BRIDGING THE GAP: HOW THE PI SYSTEM™ EMPOWERED HERSHEY TO SHARE OPERATIONAL INSIGHTS ACROSS THE ORGANIZATION

The Hershey Company has a complex network of manufacturing assets that have been acquired over many years. Gaining real-time operational visibility into equipment is critical to insuring the safe delivery of high quality, great tasting snacks to millions of loyal Hershey customers. At Hershey, engineers and data scientists rely on sensor-based data and insights to help them prevent material, production or process issues that could potentially impact their high standards for product quality and food safety. But the value of operational data isn't just limited to engineers and data scientists.

THE MISSING LINK

Providing operational insights to stakeholders across the organization required Hershey to overcome a variety of hurdles to securely connect and integrate their Operational Technology (OT) and Information Technology (IT) landscapes. To be successful, it was imperative to create standardized data integration and asset data models to enable integration of higher level business systems and operational dashboards.

To achieve their objective, Hershey's deployed OSsoft's PI System as their foundation platform on which to deliver asset integration and intelligence. Hershey leveraged the PI OPC client interface to establish real-time data connections to multiple legacy PLC control systems with an open protocol and without negative impact underlying machine control

performance. When control performance or legacy communication protocols became obstacles, Hershey installed a gateway PLC to bridge the gap. This approach allowed the team to avoid the significant OPEX of replacing legacy control systems to gain operational visibility. Edge devices are now deployed where this lower cost option meets performance and security requirements.

CREATING A STANDARD AND DELIVERING CONTEXT

Once the team had data flowing, it was time to further leverage the PI System to store, transform, analyze and deliver the data. Using OSIsoft's Asset Framework (AF) to contextualize sensor-based data into consentient data models, Hershey created a digital twin of their machine cells, based on a standardized data model created to support their Accessible Information for Manufacturing

CHALLENGE

Standardized data structures while maintaining flexibility for specific applications and use cases.

SOLUTION

Transformed streaming sensor data into meaningful events and notifications.

BENEFIT

Customized dashboards for supervisors, plant managers, and operators.

Real-time Review: The PI System combines OT and IT data in a single one-stop-shop platform.

(AIM) solutions that were built on SAP's Manufacturing Integration Intelligence (MII) platform. With AF, the team gained visibility into specific asset data streams and events within Hershey's plants. "There's millions of events that happen on the shop floor every day, and we want to capture those because we can deal with events," said Russell Gregg, Digital Manufacturing Architect at The Hershey Company, during PI World San Francisco 2018. "Streaming data is just a lot of data."

Hershey leverages AF to provide a flexible and uniform framework to collect and transform operational data streams into a consistent data model that can be delivered to SAP MII platform that is exchanging data with SAP ERP and other Manufacturing Operational Management (MOM) platforms deployed within Hershey. The PI System is the bridge between the world of OT and IT that lies at the center of Hershey's ISA-95 domain architecture, and, according to Gregg, is "a core enabler of our digital manufacturing collaboration."

UNITY BRINGS HARMONY

Hershey's digital architecture has enabled the delivery of operational data and insights that is tailored to specific user needs. Technical workers operating closer to the assets can access real-time insights through standard visualization tools like PI Vision, while those further away can utilize contextualized views more relevant to their functions without the need for deep understanding of the underlying systems. Role-specific dashboards provide machine operators, supervisors and operational managers with status and performance metrics specific to the work cells, work centers and lines for which they are accountable.

By utilizing the PI System, Hershey has been able to create standard asset data models that contain valuable data context to fully harmonize their operational data. Today, with data-driven operational insights, Hershey is continuing its pursuit to deliver a fully integrated digital supply chain that empowers their employees to make real-time, data-driven decisions.

PARTNER: SAP

PI System Components Used:

PI Server™
· Data Archive
· Asset Framework (AF)
· Event Frames
· Notifications

PI Vision™
PI DataLink™
PI Connectors
PI Manual Logger™
PI ProcessBook™
PI WebParts™
PI BatchView™
PI Developer Technologies
· PI OLEDB
· PI ODBC
PI Integrator for SAP HANA™

For more information about The Hershey Company and the PI System, watch the full presentation here.

> *With Asset Framework we are able to create uniform data models, perform required data transformations and easily support edits and additions as the plant production equipment evolves."*
>
> — Russell Gregg, Digital Manufacturing Architect at The Hershey Company.

Gregg, Russell. "Operational Excellence at The Hershey Company" <https://www.osisoft.com/Presentations/Pursuit-of-Operational-Excellence-at-The-Hershey-Company/>