



Hydrogen Plant image of the 2021 Hexagon Elite Award's Best in Design winner, presented to William Fronheiser, Linde.

Intergraph Smart[®] 3D

Changing the way projects are engineered and designed

Today's global, fast-track projects require engineering, procurement, and construction (EPC) companies to effectively manage cost and schedule on complex initiatives involving multiple design centers worldwide. It is a paramount business concern that intellectual property remain secure and that "best practice" design information be preserved for reuse on future projects. Likewise, owner operators must employ both in-house and off-site resources for greenfield, revamp, and maintenance projects. They also require the ability to establish and reuse "corporate standard modules" to streamline projects moving forward, while also continuing to preserve the as-built plant models for ongoing support of plant operation and maintenance.

Intergraph Smart[®] 3D offers industry leading capabilities that enables projects to meet cost and schedule deadlines with the highest quality possible. The Project / As-built capabilities break through barriers imposed by traditional technologies to enable a truly iterative design environment, providing a competitive edge to EPCs and owner operators alike.

Solution

- Supports integration for the engineering design team to work from known specifications and provide critical material definitions downstream as well as project level integration for Project Management around design discrepancies and design approvals to eliminate out-of-sequence work and keep the project on-track for an on-time delivery
- Shortens project schedules by enabling streamlined design processes for a wide scope of disciplines and workflows.

- Facilitates global, concurrent engineering, allowing contractors to manage and execute projects worldwide.
- Captures new and existing engineering knowledge so that it can be saved and reused

A fundamental component of SmartPlant Enterprise, Smart 3D provides project modeling capabilities needed to design facilities and then maintain their 3D "as-built" representations. Other advantages are fully customizable automation capabilities, and model reuse approach to execute even the largest and most complex projects.

Unique Sustaining Engineering Capability

When coupled with other components of the Smart Enterprise users can unlock unprecedented Project /As-built capabilities that take data segregation, visibility and collaboration to a level never seen before in 3D modelling. Project managers, clients, vendors, and suppliers have an easier and better view of in-project work changes in both configuration and data. Allowing for better decision making and control of data access for downstream teams.

Full Laser Scan Support

Smart[®] 3D uses CloudWorx within the same modeling environment. Users can manipulate, measure, and obscure laser scans within the same modeling interface for a seamless approach to leveraging scans. Hexagon has also focused on reducing the administrative overhead of maintaining and sizing of the raw point cloud data so that designers can focused on designing.

Enforced Design Rules Increase Data Quality and Ensure Design Integrity

Smart 3D ensures design accuracy and consistency through the enforcement of design rules. Smart 3D reduces design errors, minimizes engineering changes, and cuts down on rework. Design rule enforcement increases project quality and reliability by enabling faster and more efficient creation, transfer, and review of design iterations. All project participants can make informed and timely decisions throughout the project.

Smart 3D provides tools for the continuous monitoring of design rules and notification of the impacts of change throughout a project's design phase. Downstream impacts to drawings resulting from engineering changes are also trapped and notification provided in real-time. This further ensures that packages transmitted to procurement and the field always represent the latest, most accurate information.

Design Reuse for a Competitive Edge

Capturing new and existing design knowledge so it can be saved and reused on future projects represents a key competitive edge in today's fast-moving global economy. Smart 3D preserves the integrity of design data and enables reuse for future projects based on existing designs. This preservation of your corporate knowledge provides the ideal mix of continuity and innovation in engineering design for current as well as successive projects.

This not only reduces future project costs, but it also compresses project timelines through better management of engineering data. The opportunity to "learn" from other projects and apply this knowledge in the future is a marked improvement over existing design systems.

Global, Concurrent Engineering Capability Enhances Project Execution

Smart 3D's global engineering and data reuse capabilities substantially reduce engineering costs and shorten project schedules. Project databases may be replicated anywhere in the world to facilitate sharing of work or to transfer work to remote locations. All sites are automatically updated with the latest design changes in real-time.

Smart 3D enables designers, subcontractors/suppliers, authorities, and others to easily and effectively monitor, manage, or execute projects across companies and around the world. Its global engineering and data reuse capabilities provide the widest range of users with valuable product model information that is always up-to-date to reduce project cost and schedule delays.

Project Transparency Maximizes Communication to Minimize Delays

With Smart 3D, in combination with SmartPlant® Foundation or HxGN SDx®, you can execute more effective design reviews using 3D technology with comments and feedback beginning at the earliest stage of a project. You can consult all involved parties from the owners during initial design. This is when you can implement changes at a lower cost and with limited schedule impact compared to traditional 2D design systems.

Multi-discipline Design for Better Decisions

Smart 3D provides a true multi-discipline design environment where all designs are fully visible to all parties at any point in time. You can make early and informed decisions about system design by reviewing the model with the owner and other key stakeholders at various design stages. Quickly and easily change the model and BOM based on a variety of scenarios across multiple disciplines. This ensures both the design company and the owner can make the best decisions for both businesses.

Better Training and Operations for Increased Safety

Having an accurate and representative 3D model early in design facilitates safety and operator training at an early stage. You can minimize change requests late in the project when costs tend to be much higher. Equally important is the ability to review constructability and modularization options in design. This helps you better plan downstream activities ranging from fabrication to transportation to constructability. Such forward visibility not only promotes better cost control and schedule adherence but also enables construction safety reviews executed well in advance of that phase of the project, ultimately resulting in a safer, more secure project site.

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 21,000 employees in 50 countries and net sales of approximately 3.9bn EUR. Learn more at [hexagon.com](https://www.hexagon.com) and follow us @HexagonAB.