

HxGN SDx[®] Projects

Improving Project Efficiency





Owner operators and national oil companies today face the challenge of implementing larger projects than ever before, with limited resources and pressure to ensure projects are delivered on schedule, to specification, and within budget. This is not easy to achieve. One clear trend is a positive correlation between the size and complexity of projects and the relative magnitude of cost overruns and delays. The market today also dictates less capital expenditure on new projects and a focus on facility optimization and revamp projects, facility sustainability.

As projects grow larger and more complex, the number of things that can potentially go wrong increases, as do the consequences and complexities in project execution. Likewise, as capital expenditures on existing facilities increases the need to efficiently package work to meet schedules and budgets is paramount in reducing downtime.

This is concerning in an industry where multi-billion dollar projects involving many different contractors working globally in multiple locations or planning and executing existing facility modifications are the norm. The best way to drive efficiency is by promoting a collaborative environment where the client, contractors, suppliers and other stakeholders can easily exchange information, monitor progress and track their obligations.

To address these challenges, Hexagon PPM introduced a web-based, data-centric solution to reduce project costs, time, and risks associated with poor project collaboration: HxGN SDx®.

SDx is a modular, cloud-based asset lifecycle information management (ALIM) solution that optimizes efficiency, improves profitability and ensures safety throughout the facility lifecycle. SDx creates a trustworthy digital twin that is intelligently connected to your work processes. Compliant with the CFIHOS international standard, SDx Projects leverages the data within the digital twin to provide value-added work processes covering the complete facility lifecycle, improving project and operational efficiency while reducing risk. It is interoperable with engineering design tools and other operations systems to ensure consistent, complete and correct plant master data. It provides facility operators a vastly improved way of working.

Effective communication and transparency is an essential prerequisite to the success of any project.

SDx includes document management and control, engineering data management, and flexible deployment options, including on-premise, private cloud or Intergraph Smart® Cloud “Software as a Service (SaaS)” platform. The web client capability eliminates the need for any hardware or software to be installed within your company, which expedites and simplifies the implementation to get you to work and reduces maintenance requirements.

Vast amounts of information and documentation are exchanged between parties on projects. Controls over privacy and access to information are paramount, yet much of the information needs to be shared. A project may include a wide range of stakeholders, such as clients, contractors, suppliers, non-governmental organizations and local and federal authorities, all contributing information for many reasons.

SDx manages all of the engineering information, while traditional document management systems can only function on document metadata. It incorporates full document and tag management capabilities, including formatted number allocation. Although it has full document lifecycle management, including sign off and revisioning, it has the ability to use business rules, such as routing documents based on equipment design information. One example is routing specific documents to a driver specialist when the horsepower of a pump exceeds 500 horsepower. SDx includes full tag and document management capabilities.

There are aspects of a project that require contributors to work together toward a common goal, such as interfaces and boundary limits. **SDx allows project contributors to upload information into the portal so that it can be reviewed.** Project stakeholders can collaborate on the information while maintaining the appropriate level of control to ensure that proprietary or private information is visible only to approved participants.

When project information is provided to the client or project management contractor (PMC), their experts review and comment on the design information. **SDx ensures consistency and auditable traceability for your “digital twin” asset.** Incoming information is auto-routed to the appropriate reviewers so that they can perform their work and respond within the allotted time.



Eliminate costs, delays, and claims associated with tardy reviews and responses to technical queries”

Occasionally, questions related to information that is in the system arise from either a contributor or the client. **SDx provides the ability to send queries between project participants and reference relevant project information** such as tags, documents, contracts, purchase orders and elements of the plant breakdown structure.

The traditional way to execute projects was for clients and contributors to have their own separate processes. Information was exchanged through emails or posted onto network drives, resulting in slow, unreliable, out of sync, untrackable and delayed communication. The lack of a collaborative platform also led to uncontrolled communications via email and phone, causing lost communications, inconsistency and confusion. **SDx ensures that communications are immediate, everyone is working on the same “single source of truth,” and all actions are recorded, traceable and reportable.** Project stakeholders have immediate knowledge of the status and an overview of the complete project that is current, complete, and consistent.

SDx is designed to make finding information easy and intuitive. The organization of the data follows the natural relationships that are created through the design process instead of strict, imposed hierarchies that make locating what you need difficult. Full-text retrieval ensures that information can be reliably located based on key words.

HxGN SDx Business Processes

Managing Submittals

The process for uploading information into SDx is known as “submissions.” Information may come from sources outside of the trusted domain, and SDx must handle the transfer of the information from an untrusted location to a secure location, validate the content, and load it into the database. The submission’s content may include metadata files and often an intermediate step of checking for malicious content is needed. The metadata may require validation against rules to meet client data requirements. The submission process is designed to smoothly handle these steps with minimal manual intervention.

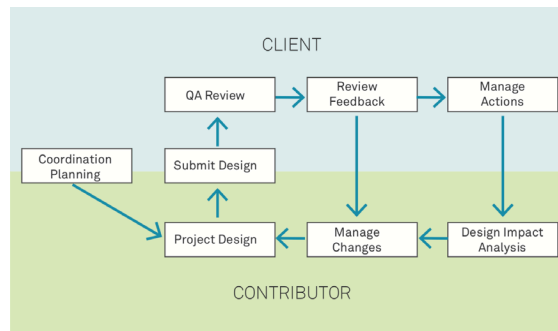
What about the submission of really big files such as video surveys, 3D models, or laser scans? No problem! SDx automatically divides large files into smaller segments and reassembles them on the server.

What about the danger of files being submitted with malicious code? Safety first! SDx interfaces with existing virus scan software to ensure all incoming files are safe before they are submitted to the project vault.

Quality Assurance Review

As content is loaded into SDx, it often requires that one or more experts review it to ensure that it complies with project specifications and standards. The specialists may select documents they want to review at individual Issue Purposes (e.g., Issue for Construction) or when each revision of a document is added. Normally, a client has a limited time for reviewing the content.

SDx handles notifications and timing so that the reviewer knows when the content arrives and when the review is due.



The document response date is tracked and the client/PMC may respond to the contractor as needed. Markups and comments are only visible to the client until they are issued, and then they are visible to the contractor. During this process, the client may also create Review Actions that require monitoring to completion. The Review Actions follow an independent lifecycle and workflow from the document as they may impact many things and have a unique schedule for closing.



Transmittals

Transmittals are used to provide a consistent, auditable process for exchanging content between organizations. They clearly define the scope of the content to be exchanged, the parties involved, the reason that information is sent, important dates and other metadata that is required to ensure a successful, timely, and traceable exchange.

SDx provides three different types of transmittals to address various scenarios:

1. Outgoing

Used to formally send information to external organizations

2. Internal

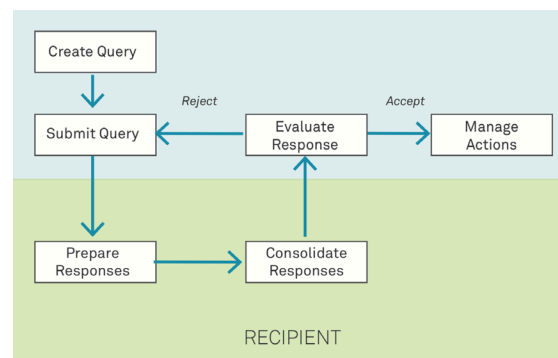
Used to maintain an audit trail of exchanged content within the company

3. Incoming

Used to take in content from organizations who don't have access to the submittal process

Technical Queries

Many times on a project, a formal process is needed for requesting information on an ad hoc basis. This may be the client or PMC asking a contractor for information. Or, it may be a contractor asking the client for information. On some occasions it's also necessary to track internal communications, so SDx also includes internal Technical Queries (TQs). The contractual dates for responding are automatically applied, and notifications are sent to the appropriate people. Technical Queries may be linked to relevant items in the plant breakdown structure, tags, documents, work packages, disciplines and more in order to provide access to relevant queries through multiple routes.



The Benefits of HxGN SDx

1. Improve visibility and tracking of project deliverables among all stakeholders
2. Validation and verification improvement of project deliverables resulting in smoother handover and start-up of operations
3. Reduction of administrative costs associated with submission and handover of information deliverables
4. Eliminate costly, ineffective ad hoc hardcopy, e-mail and file transfers
5. Maintain fast, flexible, cost-effective cloud deployment options
6. Improve reporting and overview of project status
7. Improve security of information collaboration and exchange

Collaboration

Information provided by contributors is assumed to be private. When a contractor is working in the system, he can only see information for which he is responsible. Because there may be times when a contractor needs to view information provided by someone else, there must be a way to share appropriate information. **To ensure that confidential information remains private, there is a two-step process for sharing.**

First, the originator must indicate that the information is suitable for sharing. Next, the information may be shared. The options for sharing information between parties are via a workspace (when individuals are invited to collaborate) or when the sharing is for the entire company, via assigning collaborating organizations to content. **SDx makes this fast and easy without compromising security.**

It is increasingly difficult to successfully deliver projects. With the increasing focus on cost-effective, on-time project execution and the growth in complexity of projects, organized communication, high-quality information and new approaches to cooperation are needed to ensure the success. SDx improves project efficiency by bringing the parties together and reducing confusion. It offers the visibility needed to understand when the project is healthy.

Rapid implementation is ensured through template pre-configuration and optional cloud deployment requiring no hardware or software installation. A simple web portal interface allows access anywhere, anytime and eliminates training for end users. The quality of the information is maintained through rigorous processes and communication.

About HxGN SDx

HxGN SDx is a modular, cloud-based asset lifecycle information management (ALIM) solution that digitizes facilities and leverages this digital twin to optimize transparency, efficiency, reliability, predictability and safety across the full lifecycle.

HxGN SDx is comprised of integrated modules that address the major lifecycle stages of an industrial facility. Each module provides work processes, roles and content tailored to address a specific phase of the facility lifecycle. Each module includes a comprehensive set of capabilities, with additional options that can be licensed as needed.



About Hexagon

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

Our technologies are shaping production and people-related ecosystems to become increasingly connected and autonomous – ensuring a scalable, sustainable future.

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 3.8bn EUR. Learn more at [hexagon.com](https://www.hexagon.com) and follow us @HexagonAB.