster or crisis.

And always at the ready in times of distress are Safety & Infrastructure’s solutions. During the weekend of September 9, Hurricane Irma made landfall in the Florida Keys and moved northwest through the state of Florida. The strength of this hurricane ranged from a Category 2 to a Category 5 with reported 130 mph winds, which caused widespread damage in many locations.

Hurricane Irma affected 28 emergency call centers, with 14 agencies completely taken offline in Florida and the U.S. Virgin Islands. Despite these extreme circumstances, none of Hexagon’s public safety clients experienced such a system failure.

In fact, one agency’s call volumes quadrupled during the height of the storm, yet experienced zero system outages or delays. According to another, “the system worked flawlessly” throughout the storm and helped response efforts immensely.

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

OVERDUE FOR DISRUPTION

[ Image of a construction worker using a tablet in a dark setting ]
That tidbit is on page two of KPMG International’s 44-page 2017 Global Construction Survey, which aims to help reimagine governance, people and technology in project management.

The professional auditor’s report also reveals that just one quarter of 201 senior leaders (owners and contractors in construction and engineering) surveyed said they believe an acceptable level of performance has been reached in delivering capital projects on time and within budget.

When KPMG asked if these executives had developed a data/technology strategy or road map, less than half (48 percent) said yes; 22 percent said no; and the remaining 30 percent said while they had not currently done so, they were planning on it.

Why haven’t they done so already? What are they waiting on?

Drones, algorithm-driven robots, sensors and automated processes are working in concert to define the “smart factory,” which is creating extraordinary quality and output. This is considered “Industry 4.0.”

The concept of “Construction 4.0” is centered on the total digitization of a project, a reliance on the “digital twin.” Structured data management across the project life cycle – from design through construction through operations through decommissioning – can streamline processes and eliminate a dependence on filing cabinets and spreadsheets.

Large construction projects, which involve thousands of workers and megatons of materials, are almost expected to have cost overruns and schedule delays. Expected. But what if there was a reachable goal of clear communication, completely accessible data, transparent change management?

It is possible. The solutions exist where even if something goes wrong on the site – materials are delayed, mud is knee-deep, the excavator engine breaks down – there is capability to replan the work so that the schedule isn’t impacted.

Some leading construction companies are already taking the steps to enhance their processes.

Much has been learned from the manual way of doing things, and now that expertise can be automated. Some of the most progressive construction companies in the world are embracing this trend.

Join them.
If you’ve had a home built for you, you’ve been involved in a traffic jam. Your contractor had to order different materials from different vendors, such as concrete for the foundation and piping materials for hot water.

When ordering the plumbing service, your builder tried to ensure that the required materials were onsite when the plumber arrived so that he wasn’t twiddling his charge-by-the-hour thumbs while the clock was ticking.

The challenges when constructing a multimillion dollar liquified natural gas plant are no different; the scaling, however, is significantly larger.

WHO DOES WHAT

Companies who take on the responsibility to build refineries and chemical plants are called EPC firms:

E = Engineering: designs the plant from start to finish
P = Procurement: quantifies, purchases, expedites, ships all materials
C = Construction: onsite building and commissioning of the plant, which includes warehouse management

Within the realm of supply chain management for the above tasks includes developing a sourcing strategy, which lays out a set of suppliers and subcontractors that can deliver goods and services and execute quote requests. Buyers then must evaluate all bids and decide where to place commitments.

When inspection has been executed successfully and release notes are created, the goods are typically ready for shipment.

That’s when the traffic department takes over. By using a modern tool like Intergraph Smart® Materials Portal, you can easily onboard suppliers and subcontractors, who can register and maintain their own data in this online platform and work on requests for quotations, packing lists and logistic information.

WHAT GOES WHERE

Moving forward, a logistics company could be included in the workshare to provide shipment planning; Smart Materials Portal allows tracked and controlled conversation between the traffic coordinator and logistics professionals.

Often items must be routed via different legs. This typically includes pre-shipping from the supplier’s site to a port or harbor.

For the main leg, container ships are used, and once at the destination port, trucks are used to ship the goods to the final construction site.

Smart Materials offers a software solution that has all these offerings in one tool, and in this way, allows straight and tracked communication between all parties involved in the supplier chain.

This helps achieve the overall goal of Materials Management, which is to have the right materials, at the right time, in the right place.

>> hexagonppm.com/go/materials
Radio-frequency identification, or RFID, is a hot topic in the construction industry. This technology has immense potential to increase efficiency in many areas, particularly at the construction site.

First, let’s have a brief overview regarding the different types of RFID tags.

**Passive RFID tags** are the most cost-efficient solution. They don’t need batteries, as they use the energy emitted by a scanning device; the RFIDs return the signal by adding their unique identification number.

**Semi-passive RFID tags** have batteries included and start broadcasting their unique identification number once scanned. Since these tags have a battery, the range is greater compared to the passive RFID.

**Active RFID tags** also utilize batteries. Unlike the other two tags, active RFIDs continuously broadcast signals and have similar range as semi-passive ones. Active RFIDs are the costliest solution, and their usage needs to be balanced when determining value.

These RFID tags typically do not follow any common standard; different vendors’ versions are not compatible.

It is important to understand what kind of business workflow an organization wants to generate by using RFID technology.

**APPLYING THE TECHNOLOGY**

During business meetings, PPM has been asked many times if our software supports RFID or barcode technology. The answer is yes, but we also explain that hardware is one thing, and the business value only comes with the right software solution, such as the mobile app Intergraph Smart Materials Mobile Scan, which allows you to quickly and accurately scan a truck loaded with tagged steel beams.

This can be a significant work process improvement compared to scanning each piece individually when using barcodes or the traditional paper-based receiving.

Another added value of Mobile Scan is to work in online- or offline-mode. In this way, the actual receiving activity could be done while outside the range of any Wi-Fi or 3G/4G network.

After scanning for all items corresponding with a handheld device, material receiving reports will be automatically created in Smart Materials. This not only saves time while producing such data, it will increase the quality of the data compared to the traditional manual process.

**WHERE TO USE IT**

Material receiving is just one example of how using RFID in combination with Mobile Scan can save time and money. Beyond RFID, we also support barcodes and QR codes for these processes.

Other workflows that are covered with Mobile Scan are:

- Inventory management
- Physical counts
- Materials issuing
- Materials transfers
- Locating
- Free inventory scans

All this makes Mobile Scan and Smart Materials the perfect combination for ensuring effective materials management onsite.

Guido Hufer is a technical director for Hexagon PPM. He is based in Germany.
The classic workflow for piping fabrication begins with an integrated 3D computer model of a new process plant – refinery, offshore platform, chemical plant – to ensure clash-free design. A corresponding accurate material take-off guarantees that components can be ordered in the right quantities at the right time.

Pipe and fittings (flanges, elbows, tees) are welded together into small sections – known as spools – which are then shipped to the construction site. Sometimes an entire section of the plant is built in a workshop and transported as a module for installation.

The team that built the computer model is not the same as the team that fabricates the pipe spools. In turn, another team constructs the final plant.

**HOW DO THEY COMMUNICATE?**

Typically, 3D drawings share the engineering team's requirements to the fabricators.

And, of course, once the drawings are issued, the 3D model continues to evolve. If the piping fabricators work with hard copy, they must extract the data from the drawing and transfer it to a spreadsheet. When changes are made, the drawing must be recreated.

This is slow, error-prone and expensive.

Sharing the 3D model with fabricators is possible in an integrated project where engineering, fabrication and construction are all departments within a single organization. But it isn't easy when the piping fabricator must work with multiple customers, who use different 3D modeling systems and don't wish to share their IP with third parties.

Alias in the U.K. – creator of Isogen® software for automated piping isometric drawing generation – pioneered the use of the Isogen Data File (IDF) and the Piping Component File (or PCF) for transferring data from engineering to fabrication. Alias is now part of Hexagon PPM, and our SmartPlant® Spoolgen® software has been used for many years to support a data-centered workflow.
GUIDING PRINCIPLES ROADMAP FOR PIPING FABRICATION:

3D model neutral. The Isogen format is almost universally supported. Any differences between source data can be handled by Spoolgen to produce uniform data regardless of source.

Rich data model. Working with Fiatech and other stakeholders, the PCF format now includes a set of standard fields for pipe fabrication and installation; 3D model data engenders an easily accessible form downstream.

Automation through configuration. Spoolgen supports powerful script-based automation for calculations, integration with in-house systems and creates flexible reports to support cost estimation.

Built in change management. Spoolgen keeps all versions of data and automatically compares them to ensure stable weld and spool numbering.

Data-driven, rule-based workflows. In the coming months, we’ll introduce a Web API for Spoolgen data to make it even easier to share Spoolgen information.

Industry-leading drawing automation. Continued investment in Isogen technology will maintain high-quality, consistent drawings on demand.

Support for workshop automation. Hexagon PPM has developed a rich XML-based report (Fabrication Interface XML or FIX file) to pass piping geometry to robots for automation.

Support for planning, material management, monitoring. Smart Production supports the management of pipe shop operations, and Spoolgen connects seamlessly using the FIX file.

Support for mobile and remote access. Spoolgen and Intergraph SmartProduction powered by Nestix APIs support mobile and web-based access to live data, allowing welders to enter status updates and supervisors to know where bottlenecks impede progress.

Support for handover to construction. Spoolgen already supports a publish workflow where its data and documents can be made available in the Intergraph Smart Construction model.

David Myall is managing director of Alias Ltd, a Hexagon PPM subsidiary that specializes in piping isometric drawings. He is based in the United Kingdom.
To help a builder deliver a production/assembly facility on time and on budget, there is pressure for rapid approval on project design. This requires thorough collaboration between all teams involved in the design and construction. Besides virtual reality and artificial intelligence, there are new technologies available to further optimize the production process.

Intergraph Smart® Production powered by NESTIX and Intergraph Smart 3D have been instrumental in assisting shipyards maneuver these challenges, in particular in panel lines, which is the process of drawing fine lines around the detailing of model parts.

While competition between shipyards has grown as processes are being optimized, there are some steps that many fabricators tend to overlook. Optimizing panel line can tremendously increase the throughput, improve overall quality and save money; but few key performance indexes define the optimization rules.

Multiple requirements must be considered to optimize panel line so that it can support other functionalities of the yard. Optimization is possible in the supply chain around panels, which consists mainly of plate parts, stiffeners and T-girders that are joined together at the panel line's different work stations.

It is required to know what plate and profile parts are in panels, such as which plate parts are joined together and what are the type of welds and welding distances. This enables the estimation of welding time requirements.

Finally, it is necessary to know the full panel plate geometry with the offset margins and how one panel is joined together with other panels. From this, knowledge design systems (such as Smart 3D) can form the final cutting contour for that panel and add the beveling information.

Knowing the plate and profile part cutting process is beneficial for the panel line optimization; it is important to know when required parts are ready. By knowing the panel need dates, scheduling optimization is possible for the panel line via backward production scheduling for the parts.

**PANEL LINE OPTIMIZATION**

The four key optimization criteria are lead time, lateness, earliness and scattering. These parameters aim to optimize functionalities for efficient, lean and just-in-time production.

**Lead time:** Arranges panels for the panel line so that panels will be manufactured in the shortest time possible to maximize throughput.

**Lateness:** Sequences panels so that no panel is completed too late.

**Earliness:** Sequences panels so that no panel is completed too early; this minimizes wait time for module assembly.

**Scattering:** Optimizes wait time between plate and profile part in stock to panel manufacturing time for greater synchronization.

To achieve harmony between optimization parameters, it is best to have them as weighted values. For every panel line, there is a preferred combination of panel optimization parameters. Sometimes these parameters need adjustment because panel optimization is based on the panel types itself, and different ship designs favor different sets of panels.

**Optimizing Panel Lines with Intergraph Smart® Production powered by NESTIX and Intergraph Smart 3D**

Kimmo Salmi is a business development consultant at Hexagon PPM and based in Singapore.
In the latter half of 2017, Intergraph Smart Construction experts traveled across Australia, Japan, South Korea, China, Spain, Italy, Russia, Norway and the United States to engage with customers about their most pressing project tasks.

Attendees from across the industrial landscape – power, oil and gas, engineering, procurement – shared their experiences in these detailed conversations, which averaged 20 clients at each event.

During the roundtables, Hexagon PPM struck up these conversations to gain a real understanding of regional and industry challenges. Members of PPM’s global construction team presented answers to their questions, including best practices such as Advanced Work Packing (AWP), BIM (Building Information Modeling), LEAN and implementation challenges.

Guests shared their thoughts on construction-related matters they felt were most important to their companies and projects.

“This allows Hexagon PPM to have a greater understanding of true customer needs and desires so that we can help create a more customized success plan for them,” said Scott Oskins, technical director for PPM construction products. “By better understanding the challenges facing the industry, we are more suited to be able to provide support.

“Hexagon PPM’s construction management team listened to these specific challenges and helped our clients gain an understanding of how to drive success within their organizations.”

Looking forward to 2018, PPM will expand Roundtable events to Brazil, Chile, Colombia, Argentina and the United Arab Emirates where we will continue to engage with construction experts across the world.

“This new approach has been very interesting,” said José Carlos Bueno Cantó, project manager for Hexagon PPM in Spain. “I think that customers rely more on our messages because of this ‘agnostic’ presentation where we talk about needs and not about products. It has been really productive.”

Sara Giddens is a global marketing programs manager for Hexagon PPM. She is based in Huntsville, AL, US.
Sihy Finland uses Spoolgen to drive productivity & growth
Sihey Oy is a pipe manufacturer based in Naantali, Finland, and specializes in the manufacture of industrial pipelines. Its customer base is major international industrial companies, particularly in the shipbuilding, process and petrochemical industries.

**CHALLENGE**

Sihey Oy wanted to move away from a traditional document-based workflow to a data-centric, automated one, including data transfer from the 3D model all the way through to its workshop machines and to feed data to in-house systems for planning, tracking and controlling production.

Its customer – the shipyard supplying the drawings – offered to produce piping data electronically, via the Hexagon PPM Isogen® PCF format. PPM recently made the PCF format available for use by all software vendors, and it’s supported by most of the major design systems. Research by Sihey showed that SmartPlant® Spoolgen® could process this electronic data automatically and generate the reports and other deliverables needed for its workshop and internal software systems.

**SOLUTION**

Sihey uses the batch processing capability of Spoolgen to automate the processing of PCF files. It was configured to retrieve the 3D geometry of the pipes and transfer to its in-house database application, Sihey PipeCloud. This gives the work planner an overview of the current work to make efficient use of the machines by bundling similar pipes together to form work packs.

Spoolgen also produces an input file for the HGG plasma cutting machines. This is stored in the database to be available when required. When the operator selects a pipe from the work pack, the instructions are pulled down to the computer driving the cutting machine automatically. The offline preparation of the machine instructions means that no shop floor programming is required.

A third important output from Spoolgen is a bending report that is transformed into numerical control instructions to drive the bending machine. This is also supplied to the shop floor so the operator does not need to enter data manually.

“Digitalization has enabled us to expand by making us more productive,” said Sihey CEO Henri Hyvarinen.

A reported 50 percent reduction in work planning errors has been noted.

“Now we are able to scale production up and down easily,” said Hyvarinen. “Streamlining planning has freed up our management team to improve and grow the business.”

Added Sihey production manager Kari Hyvarinen, “Thanks to the integration between Spoolgen and the in-house software, we are able to automate the machine tool offline, so no shop floor programming is required for our cutting and bending machines.”

Sihey plans to work with Hexagon PPM to extend automation further to maintain its competitive edge.

David Myall, managing director of Alias Ltd, a Hexagon PPM subsidiary that specializes in piping isometric drawings said, “This is a great example of how a forward-thinking company can utilize our tools to improve the way they work. What it has done is applicable in any pipe fabrication shop.”

**sihy.fi**

Jim Edwards is a product manager for Hexagon PPM. He is based in the United Kingdom.
CONSTRUCTION »

Rethink.
Reorganize.
Realign.

How data-centric solutions are quietly disrupting the construction industry.

As the world is moving at warp speed in this new age of technology, all sorts of advancements are being created.
The digitalization age is upon us.

Industries are aggressively seeking how they can capitalize on these advancements to add value to their organizations and bottom lines. We have seen these advancements revolutionize the manufacturing industry through robotics and digitalized data that have streamlined work processes to significantly improve productivity.

The construction industry is now determinedly searching for technologies that can assist in achieving some of the same improvements as the manufacturing industry. Many are moving toward a complete digitalized environment that is data centric.

This fresh environment, however, is exposing some age-old construction problems. With the unlocking of data and information so that it can be freely shared and used to make informed decisions, silos are being broken down that exist between departments and organizations.

As the industry progresses more into this new digital age, workers are realizing that many of the old ways - including their work processes - are not in total alignment with their overall goals. Reviews and rewriting of work processes are necessary.

So, as organizations continue down the road of searching for and using technology solutions to add value to their organizations, the technology is quietly at work exposing issues elsewhere.

Business plans must be rethought, reorganized, realigned. Although there is value inherent in employing technology itself, this side effect is adding a whole different level of value to the process.

It’s happening.
AWP enables all three components for project success

Since Intergraph Smart® Construction came on the market in 2009, we have helped our customers implement Advanced Work Packaging (AWP). This allows us to more fully engage with client teams to leverage this portfolio of design tools and materials/cost management.

By applying this methodology at the initial stages of a project, the right people, processes and technology are connected. In its truest sense, AWP provides a structured method and work process for early engagement of construction considerations and expertise.

Incorporating these in engineering design, project controls, supply chain and their related processes, project efficiencies are increased by managing scope and coding as well as prioritizing the deliverables in alignment to the build method and path of construction on a project.

ORGANIZATIONAL PRODUCTIVITY CURVE

An Organizational Productivity Curve was presented at the Best Practices Conference of Construction Owners Association of Alberta in 2016. This concept challenges the owner’s team members to determine where they are currently positioned and make a concentrated effort to move up the productivity maturity curve.

Simply driving the EPC contractors and subcontractors without an introspective analysis at the owner’s end can only deliver limited gains.

PRESENTED AT COAA 2016 BEST PRACTICES

PPM’s overall objective as part of the Project Delivery Advantage is to help our client move up this productivity curve and reach the top position.

AN EARLY ENGAGEMENT

A common unified view of the project that blends enhanced levels of visual collaboration in the 3D model and its seamless integration to Smart Construction increases project planning and packaging philosophy - not only across departments but also across project phases early on the job.

In the process, each stakeholder gains a better understanding of scope that may have been missed or duplicated or otherwise be revealed during execution or turnover.

The 3D model-centric engineering design ties into many systems to deliver a successful AWP project as shown in the figure below. Key project plans that are impacted include:

- Project Execution Plan
- Construction Execution Plan
- Materials Management Plan
- Document Management Plan
- Path of Construction
- Completions and Turnover

>> hexagonppm.com/go/smartconstruction

Michael Buss is senior vice president Global Business Development at Hexagon PPM and is based in Huntsville, AL, US.
Remember the old saying that a picture is worth a thousand words? When that old phrase was coined, it was related to 2D pictures. Fast forward to today and we not only have 3D modeling, but we have animated 3D, which is known as 4D. Also, when you layer cost and/or performance data onto a 3D model, you have what is termed as 5D.

Think of how many words this 4D/5D information is now worth. It’s exponential.

The potential of data that has always existed is now being unleashed to provide better insight into what is happening within projects. Intergraph Smart® Construction delivers this capability to take data and animate it, unlocking more value and benefit to our customers.

With the massive amounts of data that projects produce, management has always struggled to view it in simple, clear and concise means. Now, with the visualization and animation of data, it is more easily processed without being overwhelmed with volumes of 2D reports and data.

So, as the amount of data continues to increase on projects due to modernization, we need to be able to extract the relevant information. What better way than by not only visualizing it, but also animating it? If not, projects will simply be inundated with data that will serve little purpose if we cannot discern what this data is telling us.

Another issue is management can become overwhelmed in sifting through this data and not being able to clearly see to make proper and timely decisions.

The most important thing is that aside from the technology that produces the 4D and 5D animations and visualization – as offered within Smart Construction – there are no additional data requirements from a project. The data has always been tracked and existed; we are now simply unwrapping its possibilities.

So, the question is ... don’t you want to unlock that potential?

>> hexagonppm.com/go/smartconstruction

Scott Oskins is a technical director for construction products at Hexagon PPM. He is based in Huntsville, AL, US.

Exponentially BETTER

Why you need to know more about 4D and 5D
With the release of EcoSys™ 8, Hexagon PPM has introduced an expanded vision for managing the life cycle of projects. This goes beyond project controls to ensure all projects are identified, defined, delivered, measured and recycled in one modern, fully integrated platform.

EcoSys now provides a more holistic, organization-wide perspective for managing the dynamic project ecosystem while maximizing returns and margins – from portfolio management to project controls to contract management.

While EcoSys Projects delivers world-class project controls capabilities for on time, on-budget project delivery, EcoSys Portfolios aligns project selection and resource allocations with organizational goals. New benchmarking capabilities automatically capture data to be leveraged for future projects – shaping project templates, improving estimating or fueling predictive analytics.

Highly successful performance demands continued alignment from project bid and award to controls and closeout. Effective contracts management is an integral part of the alignment. EcoSys Contracts enables more efficient data sharing and greater visibility into contracts management.

From owners to contractors to subcontractors, integrated communications and tracking of dynamic contractual obligations ensure cost and schedule impacts are understood and agreed to by all parties up front and throughout the life cycle of a project.

While recognized as an enterprise solution, EcoSys 8 also delivers rapid implementation for individual projects and for small to mid-size organizations. Made possible by the out-of-the-box capabilities of Portfolios, Projects and Contracts, EcoSys 8 can be fully implemented and running in 45 days or less.

**EcoSys Portfolios**
for project portfolio management (PPM): project identification/prioritization, stage gates, capital planning, funding management, resource management, program management, benchmarking, organizational budgeting

**EcoSys Projects**
for project controls: capital planning, estimating, budgeting, forecasting, change management, risk management, cash flow, tracking, progress measurement, workforce planning, earned value management and trending

**EcoSys Contracts**
for contract management: contract controls integrated with project controls, RFIs, submittals/transmittals, payment applications, tracking (issues, safety items, punch lists, lessons learned, meeting minutes)

Adam Goldfarb is marketing director for EcoSys at Hexagon PPM. He is based in New York, New York, US.
CH2M adopts EcoSys

Creating a cleaner, healthier River Thames for London’s next 100 years

CH2M is a global engineering company that provides consulting, design, construction and operations services for 5,000 clients in 50 countries, with $5.4 billion in revenue.

The Colorado-based company wished to adopt an enterprise project controls solution to create visibility into performance, as different business groups leveraged disparate project delivery systems. Money had been wasted on point solutions that couldn’t be replicated.

After an extensive industry search, CH2M adopted EcoSys Enterprise Projects Performance software to standardize and automate organizational best practices and to build information needed to drive better forecasting and smarter decision making.

THAMES TUNNEL

EcoSys is currently used on CH2M’s major projects, including the Thames Water Tideway Tunnel wastewater program, which will transform the ecology of London’s river and provide the city with a sewerage system for at least the next 100 years.

Drawing on its experience in tunneling and wastewater management, CH2M is managing the engineering, design and delivery of the project. The company relies on EcoSys for budgeting, forecasting, change management, progress measurement, performance management like earned value, and most importantly, timely reporting with current data.

In addition to driving success on the Tideway Tunnel project, enterprise project controls has the ability to impact the different projects CH2M works on, from government and cities to transportation, water, environment, nuclear, energy and industry.

CH2M plans to roll out EcoSys across its projects enterprise wide. The solution will be a competitive differentiator for CH2M as the company looks to raise the bar in project controls across the EPC market.
CHALLENGES

Enterprise-wide summary data was unavailable for project cost or schedule performance; project controls processes were inefficient, with double data entry into multiple systems and time-consuming, manual report building.

SOLUTIONS

CH2M selected EcoSys to serve as its enterprise project controls technology platform, initially leveraging EcoSys Projects’ extensive built-in capabilities to achieve quick wins that now deliver the majority of CH2M’s requirements.

Using the agile development process and EcoSys’ native configurability, CH2M can easily make incremental changes over time to workflows, reports and dashboards. The solution provides a scalable platform that delivers both organization-wide standards and flexibility to fit the needs of each project whether large or small.

The integration of the software with CH2M’s Oracle ERP system and P6 scheduling system enhance change control discipline through improved tracking and approval capabilities.

BENEFITS

CH2M realized numerous benefits by enforcing standards for greater visibility to project performance. EcoSys’ project data integration and report automation shifts significant resources from building reports to doing real project controls analysis.

Variance analysis with key performance indicators (CPI, SPI, TCPI, etc.) provides project managers with leading/early warning indicators to allow for corrective action, and EcoSys supports unit rate tables in multiple rates and currencies making project management across different geographies less complex.

The software helps identify trends and issues that span projects and portfolios to apply historical lessons consistently to current and future projects. It also provides power to forecast more accurately using integrated data, best practice methodologies and what-if scenario planning.

>> ecosys.net

Adam Goldfarb is marketing director for EcoSys at Hexagon PPM. He is based in New York, New York, US.

Key Facts*

39M  Helping to tackle the 39 million tonnes of untreated sewage discharged into the tidal River Thames each year

100  Providing additional sewer capacity to ensure the city has a sewerage system fit for at least the next 100 years

25km  Constructing the deepest continuous tunnel in Europe - over 25km long and over 65m deep

3x  Tripling river freight on the Thames and breathing new life into London’s river economy

* Information from www.ch2m.com
The quality of every project is defined at its start. When keeping track of billion-dollar industrial facilities, even the smallest mistakes can have huge, immediate financial impact. An enormous amount of complexity is driven by engineering and compliance, with tens of thousands of specifications. That’s why creating a digital reality to simulate the project is so vital to staying on time and on budget. CEPSA knows this. The integrated energy company – a petroleum/natural gas exploration/production company doing work in Spain, Algeria, Colombia and Peru – embarked on a strategic project three years ago to digitally capture its facility and fuse it with the digital world. Highlighting Hexagon’s capacity to leverage its full spectrum of solutions across the project lifecycle, Hexagon PPM provided digital design, and Hexagon Geosystems delivered reality capture. This places the digital plant at CEPSA’s fingertips. The first step was the “datafication” of everything to better understand the details of the assets. This involved thousands of scans to capture the entire facility.

SCANNING AND DATAFICATION

Hexagon PPM 3D design software helps Leica Geosystems’ scanner access ‘true reality’
With the new Leica Cyclone REGISTER 360, we can now fuse those scans fully and automatically, wildly faster than anyone else in the market.

The clarity is stunning, and the possibilities are limitless.

Patricia Chacon Sangines, CEPSA’s piping department lead, said PPM solutions were allowing the company to “make a qualitative leap that has led us to the forefront of industrial plant design.”

This technology is set to save 1 to 2 percent on projects ... which adds up to huge savings on ventures with budgets of US$100+ million.

“We have further strengthened our position in the market and addressed some major bottlenecks preventing a wider adoption of 3D point cloud processing technology,” said Faheem Khan, vice president of business development at Leica Geosystems.

“These bottlenecks range from long processing times, lack of automation, missing quality control functionality and pure complexity of the task. With Cyclone REGISTER 360, registration is up to 20 times faster with a simple drag – drop – go function and quality management is built into the heart of the product.”

Users can start with registration in their desired local language and produce final deliverables using modern, visual, simple and workflows.

Once the scanning is performed, CEPSA is using Hexagon PPM solutions – such as Intergraph Smart® 3D and SmartPlant® Review – to access this true reality, by fusing the point cloud with the facility’s current design.

That’s why CEPSA is now empowered to maintain its facilities: Safe, compliant, profitable.

>> hexagonppm.com
>> hexagongeospatial.com

Jesús Bonet Edesa, market segment manager for Leica Geosystems, is based in Valencia, Spain.
Hexagon’s premier annual cross-industry technology conference is set for June 12-15, 2018, in Las Vegas to welcome thousands of business leaders from across the world.

HxGN LIVE 2018 will again be held in The Venetian Las Vegas, a venue that can host all keynotes, sessions, training and networking events under one roof. The facility features more than 2.25 million square feet of flexible meeting, exhibit and banquet space.

We will highlight all the ways that Hexagon PPM software and solutions are simplifying workflows and generating unprecedented efficiency. The earlier you sign up, the better the rate. Go to hxgnlive.com/2018 to register.

WHAT YOU MIGHT HAVE MISSED …

Our four-day conference in June 2017 attracted more than 3,000 international attendees to Las Vegas to exchange ideas and explore solutions that are shaping smart change.

Hexagon President & CEO Ola Rollén officially kicked off the conference with his keynote address, “Limitless,” which centered on the limitless potential for improvement in our lives, professions and the world.

“We are all in the potential business,” Rollén said. “That is the lens through which we should see the world.”

In his keynote, PPM President Mattias Stenberg encouraged customers to stabilize their operations against fluctuating market prices by leveraging technology, which can create methods of repeatability and standardization.

“Industries can benefit from discovering untapped potential, and we want to help them do that,” Stenberg said. “Together we can create a digitally exact facility, from design through construction to operations and maintenance, all the way through to a more seamless handover.”

Intergraph Smart Digital Asset was introduced as the first online project collaboration technology architected to simultaneously build the owner operator’s digital asset during the project phase for use later in operations and maintenance.

Other announcements made at HxGN LIVE 2017 included:

• Swedish construction company Skanska will use HxGN SMART Build to consolidate elements of estimation, design, planning, scheduling and construction processes into one powerful cloud platform.

• ACCIONA Industrial – a leader for infrastructure and renewable energy projects – in implementing Intergraph Smart Materials (hosted on Intergraph Smart Cloud) to improve materials management globally on power plant projects.

• Hyundai Engineering Co., Ltd. will use Intergraph Smart Enterprise Portal to boost accuracy and eliminate costly communication errors between its designers.

• Korea’s Doosan Heavy Industries & Construction (DHIC) has selected Intergraph Smart Construction to increase productivity on power projects across five continents.

>> hexagonppm.com/hexagon-conferences
DST COMPUTER SERVICES NOW PART OF PPM

Hexagon PPM has acquired DST Computer Services S.A. of Geneva, Switzerland — a longtime developer of market-leading pipe stress analysis solutions for the design and maintenance of process and power plants, nuclear ships and submarines.

The acquisition of DST Computer Services and its flagship PIPESTRESS software broadens the pipe analysis portfolio currently offered by PPM, which can now support even more design codes, including new nuclear classes.

Staff members in Switzerland will remain employees of DST Computer Services. The company’s employees are actively involved in industry code and standard organizations and work closely with licensees to develop innovative solutions for today’s engineering needs and requirements.

PIPESTRESS® is now integrated with an advanced graphical pre- and post-processor, Editpipe, and the integrated solutions are marketed and sold under the name “PepS.” PIPESTRESS can read CAESAR II® neutral files, which enables PIPESTRESS to analyze CAESAR II models.

AUSTRALIAN BUSINESS AWARDS GIVE THUMBS UP TO PPM

For the third year in a row, Hexagon PPM has been named an Employer of Choice (EOC) in The Australian Business Awards.

The 2017 EOC accolade recognizes organizations that have developed leading workplaces that maximize the full potential of their workforce through practices that demonstrate effective employee recruitment, engagement and retention.

Franz Kufner, executive vice president, Asia-Pacific of Hexagon PPM, said, “Hexagon PPM is proud to be recognized as an Employer of Choice for the third consecutive year. This award is a testament to our strong culture of inclusion and recognition, which is reflected in our people strategies both in Australia and globally.”

“Innovative human resource management practices play an increasingly important role in sustaining leading-edge competitiveness for organizations in times of rapid change and increased competition,” said Australian Business Awards program director Tara Johnston.

GEORGIA ENGINEER ACHIEVES TOP CERTIFICATION

David Key, quality assurance engineer in PPM’s Norcross, Ga., office, has been certified as an American Society of Mechanical Engineers (ASME) Nuclear Quality Assurance (NQA-1) Lead Auditor. He is only the second person at Hexagon PPM to achieve this top level certification.

Key has been with the group for 20 years and is responsible for maintaining and developing the NQA-1 programs for both GT STRUDL® and CAESAR II®; representing PPM in external client audits; and performing internal audits.

NQA-1 is a nuclear quality assurance standard for U.S. nuclear facilities. This highly-regarded industry standard was created by ASME in 1979 and has evolved over time to become one of the primary standards for implementing federal regulations at nuclear power plants and fuel processing plants.

Mattias Stenberg, Hexagon PPM president
Congratulations
Hexagon PPM Award Winners

GOLDEN VALVE: recognized for the most innovative and well-executed uses of software supported by 3D Design & Visualization solutions.

BEST OF SHOW
SmartPlant® Software Developing Team | Luoyang Petrochemical Engineering Co. Sinopec (China)

DISCIPLINE-SPECIFIC
1st Place: Shrirang Vedanti | Linde Engineering India Pvt. Ltd. (India) - pictured
2nd Place: Sherif El Ganady | PGESCO (Egypt)
3rd Place: Wang Zhe | Sinopec Petroleum Engineering Corporation (China)

VISUALLY COMPLEX
1st Place: SmartPlant Software Developing Team | China Huanqiu Contracting & Engineering Co. (China) - pictured
2nd Place: Ju Yeong Im | Samsung Heavy Industries (Korea)
3rd Place: Sanjaykumar Sarvaiya | Linde Engineering India Pvt. Ltd. (India)

PHOTOREALISM
1st Place: Xu Jian & Li Meng Shun | China Sinogy Electric Engineering Co., Ltd. (China) - pictured
2nd Place: William M. Fronheiser | Selas Linde North America (United States)
3rd Place: Engineering Information Management Team | Santos (Australia)

JUDGES’ CHOICE
Offshore: Yan Jun, Wang Yu, Nie Xuejun, Li Xuan, Wu Guoqing | Chinese Institute of Marine & Offshore Engineering HB. Co., Ltd. (China) - pictured

JUDGES’ CHOICE
Offshore: Jose Canchica | Inelectra S.A. C.A. (Venezuela) - pictured

ANIMATION
1st Place: Ji Youn Park | Hyundai Engineering Co., Ltd. (Korea) - pictured

Want More? Additional content available online

Want More? Additional content available online

Want More? Additional content available online
PHOTOREALISM - Honorable Mention
William M. Fronheiser | Selas Linde North America (United States)
Chen Mengyao | Sinopec Ningbo Engineering Company Limited (China)

VISUALLY COMPLEX - Honorable Mention
Sang Hun Rim & Ok Gil Park | Samsung Engineering Co., Ltd. (Korea)

DISCIPLINE-SPECIFIC - Honorable Mention
Intergraph Smart® 3D Application Team | East China Engineering Science and Technology Co., Ltd. (China)

ENGINEERING & SCHEMATICS
1st Place: Jorge Enrique Choy Perni | Amec Foster Wheeler (United Kingdom)
2nd Place: Predrag Vasic | Fluor Canada Ltd. (Canada)
3rd Place: Brian Petty | Burns & McDonnell (United States)
Honorable Mention: He Senlin | Hangzhou Turning Energy Technology Development Co., Ltd. (China)

INTERGRAPH SMART® 3D
1st Place: Cui Dongzi & Wang Peng | China Tianchen Engineering Corporation (China)
2nd Place: Hosik Ji | Samsung Heavy Industries Co., Ltd. (Korea)
3rd Place: Fu Guolei & Ouyang Shuai | China Tianchen Engineering Corporation (China)
Honorable Mention: Kevin Dmonte | Amec Foster Wheeler (United Kingdom)

SMARTPLANT® REVIEW
1st Place: Tetsuya Miwa | Toyo Engineering Corporation (Japan)
2nd Place: Surface Systems Engineering | Petrobras (Brazil)
3rd Place: Kevin Dmonte | Amec Foster Wheeler (United Kingdom)
Honorable Mention: 3D R&D Center | SNERDI (China)

The 2018 Golden Valve and Platinum Pipe Award winners will be recognized in Las Vegas, NV, at HxGN LIVE 2018. Deadline is March 2, 2018. To enter go online for the latest information about all of our customer awards at hexagonppm.com/customer-awards
Samsung Engineering

Leading Korean engineering firm Samsung Engineering Co., Ltd. selected SmartPlant® Foundation to build an engineering data warehouse, which will store the critical engineering information for its active projects in Central America, the Middle East and Asia.

As the basis of Samsung Engineering’s data warehouse, the solution will provide time- and cost-saving benefits.

“The best way to improve design quality is to share information in a timely manner, and SmartPlant Foundation is clearly the best solution on the market to help us realize that,” said Won Hee Cho, Plant Technology Center team leader at Samsung Engineering. “We expect to benefit from features such as real-time change management and enhanced collaboration.”

Hyundai Engineering

Hyundai Engineering Co., Ltd., one of Korea’s foremost providers of facilities engineering, has selected Intergraph Smart® Enterprise Portal to boost collaboration and communication between its designers.

Smart Enterprise Portal is Hexagon PPM’s web-based mobile information hub that fully supports the entire facility life cycle process – engineering, procurement, construction and operations. Hyundai Engineering’s designers will share the same 3D model within Smart Enterprise Portal during project execution, boosting efficiency, accuracy and communications.

“We are confident that Smart Enterprise Portal will save us many engineering work hours, as well as time and cost during design and validation,” said Myung-Su Han, chief information officer at Hyundai Engineering.

Skanska Sweden

One of Sweden’s most prominent construction companies, Skanska Sweden, will leverage the power of HxGN SMART Build.

Implementing SMART Build will enable Skanska to aggregate and manage 3D, 4D and 5D project data to deliver more predictable outcomes. The partnership will let Skanska realize its 2020 corporate vision of using digital construction technologies to improve productivity, profit margins and client satisfaction.

This will deliver significant benefits for both organizations, with Hexagon PPM working with Skanska to accelerate the strategic development of the SMART Build solution. Skanska’s validation of existing functionality and input into the product roadmap will support creation of a next-generation, global construction management platform.

Per-Ola Svahn, technical manager at Skanska Sweden, said, “We are excited to partner with Hexagon to work together toward Skanska’s vision of a new level of construction, where we will move toward an integrated construction process.”

Doosan Heavy Industries

Korea’s Doosan Heavy Industries & Construction (DHIC) has selected Intergraph Smart® Construction to boost productivity and information management for delivery of power projects on five continents.

Smart Construction impressed DHIC with its ability to combine information from various sources such as 3D models to create accurate work packages containing detailed construction steps, quantities and work hours. Additionally, Smart Construction’s 4D capabilities helped DHIC to verify the best construction sequence of the scheduled work package to optimize labor productivity.
“Smart Construction allows us to achieve better construction material management of our projects,” said Young Geun Lee, DHIC’s Engineering Innovation team leader. “It provides us with access to the most accurate information, such as construction quantities, to make more informed decisions.”
doosanheavy.com

ACCIONA

ACCIONA Industrial, a global leader in sustainable solutions for infrastructure and renewable energy projects, has implemented Intergraph Smart® Materials to improve materials management globally. This next-generation materials management solution will be hosted on an Intergraph Smart Cloud environment.

As an engineering, procurement and construction (EPC) company established in 2015, ACCIONA Industrial looked for a material management solution in a cloud-based environment to boost integrity and accessibility. The decision to host Smart Materials on Smart Cloud was influenced by positive references from other key companies in the region.

Currently, Smart Materials is being utilized for the first time in a project for a thermosolar CSP (concentrating solar power) plant in South Africa. In the future, ACCIONA Industrial will use Smart Cloud to host its corporate-wide materials management tools for all EPC projects.

ACCIONA director of construction, Javier Millarengo, said, “As we are entering a new era of EPC project execution, we strongly believe that applying the best technologies and tools available in the market, such as Hexagon PPM solutions, will provide us with better performance and improved deliverables for our clients.”

acchina-industrial.com

Vepica

Vepica Group – a multi-national EPC company co-headquartered in Texas and Venezuela – has chosen a host of Hexagon PPM solutions for the Davis Refinery, a crude oil refinery to be constructed in North Dakota.

For the Davis Refinery – which is owned by the Meridian Energy Group – Vepica will use Intergraph Smart® 3D work-sharing between its offices in Houston, Calgary and Caracas, as well as integration with design tools via SmartPlant® Enterprise. SmartPlant P&ID, SmartPlant Electrical and SmartPlant Instrumentation will be used for the detail design. SmartPlant Reference Data and Intergraph Smart Materials will be used for its entire materials management process during the initial phase.

Derek Blackwood, CEO of Vepica, said, “The suite of software has allowed us to efficiently bring together the capabilities and experience of all of our locations to deliver high-quality, on-time project deliverables to our clients at a highly competitive price, helping bring their projects to life.”

vepica.com

Samsung Heavy Industries

Leading shipbuilder Samsung Heavy Industries used Intergraph Smart® 3D to design the world’s largest container-ship for Mitsui O.S.K Lines, Ltd. (MOL), surpassing 20,000 20-foot equivalent units (TEU).

With a length of 400 meters, breadth of 58.8 meters and draft of 32.8 meters, the MOL Triumph is classified as an Ultra Large Container ship that can transport 20,150 containers. The MOL Triumph is the first of four 20,150 TEU vessels SHI is building for MOL.

Smart 3D was used to execute the detailed and production design, produce installation and fabrication drawings, and generate bills of materials for SHI’s procurement team. SHI has used Smart 3D since 2004, recording schedule reductions of up to three months on major shipbuilding projects.

“Successful construction of the MOL Triumph is further evidence of SHI’s technological excellence and our long-standing partnership,” said Mun-Keun Ha, vice president at SHI. “We were able to complete construction on time and with zero incidents, thanks to Smart 3D’s optimized design features.”
samsungshi.com
Accomplishments with the greatest value don’t come easy. Count among those Hexagon PPM’s training certification in information management.

Mitch Harbin, PPM’s Coordinator of Certification training, said when students walk out of his week-long class with a certificate in hand, they are proud... and relieved.

“I’ve been teaching classes for PPM 35 years,” said Harbin, who writes the comprehensive course curriculum. “But without testing, you can’t know what the attendees have learned. When certification is on the line, it makes them really pay attention.

“It’s a pretty intense week. But when you leave my class on that Friday and you’ve achieved certification, your employer can know you’ve demonstrated competency and proficiency.”

PPM currently offers certification in SmartPlant® Fusion and SmartPlant Enterprise for Owner Operators (SPO).

Classes are held on the Hexagon PPM headquarters campus in Huntsville, Alabama; also, companies who want multiple employees to gain certification can procure Harbin’s teaching talents for a week at their offices. There are a maximum of 12 students per class.

Students are typically SPO or Fusion users, SDA Operations Content Managers or third-party partners who configure systems.

“The certification makes you more valuable to your current employer and more marketable in the future,” said Harbin, who has taught the courses in numerous countries. “You can talk theory all day, but buzzwords don’t run a system. With certification, you prove you know what you’re talking about.”

Certification – either Basic or Advanced – follows passing the closed-book test and a performance practical.

FOR A SCHEDULE AND CERTIFICATION COSTS CONTACT: mitch.harbin@hexagon.com or go to bit.ly/PPMtraining
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We believe you should be able to see everything, everywhere. Through walls. Under buildings. Into data’s darkest and most impenetrable corners. Not only are we opening eyes to the richness and insights of 3, 4 and 5D detail, but also putting data to work to reveal more than we ever imagined.

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