ROVISYS
Automation & Information Solutions

CASE STUDY

A PATH TO PAPERLESS:
NAVIGATING THE BIOPHARMA MES JOURNEY

A paradigm shift towards paperless systems is well underway in biopharmaceutical manufacturing. Leaders in the industry are upgrading systems and facilities in an effort to go paperless. Seamless connections to Historian, MES, and related systems are essential to progress.

THE PROBLEM

A global biopharma company with a cutting-edge production facility in Tuas, Singapore, is undergoing a paradigm shift towards paperless systems. The existing data logging process requires a significant amount of manual intervention, where diverse data and outcomes from a range of instruments and equipment are recorded by hand on paper. This data aggregation involves sourcing information from laboratory instruments and equipment procured from a network of nearly twenty (20) independent vendors.

The primary objective involved establishing streamlined data transmission within the operational technology (OT) network, enabling seamless connection to the PI Historian and eventually to the Manufacturing Execution System (MES). Additionally, client needed data to be easily visualized through PI Asset Framework (AF) and PI Vision.

ROVISYS

The client approached RoviSys to help realize this pivotal objective. Leveraging over 30 years of proficiency and experience in the Life Sciences industry and recognized for automation expertise and seamless integration solutions, RoviSys emerged as the ideal partner to meet the manufacturers technical and strategic requirements.

The transition towards a paperless system demanded close collaboration with instrument and equipment vendors, and stakeholders within the organization that included leadership and operational roles.

RoviSys demonstrated expertise in connectivity and integration across diverse sources and systems, a critical prerequisite for the project's success. With the existence multiple types of lab instruments and equipment, each utilizing different and occasionally proprietary communication protocols, effective vendor management played a crucial role. RoviSys took the responsibility of collaborating with the instrument vendors to extract the necessary data, ensuring a smooth and streamlined process.

THE SOLUTION

Leveraging knowledge of communication protocols and equipment, RoviSys converted all connection types into Ethernet-based connections. This task involved the utilization of Lantronix xDirect converters, effectively transforming serial connections into Ethernet connections.

RoviSys utilized a Kepware OPC server solution to ensure smooth data transmission to the PI Historian server. Kepware was selected based on its ability to communicate effectively using multiple protocols such as OPC DA, OPC UA, Modbus TCP/IP, and Siemens TCP/IP. A dedicated team of two engineers successfully configured the necessary tags on the OPC server, enabling the seamless export of all tags to the data historian system.

The RoviSys team configured and designed the PI AF structure, along with many PI Vision displays. Validation on the displays allows users to quickly view batch data, along with troubleshooting any issues.

THE RESULT

RoviSys has created a seamless flow of data into the data historian, establishing a comprehensive data lake that enables this customer's Manufacturing Execution System (MES) and other associated systems to effortlessly access essential data. Furthermore, users are equipped with a user-friendly interface to conveniently view real-time shop floor data, facilitating swift troubleshooting of operational issues.

Following the successful completion of the initial project, the client has continued to rely on RoviSys for ongoing support in maintaining and expanding their systems. This includes the integration of additional laboratory equipment with the data historian, enabling the client to consistently enhance their data collection capabilities and further optimize their operations.

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