HEXAGON

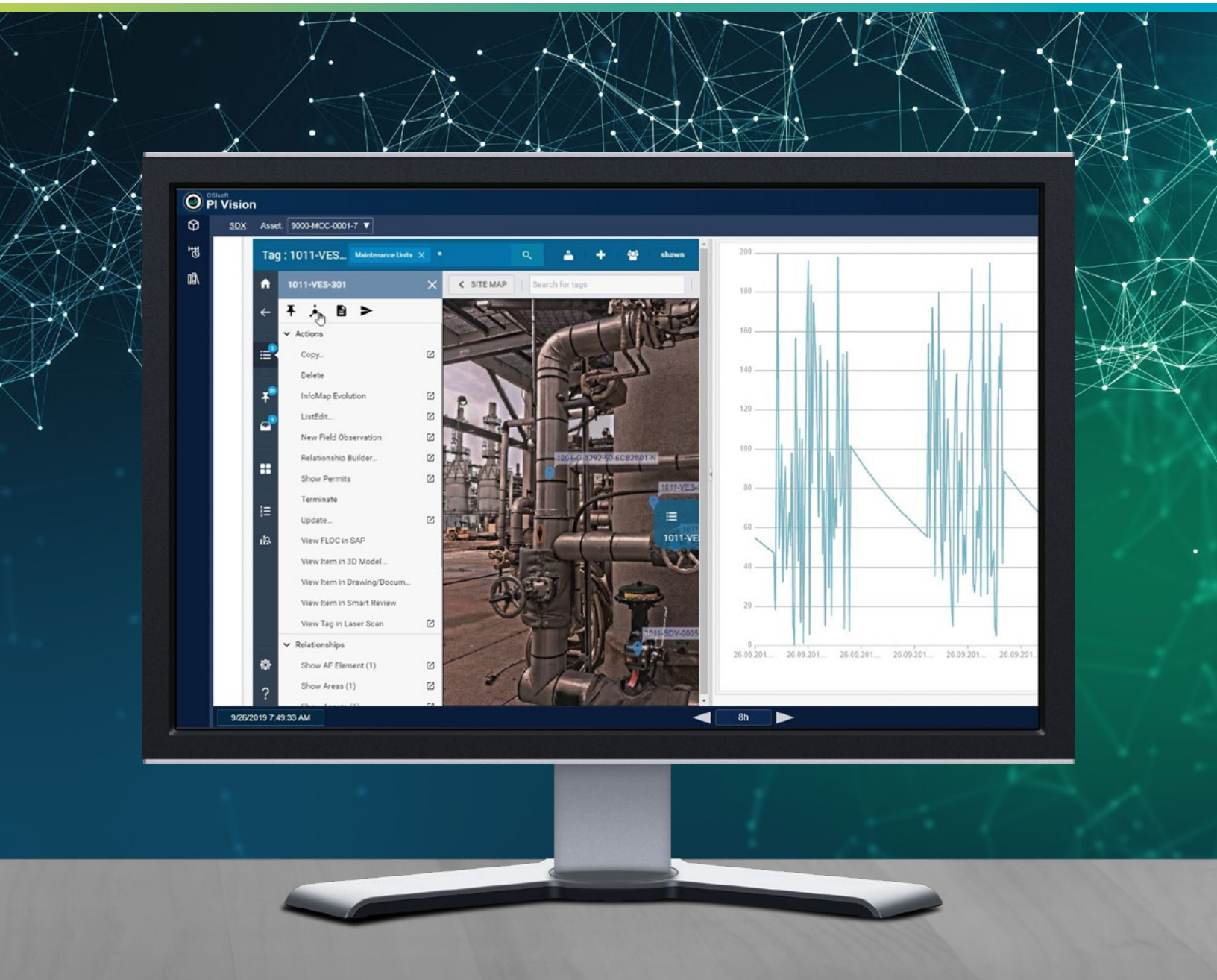
Solution Sheet

HxGN SDx® Connector for OSIsoft™

OSIsoft. Application Provider Partner

Isn't it time to unite your operations, maintenance, safety, engineering and real-time data with a Digital Operational Twin?

Across the process industries, plant workers and executives in interconnected departments are struggling with siloed information. This happens when a combination of paper, spreadsheets, word processor documents, PDFs and homegrown databases are scattered across filing cabinets, disconnected computer networks and detached software applications. Unfortunately, this means those responsible for the operation, maintenance and safety of hazardous facilities are not fully informed during day-to-day tasks and when safety-critical events occur.



Shockingly, dangerous trends and incidents can be missed by some personnel due a lack of unified communication and if they are observed, follow-up human procedures related to anomalies in the process data are often still paper-based. Critical time is wasted trying to find the important information related to a process unit or piece of equipment, which needs to be accessed quickly when resolving an ongoing incident.

To ease these pains, companies have invested in singular digital applications to manage human operations procedures, maintenance work orders, real-time and historical process data, engineering schematics and technical documentation. Despite this digital step in the right direction, the core problem of siloed information is still prevalent.

For example, a plant may have industry leading software like the OSIsoft PI System™ to monitor real-time and historical data from equipment, sensors, instruments, the DCS and SCADA systems but are still managing their engineering schematics, user manuals, technical documentation and human operations procedures using other disparate tools. There are often frustrations when interfacing these related tools together, resulting in plant and executive personnel still not being readily aware of safety-critical information.

To meet these challenges and increase collaboration across teams, the HxGN SDx Connector for OSIsoft solution has been developed. HxGN SDx is a central platform for creating Digital Operational Twins – that are continually verified and kept up to date – from multiple data sources to improve asset health, reduce maintenance costs and improve overall performance at facilities across a variety of industries.

The HxGN SDx Connector for OSIsoft combines and brings additional value to the users of both solutions, by interfacing and transforming real-time and historical "2D" data from the PI System's Asset Framework (AF) into a "3D" context in HxGN SDx. AF is the contextualization layer of the PI System, that provides users an easy and intuitive way to organize and structure sensor data into a single unified data model. Providing operations and maintenance personnel, engineers, HSE teams and corporate executives greater visibility while reducing unnecessary costs – such as time wasted searching for information – caused by disconnected data. For example, personnel can quickly find important information related to their process units and assets, when resolving an ongoing incident using the intuitive HxGN SDx Info Map. When time is critical this allows engineering schematics like P&IDs, user manuals, technical documentation and OSIsoft PI System real-time and historical process data to be quickly found on one HxGN SDx platform and even accessed within PI Vision™.

Personnel from the plant floor to the boardroom can also track the performance of their assets efficiently by enabling Digital Twin visuals inside HxGN SDx. For example, problem areas can be quickly viewed using 3D Models and Laser Scans and the information related to malfunctioning equipment and PI Tags is easily accessible on the HxGN SDx Info Map. Simulations of plant modifications can also be executed in an interactive environment, and this reduces the execution time and increases and the quality of the real outcome. Overall, the combination of Hexagon and OSIsoft solutions positively impacts company-wide safety culture, production efficiency and ultimately the bottom line of the balance sheet.

Digital Operational Twin case study

Michael Fry from Deepwater Subsea is embracing digital transformation initiatives from both Hexagon and OSIsoft.

These ensure that drilling rigs are compliant to the safety regulations introduced after the Deepwater Horizon disaster in 2010 which devastated those involved, their families and the environment.

"The combined Hexagon and OSIsoft solutions are a major part of pushing our business to the next level. Before this combination we were pulling all Digital Operational Twin PI Tags to match what was on the P&IDs. We can now pull up the P&IDs in HxGN SDx, click on a piece of equipment and have the trends from the PI Tags appear on the same screen. To me it's completely game-changing to have all this information readily available on one screen. This is the first time an end user can go to one place and get all the operations, maintenance, engineering and process data they need to do their duties. By having all this information readily available in a Digital Operational Twin, I believe this is an industry first for the oil and gas industry, where it has been difficult to monitor remote assets and equipment in dangerous areas."

Michael Fry

President and CEO
Deepwater Subsea LLC

The importance of data connectivity during and after a safety-critical event

During a safety-critical event

Siloed data problems	HxGN SDx Connector for OSIsoft solution
Increased operational risk: Dangerous trends and incidents can be missed by those without easy access to the relevant PI System data (especially when paper, spreadsheet and word processor documents are used).	**Decreased operational risk:** Dangerous trends and incidents are highlighted more due to unified digital communication and data.
Human procedures are disconnected from real-time data: Reactions to safety-critical plant events highlighted by the PI System are not managed efficiently.	**Human procedures are connected to real-time data:** Reactions to safety-critical plant events highlighted by the PI System are managed efficiently, with clear workflows and actions (especially with j5 Operations Management Solutions enabled).
Wasted time: Hours spent trying to find related information (which needs to be accessed instantly).	**Instant information:** Related information – including PI System data – can be accessed instantly using the clean HxGN SDx Info Map, saving a significant amount of time.
The frustration of too many applications, screens, folders and filing cabinets: Personnel must constantly switch between screens and applications to find related information and search through unstructured desktop folders and paper files.	**One Screen:** Personnel can view all the related information on HxGN SDx inside PI Vision, reducing the need to switch between applications and look for information in desktop folders or paper files.
Poor communications between interlinked departments: Operations, maintenance and safety personnel do not have a full picture of plant activities and rely heavily on emails or phone calls.	**Excellent communications between interlinked departments:** Operations, maintenance and safety personnel have a full picture of plant activities in real-time, which allows them to react to an incident efficiently and as a connected team.

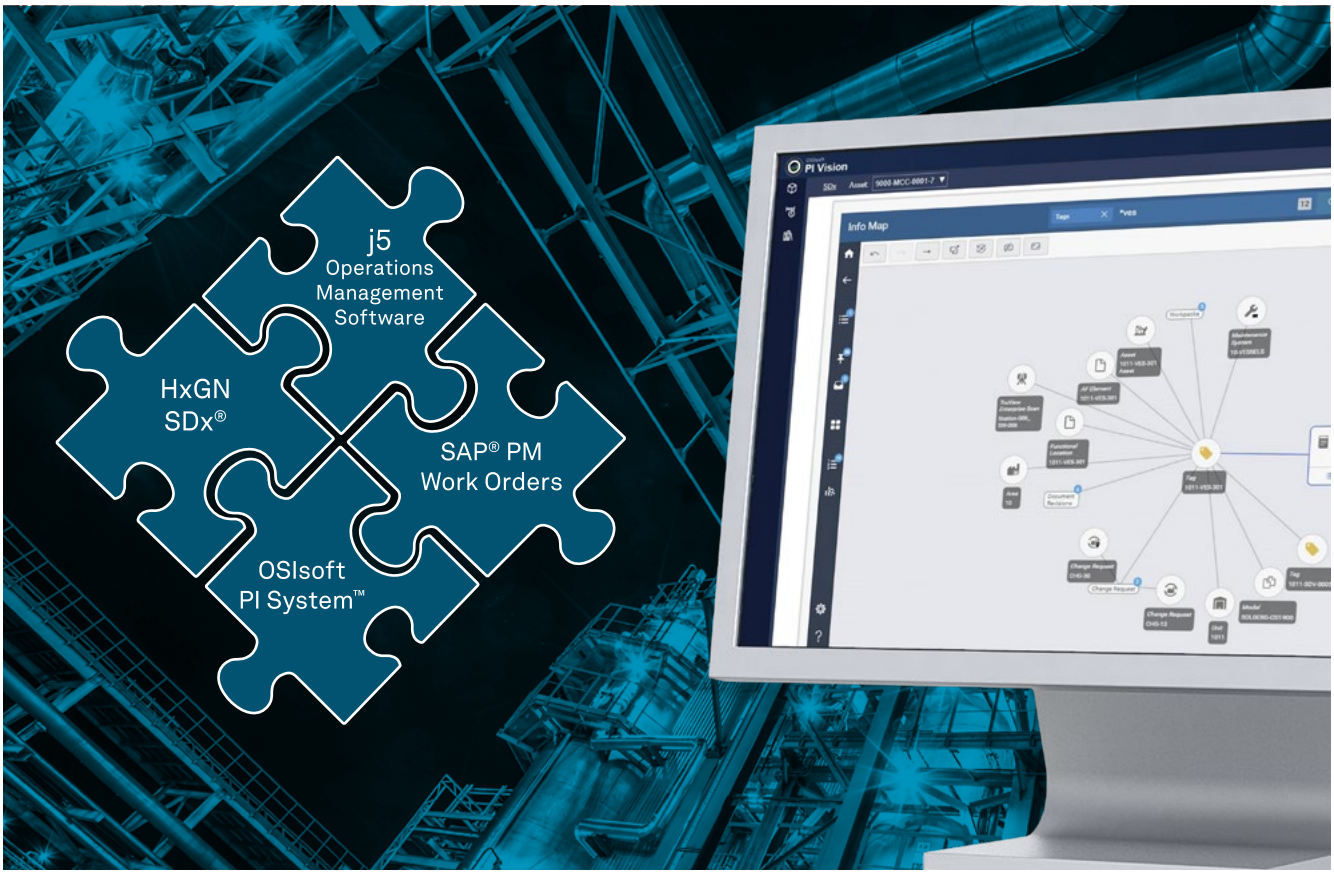
After a safety-critical event

Siloed data problems	HxGN SDx Connector for OSIsoft solution
Limited visibility of remedial actions like Maintenance Work Orders: Information related to incidents is scattered across different records, and the maintenance team does not have quick access to key operational and engineering information related to their Work Orders.	**Plant-wide visibility of remedial actions like Maintenance Work Orders:** Information related to incidents is easily found, and the maintenance team has quick access to key operational and engineering information related to their Work Orders (especially if the HxGN Connector for IBM Maximo® or the HxGN Connector for SAP® PM is enabled).
Double entry: Different departments duplicate the same records, causing inefficiency across the plant and confusion when investigating incidents.	**"Single Version of the Truth":** Different departments view and contribute to the same records, increasing efficiency across the plant and clarity when investigating incidents.
Encourages "walls": When it is difficult to share information, the perceived effort required can lead to employee fatigue and a culture of not sharing data regularly, especially if one department thinks their information is of a better standard to another.	**Breaks down "walls":** Information flowing through departments reduces the perceived effort required to share it and eradicates a culture of not sharing data; different departments can also add value to one information record.
Reduces knowledge transfer: Senior employees cannot effectively share their knowledge if information is scattered, and junior employees may struggle to solve more complex issues as a result.	**Increases knowledge transfer and continuous improvement:** Senior employees can effectively share their knowledge on a single platform to help prevent future problems and to assist junior employees when complex problems occur.
Limited visibility for senior management: Executives cannot easily track the performance of their assets as it is difficult to access all the related information in problem areas of the plant.	**Plant-wide visibility for senior management:** Executives can easily track the performance of their assets and even view a Digital Twin – using 3D Models and Laser Scans – to focus on problem areas (and find the related information such as PI System data easily).

Increase safety awareness and operational efficiency from the plant floor to the boardroom

Streaming PI System data into HxGN SDx is a simple starting point towards developing more comprehensive Digital Twins. To enhance this further, Hexagon is continually developing a unique and powerful solution which combines human operations procedures, maintenance work orders, real-time and historical process data, engineering schematics and technical documentation using HxGN SDx as the central digital platform.

The breakthrough combination of j5 Operations Management Software human procedures, IBM Maximo / SAP PM Work Orders, PI System real-time and historical process data, HxGN SDx engineering diagrams and technical documentation along with 3D Models and Laser Scans allows companies to build and grow comprehensive Digital Operational Twins.



Unite O&M, safety, engineering and real-time data on OSIsoft PI Vision

Hexagon is a global leader in digital solutions that improve productivity and quality for manufacturing, infrastructure, safety and mobility applications. We create Smart Digital Realities™ that empower the future of autonomy across production and urban ecosystems.